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Agriculture Committee
August 22, 2008

[LR350 LR353]

The Committee on Agriculture met at 10:00 a.m. on Friday, August 22, 2008, in Room 1525 of the State Capitol, Lincoln, Nebraska, for the purpose of conducting an interim hearing on LR353. Senators present: Annette Dubas, Vice Chairperson; Russ Karpisek; and Don Preister. Absent: Philip Erdman; Ernie Chambers; Merton "Cap" Dierks; Vickie McDonald; and Norm Wallman. [LR353]

SENATOR DUBAS: Good morning and welcome to the Ag Committee. I think we'll go ahead and get started. We do have...Senator McDonald, I understand, will be showing up a little bit later so I think most of the senators that are going to be here are here, so we'll go ahead and get started. We'll just do a few little housekeeping things. This hearing this morning is LR353 to look at rural economic benefits on wind energy. So if this isn't what you thought you were going to be at, this is where you are. It's the usual procedure as far as testifying. Fill out the green sheet. You need to turn that sheet into the committee clerk. That's for her benefit as well as yours. If she should have any questions on your testimony or any clarification on anything, that gives her the information she needs to get ahold of you, so please do that. There's also, I believe, white sign-in sheets at each of the doors, so if you are not planning on testifying but want to record your position for the record, you can sign in on those white sign-in sheets. We ask that when you come up to the table, you state your name and then spell it for the record also, please. I ask that you please either shut off your cell phones or turn them on to quiet so that we aren't disturbed. I was at hearings this last week with Senator Loudon, and he said he's going to institute a new policy that if your cell phone rings it costs you a dollar to donate to the Food Bank; and if you answer your cell phone, it costs you \$5 to donate to the Food Bank. (Laughter) So it's a good way to generate money for a good cause, but we would appreciate it if you would take of your cell phones. So I guess with that we will let Senator Preister introduce his resolution to us. [LR353]

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SENATOR PREISTER: Good morning, Senator Dubas. [LR353]

SENATOR DUBAS: Oh, excuse me, Senator Preister. I forgot to introduce the members here, so if you would give me just a moment to do that for the benefit of the group here. My name is Senator Dubas and I'm the Vice Chair of the Ag Committee. Senator Erdman is sticking pretty close to home these days. His wife is expecting their second child around the first of October so she has him on a short leash, and that's the way it should be and that's the way he wants it also. To my left is Senator Russ Karpisek from Wilber. To my right is the research analyst to the committee, Rick Leonard. Melissa Lunsford is the committee clerk. And Senator Don Preister from Omaha, who is going to introduce this legislation, is at the testifier's table, so thank you. [LR353]

SENATOR PREISTER: Thank you, Senator Dubas. My name is Don Preister, P-r-e-i-s-t-e-r, and I am the primary introducer of LR353. In 1993, the year I came to the Legislature, the Union of Concerned Scientists released Powering the Midwest: Renewable Electricity for the Economy and the Environment , which referred to the Midwest as the Saudi Arabia of wind energy because it has more wind resources than any other part of the United States. Nebraska was identified as ranking sixth in the nation in terms of its wind energy generation potential. For several decades many of us, including the Nebraska Farmers Union, have been promoting the development of Nebraska's vast indigenous wind resources, not only as a clean sustainable energy alternative for Nebraska, but also as a valuable economic development tool for our struggling rural areas. In 2006, the federal government established a goal to produce 20 percent of our electrical generation from wind energy by 2030. With Nebraska's tremendous wind generation potential our state can be a national leader in helping our nation reach this goal. The National Renewable Energy Laboratory, NREL, projects that Nebraska will need to develop 7,880 megawatts of wind energy in order to help our nation meet this 20 percent goal. This would result in \$13 billion in investment and \$9 billion in rural economic development in Nebraska and would result in the creation of 29,560 new jobs. In June 2008, the U.S. Department of Energy, or the DOE, forecast

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that Nebraska's development of just 1,000 megawatts of wind energy would result in \$1.1 billion in cumulative economic benefits in Nebraska. Although the construction and operation of 1,000 megawatts of wind power is a significant effort, six states have already reached the 1,000-megawatt mark. According to the most recent information from AWEA, Texas currently has 5,600 megawatts and under construction over 3,000 more. California has nearly 2,500 megawatts currently and more under construction. Iowa, our neighbor, has almost 1,400 megawatts already existing and almost 1,600 megawatts additional under construction. Minnesota has nearly 1,400, Washington has 1,300, and Colorado also has over 1,000 megawatts. All of them have less capacity than Nebraska. Direct benefits include jobs, land lease payments, and increased tax revenues. Indirect benefits include benefits to businesses that support wind farms. Indeed, benefits result from additional spending on goods and services in the area surrounding the development. The projected benefits for Nebraska could be greatly increased by the development of a local wind supply, installation, and maintenance industry within our state. C-BED is important. Nebraska took a decisive step forward in 2007 when the Nebraska Legislature unanimously passed community-based energy development, referred to as C-BED legislation, and enacted sales tax exemptions for C-BED projects. In passage of these policies, three important principles were cited. One, the C-BED model creates significant rural economic benefits; two, the C-BED model is consistent with and maintains Nebraska's commitment to our public power structure; and three, the C-BED model assures competitive electric rates for Nebraska ratepayers. Studies in the past several years confirm that locally owned C-BED wind development projects provide more rural economic development benefits than out-of-state owned and developed projects would. A September 2004 GAO study, "Renewable Energy: Wind Power's Contribution to Electric Power Generation and Impact on Farms and Rural Communities" found that community-owned wind provides 2.3 times more jobs and 3.1 times more economic benefits than out-of-state-owned projects. A March 2006 Oregon State University study, "Umatilla County's Economic Structure and Economic Impacts of Wind Energy Development: An Input-Output Analysis" found "local ownership has the potential to increase earnings or income

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received within Umatilla County by a factor of 3.5 beyond nonlocally owned wind farms." Local ownership of wind farms can significantly increase the potential economic impact of the wind industry for individual communities. Revenue from nonlocally owned wind farms tends to escape the local economy. Resident investors are more likely to finance projects through local lenders and utilize suppliers in their communities. If the local capital could be used to support local ownership of wind turbines, the economic impacts of wind power development may be doubled or even tripled. Land owners and wind rights. One of the important components that factors into the amount of economic benefits realized within the community are the wind rights contracts and leases that are entered into between the developer and the landowner. Senator Dubas introduced legislation last year on this issue and also has an interim study before the Natural Resources Committee. I appreciate her work on this important topic and support her efforts to make sure that landowners are treated fairly and receive good value for the use of their lands. Nebraska ratepayers do support wind energy. Though we're hearing a lot more about rising energy costs and citizens' interest in energy these days, support for wind energy in Nebraska is not new. In 2003, NPPD did a deliberative poll of over 100 of its customers. Ninety-six percent of those polled said they were in favor of NPPD developing 200 megawatts of wind energy even if it meant an increase in their monthly utility bills. Thirty-seven percent of those polled thought that more than 200 megawatts of wind energy should be developed by NPPD. In 2004, the American Corn Growers Foundation RMA Research Inc. poll found that in Nebraska 82 percent agreed that NPPD, as a publicly owned electric power reseller, distributor, and provider, should be required to purchase electricity from farmer-owned wind farms. And 90 percent wanted rural electric cooperatives to work with farmers by facilitating wind turbine connection to their power grid. In March 2005, a separate poll was conducted by the University of Nebraska Center for Applied Rural Innovation. The center received 2,851 responses from 6,250 randomly selected households in 84 of Nebraska's rural counties. Nearly 90 percent of respondents believed the government should encourage the use of renewable energy sources. Sixty-five percent also believe alternative energy sources are better for the environment than traditional fossil fuels, while more than 70 percent of

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respondents believe 10 percent of Nebraska's electricity should come from alternative energy sources, and 84 percent said wind power can be produced and used locally. These are remarkable numbers on any issues. In conclusion, Nebraska is uniquely positioned to be part of the nation's solution to move towards clean energy generation and energy independence. We have tremendous wind resources. Landowners are interested in investing in wind development or leasing their land for wind development, and C-BED statutes are in place to support the ownership model which brings the greatest economic benefit to our rural communities while preserving public power. As Nebraska moves forward in developing its wind resources, it is important we continue to support policies that support our traditional system of public power that has served our state so well for decades. Investments in wind energy are not only investments in energy security and clean energy, but they are investments in the welfare of Nebraska's citizens and communities and the vitality of our rural way of life. Finally, I want to make you all aware that the Nebraska Wind Working Group is hosting a wind power conference at the Holiday Inn in Kearney, Nebraska, on November 11-12. There will be workshops on a number of topics, including small wind, landowner issues, financing, and transmission. Senator Cap Dierks, John Hansen, and I serve as cochairs of the Wind Working Group. The Nebraska Wind Working Group receives financing from the National Renewable Energy Laboratory and Wind Powering America. Hopefully I'll see each of you at the conference. Further information on the conference can be found on the Nebraska Energy Office Web site at www.neo.ne.gov. I would also like to thank committee counsel for providing the memo with some information, including information about the support for wind energy and rural economic development and also including the economic benefits and some of the study that was done that I cited in my testimony, and two agreements, power purchase agreements from NPPD that are included there for two of the C-BED projects that have been completed. I also...if I could get the page to provide some handouts I have that I'd like entered into the record. (Exhibit 1) The first one is from Third District Congressional Representative Adrian Smith, who is in support of developing wind energy and sends his congratulations for the committee holding the hearing and support for it that you can see, and asked that that be entered into the

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official record. And there is also a letter that is requested to be entered into the permanent and official record that is included by LaVern Raabe. And then there is also one to enter into the record by Ed Toribio, and one by Shelagh Keleyhers. And Madam Chairwoman, if I could ask--there could possibly be one or two other letters that will come--if the official record could be left open to say perhaps Tuesday, and if those letters come in over the weekend or Monday we would get them to your committee office to be included. With that I would be happy to entertain any questions. [LR353]

SENATOR DUBAS: Thank you, Senator Preister. Do we have any questions from the committee? I guess that's you and me. (Laugh) No questions right now, Senator Preister. Thank you. [LR353]

SENATOR PREISTER: Thank you, Senator. [LR353]

SENATOR DUBAS: Who would like to be the first testifier on LR353? Please come forward. And if you do have any handouts, just please leave them on the table and our page will hand them out for you. [LR353]

PAT STEAR: My name is Pat Stear. I live in Lincoln but I do have 20 acres southwest of Denton, and I just want to give my appreciation and thanks for the intelligent research done on this issue. I've been rather passionate about this... [LR353]

SENATOR DUBAS: Excuse me, Pat. Could we have you spell your last name for the record, please? [LR353]

PAT STEAR: Yes. S-t-e-a-r. [LR353]

SENATOR DUBAS: Thank you. [LR353]

PAT STEAR: Yes. Thank you for doing the research and promoting this idea in

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Nebraska. It makes me very proud to hear the committee working on such an intelligent issue, and I hope that we will be at the very forefront in this country of developing this wind energy and hopefully solar energy later. And I'm very anxious to find if my 20 acres would be potential use for using wind energy. So I just wanted to thank you. [LR353]

SENATOR DUBAS: Do we have any questions for Pat? We have a question for you if you would like to sit down, please. Yes, Senator Preister. [LR353]

SENATOR PREISTER: Thank you, Senator Dubas. Pat, I appreciate you testifying today. Are you potentially interested then in perhaps your own generator on your farm that you might connect to the system, and if a favorable net metering bill was enacted that you would be interested in that yourself? [LR353]

PAT STEAR: I'm absolutely interested and I have noted in the calendar the date of your conference. I plan to be there and find out more. I want to become more educated in this and find out if my acres would work--so, yes. [LR353]

SENATOR PREISTER: Good. Wonderful. Thank you for answering that. And I noticed that you have two young people with you today. Would you care to introduce those two people? [LR353]

PAT STEAR: I'd be happy to. Girls, can you come here please? [LR353]

SENATOR PREISTER: Since we have some young attendees, it's nice that they're here to see government at work. It's nice that we can recognize them. [LR353]

PAT STEAR: This is my youngest daughter, Claire Funning, and our neighbor Leilani, and I am their tutor. So, yes, we thought this would be a great introduction to their first year of homebased education and to see how things are put together in our state. [LR353]

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SENATOR PREISTER: Wonderful. If they would each spell their name into the microphone, they would be on the record and we can send you a copy of the official record. [LR353]

PAT STEAR: Okay. Can you spell your name? [LR353]

LEILANI: L-e-i-l-a-n-i. [LR353]

CLAIRE FUNNING: C-l-a-i-r-e. [LR353]

PAT STEAR: Can you spell your last name, please? [LR353]

CLAIRE FUNNING: F-u-n-n-i-n-g. [LR353]

SENATOR PREISTER: Thank you. Thank you for coming today. [LR353]

PAT STEAR: Thank you. [LR353]

SENATOR DUBAS: Yes...one moment, please. [LR353]

SENATOR KARPSEK: Just a comment. I'm sure we'll get to this, but Senator Preister brought up, I think, an important point that we have more the small wind and the large wind. And I think that we need to keep both in mind as we go through this, because right now in my area we're talking large wind is starting to come in. But I think maybe your idea of a smaller project or to go in with a bigger one, but I think we just need to...I hope that that comes out today, and I just wanted to point that out when Senator Preister brought it up. So thank you very much. [LR353]

PAT STEAR: Yes. And my parents do live out east of Cambridge, Nebraska, and have

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some high prairie, so this is also a potential maybe larger wind energy area. [LR353]

SENATOR KARPISEK: Thank you, Pat. [LR353]

SENATOR DUBAS: Thank you very much, Pat, for coming and bringing the young people with you. Turn that into the clerk. Thank you. [LR353]

KENNETH WINSTON: Good morning, Madam Chair and members of the Agriculture Committee. My name is Ken Winston; last name is spelled W-i-n-s-t-o-n. And I'm appearing on behalf of the Nebraska Chapter of the Sierra Club. And I guess while we're talking about personal things here just for a moment: Pat lives in the house that I lived in for 12 years in north Lincoln, so its just a personal note anyway. (Laugh) And actually I found that house to be fairly...a very energy-efficient and a design that perhaps we should copy. It's an older house but it makes very good use of shade and ventilation to be energy efficient, and a lot of modern house don't do that, and so I think that's...sometimes we overlook those kinds of things. So just a personal note about the hearing. And I guess that fact that she got up here and introduced her daughter and the neighbor kid, it was like it brought flashbacks to my living there and the kids that played in the neighborhood back in the day. So anyway, pardon me for my personal interjection into the testimony here this morning. Well, I'm going to talk a little bit about one of the things that the Sierra Club is very interested in at the present time: job creation. And there's a group of organizations that have come together; The Blue Green Alliance is what it's called, and I believe their information can be found at bluegreenalliance.org. And so if you want to check out any of the information that I talk about--it's all just one word--and so if you want to check into any of this information it certainly would be something that we would encourage you to do. There's a number of different organizations. The National Sierra Club is involved with it; the Natural Resources Defense Council; the League of Conservation Voters; a couple of unions, in particular the Steel Workers Union on the national level. And as I said, I think it's...did I say all four of them? Anyway, those are the organizations that are involved in this effort, and what

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they're doing is they're looking at ways that a green economy can help create more jobs. And one of the things that we're talking about, as Senator Preister talked about, is how wind resources can create jobs. And that's a very important aspect, and we think we need to look into that and that needs to be developed because we have tremendous resources. And as many of you know, T. Boone Pickens was in town on Wednesday, and although I don't necessarily agree with all of his message, it's heartening to see that renewable energy could get that kind of attention. Supposedly there were 1,200-1,500 people in attendance, and of course I know that...well, obviously there's substantially fewer people here in this room, but the difference is there may be more people who can make changes with regard to policy in this room than there were in that room at that time, so--although a couple of Senate candidates were present at that meeting, as well. I guess the reason that all of this...and I guess in addition to the idea of providing more opportunities for wind through the C-BED model, I think we need to make sure that the...and we're pleased to see that the public power districts are supporting this or appear to be supporting the C-BED model. And as a matter of fact, I was at a hearing before the Lincoln Electric System on August 5, and the general manager of the Lincoln Electric System noted the C-BED as an important model for renewable energy development in the state. So I believe it's something that's working and it is a model that provides economic benefits for people in the state, and so I think that's something that we need to continue to encourage. Well, one of the other things I think we need to look at is, because of the fact that we are a public power state and because of the fact that the state of Nebraska has a great deal invested in public power and it's worked well for us, I think we need to consider incentives for public power to continue to develop renewable energy. And in particular, as Senator Preister mentioned, the idea that individuals would be able to hook onto the grid, I think we need to look at ways that...we've heard for years that it's a burden on the utilities for them to allow individuals to hook onto the grid. Well, if that's the case, although Senator Preister has some data that would indicate or has presented data at various times that would indicate that to the extent it is a burden, it's very small burden; then let's find ways to allow the...let's provide incentives for the rural electrics and for the public power districts to encourage

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their ratepayers to, their own customers, to develop their own power plants and to hook onto the grid, and I think that's something that we need to encourage. In addition, I think the model that was created by LB1001 that was passed by the Legislature last session, I think that may provide opportunities for incentives for the public power districts to develop more renewable energy, which involves a kind of rebate for the sales tax that the public power districts pay. And I think that's something that ought to be examined and that needs to be considered in terms of, to the extent that a public power district would use those funds for...I mean, similarly they could be matching funds that could be available for a public power to develop those kinds of resources. And I guess just for the record, as I indicated I did testify...well, I testified both in front of the...at the Lincoln Electric System hearing and then also subsequently at the city council hearing in Lincoln related to their budget, and at that time made a commitment to support their efforts to develop more renewable energy and to do more in the way of energy efficiency. And I guess that's the second half of what I wanted to talk about, is that there is a lot of opportunities in energy efficiency, as well. I mean, it's not just putting up wind towers, wind turbines, although there are lots of good jobs in that area. But there's lots of opportunities, and LB1001 represents the first opportunity; that's the low-income energy conservation fund that was passed last year by the Legislature. But that would provide a funding source for the public power districts to fund energy conservation measures in the homes of low-income individuals, and some of those homes are some of the worst energy hogs in the state, which means that energy is wasted. It also means that those homes are uncomfortable and sometimes dangerous, and it also means that a lot of low-income people have very high energy bills. So we could do three things at once by supporting these kinds of endeavors. One is that you would lower their energy bill; second, you make their home more safer and more comfortable; and thirdly, you lower their energy costs. And I guess the fourth thing that I'm mentioning today is the fact that you're creating jobs. There is a slump in the construction industry. This would be an opportunity for many people in the construction industry to get involved in "rehabbing" homes, and retrofitting windows, putting in insulation. As I said, that house that I lived in over on T Street was a very tight house; it was well-insulated. Even

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without air conditioning, on a typical summer day it was a comfortable house to be in. I don't know what it's like today but it used to be that way. And so I think that if we work on making sure that houses are well-insulated and that they have good windows, good insulation, good heating plants, good electrical systems, there's lots of energy savings there and we can really save a lot of money, but we can also create jobs and provide opportunities. Now, what kinds of jobs are we talking about? Well, there's jobs for electricians. One of the areas that electricians are going to be used is in putting up and maintaining the wind towers that we're talking about. And if we're going to meet the kind of goals that Senator Preister is talking about, we're going to need a lot of those folks; and those are good-paying jobs. Right now, a lot of those folks...there's a bunch of people who live in Omaha who go over to Iowa to work on the wind farms over in Iowa because of the fact that that's where the jobs are, and so you have electricians that live in Nebraska that are getting jobs to put in these wind turbines in Iowa. And then, of course, the big push is in the original installation, but they're also going to need to be maintained. I mean, these do require maintenance on a regular basis. Then the second thing is there's going to be lots of jobs for carpenters and construction workers; lots of opportunities for people to work on homes in terms of retrofitting the homes. And a typical wage for a carpenter is \$15 an hour, a typical wage for an electrician is \$19 an hour. There's various kinds of machinists. Well, something that would be good would be if we could...if we are going to start having more renewable energy in this state, hopefully we'll start manufacturing some of the components here, and I've heard that there are some plans to do that. And then welders are also going to be vital in terms of construction of the putting up of the towers, and these are people that are also well-paid. And then, of course, truck drivers to transport the blades and the towers; those are also good jobs. Now, at the present time there are nearly 86,000 jobs involved in all of these different kinds of areas. Now, would we create 86,000 new jobs? Well, I can't say that. But if we could create new jobs, if we can retain people in the state, that would be a huge economic benefit, and particularly when we're talking about these being good-paying jobs and not just some low-wage service-sector job. And it would create many opportunities and I think that these are opportunities that we should take

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advantage of. And I'm sorry for rambling a bit this morning, but I appreciate the opportunity to testify and would be glad to answer questions if I can. [LR353]

SENATOR DUBAS: Thank you, Mr. Winston. Any questions for Ken? Seeing none, thank you. [LR353]

KEN WINSTON: Thank you. [LR353]

SENATOR DUBAS: Next testifier. [LR353]

ROBERT BYRNES: (Exhibit 2) Good morning, Chairman Dubas and members of the Agriculture Committee. My name is Robert Byrnes, B-y-r-n-e-s, and I hail from Oakland, Nebraska. I'm here as a renewable energy developer with a focus area in particular with small wind; however, because any renewable energy developer in the state that's focusing only on small wind development is probably pretty hungry, so there's other things that we're doing, as well, regarding biofuels, to pay the bills. Thank you, Senator Preister and Senator Dierks for supporting this resolution so discussion on this important topic can be maintained, tremendous opportunities remained untapped in Nebraska with wind energy. The potential for significant economic development in Nebraska through the development of wind power is clear. The impacts of large megawatt wind farms built along the C-BED models are the most obvious examples of this opportunity, and I support this development, but this will certainly be covered by others in greater detail. And I agree with...I echo Senator Karpisek's message about the separation of small and large wind, because they are two different animals. I would like to discuss the not so obvious forms of economic development that can occur by utilizing wind energy. Small wind is that typically defined as anything less than 100 kilowatt-hours of capacity. The systems in this capacity range offer tremendous opportunities for rural areas to locally capture and utilize the wind energy all around them. These smaller systems provide decentralized local power inputs to areas far away from the large generating facilities. Such inputs reduce transmission losses over

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these great distances, and these smaller systems can be installed in irregular terrain unsuitable for larger machines. While a dozen or so large wind farms might be built in Nebraska, hundreds or potentially thousands of smaller wind turbines could also spread across our state instead of the current handful that we currently now have. The few small wind energy-focused firms in the state are struggling to exist in Nebraska. The installation, monitoring, and maintenance of hundreds of small turbines across the state would dramatically improve the opportunities for Nebraska-based small businesses to bring this economic development opportunity into their communities. Development of small turbines across the state would keep dollars within Nebraska that would have been otherwise spent importing energy and end up leaving Nebraska. Such investments now will pay bigger dividends later over the 20-year expected life span with electrical rates charted to increase sharply in the next 3-5 years. These decentralized systems can also provide backup power capability during grid outages. This need was clearly noted after the ice storms of two years ago that required folks to leave the farm and move to town for power. Investments into the decentralized production of electricity must be encouraged and supported. I recommend that discussions of wind development be considered as termed as "renewable electricity." This change would allow the topic to be more inclusive to other renewable inputs to the electrical power grid, like PV solar, methane digestion, new carbon gasification, solar concentrating steam turbines, commercial geothermal electricity production, biofuel-driven generators, hydrogen, etcetera. When we only talk about wind and biofuels, we leave out so many other opportunities that are expanding every day, which all result in a more renewable grid. Many of these technologies can provide the high-value firm power, on demand as the utilities prefer. Methane digestion is an excellent example of a massively underdeveloped opportunity to address livestock industry issues while producing green electricity. When is the last time PV solar energy was discussed in the Unicameral? It uses no water, makes no noise, has no moving parts, and utilizes our little-known number 9 ranking in solar energy potential. We have essentially nothing installed so I wouldn't be surprised if we were in the bottom five states. My point is, we should expand the discussion--and C-BED--to be potentially more inclusive of the array of technologies

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currently available. This leads me to my outlook on how to develop renewable electricity using locally owned and operated systems that could be extensively deployed across Nebraska. Nebraska is sorely in need of an updated energy plan with goals and benchmarks to achieve those goals. The discussions that we do have in Nebraska, such as this--which I commend--have no context or framework without a sound energy plan. Without an RPS that covers all of our energy inputs, we are trying to build a house without a set of plans. The voluntary goal of 10 percent renewable electricity inclusion on the grid in 12 years outlined by public power, is inadequate and without teeth. If we are serious about developing agricultural and renewable energy resources, we need to update our energy plan, set goals, and mandate that benchmarks be met. The people of Nebraska have clearly stated this is what they want, and I encourage the members of the Legislature to ensure this is implemented. If a more productive environment is not created in Nebraska, we will be having these studies in the future, year after year, as has been the case; scratching our head, wondering why Nebraska is so far behind. State government can only prepare the ground. Private industry must come in and plant the seed. Nebraska has developed a number of programs to foster economic development in general, and many have shown great return on taxpayer dollars invested. Currently, the ethanol boom would never have happened without incentives and creating a welcoming environment. Such an environment is badly needed for small renewable electricity generators. The majority of Nebraskans that want to install such systems are generally greeted by attitudes that vary from neutral to hostile towards such developments. It has formed into a type of "castle mentality" and a "utilities versus citizens" environment that is leading us nowhere fast. If public power will not get serious about supporting citizen-based renewable energy production, the need for detailed mandates is clear. Without an updated energy plan, RPS, net metering, tax incentives, grants, and other signs of support, opportunities to develop decentralized renewable energy production in rural areas will continue to languish. Aggressive leadership is needed in this area to resolve this impasse. And I'll make a brief mention here that our Lyons renewable energy project did get some press recently in the Omaha World-Herald, and that is a project that is including wind energy as part of the green

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rural economic development program that we're establishing there. And then I'll finally just note that we do have--I just came from State Fair Park this morning--we do have a green corridor established in the marketplace at State Fair. We have a number of wind turbines, solar thermal PV, hydrogen, and biofuel displays available, and I'd encourage you all to attend. [LR353]

SENATOR DUBAS: Thank you, Mr. Byrnes. Any questions for Robert? Senator Preister. [LR353]

SENATOR PREISTER: Robert, I appreciate you being here and your dedication to renewable energy. I take note of your comments about being more inclusive with the various types of renewables, and I certainly concur. Also note your suggestion of having a plan. You don't get there unless you have a good set of plans, and so I appreciate what you're saying there, as well. Is there anything that you could tell the committee about the Lyons project that might be helpful; the project that you're doing and how things are going with it? [LR353]

ROBERT BYRNES: I'd be glad to. Thanks, Senator Preister. The Lyons project...Lyons is our hometown. We do have our off-grid farm in Lyons, Nebraska, to demonstrate the agricultural renewable energy closed loop system there that we're developing. In the urban arena it's things that are a little bit more challenging in terms of the technologies that can be applied. Our project started around the beginning of the year with a survey of citizens, and we received over 60 percent response of Lyons' residents, and all of them as typically we find were overwhelmingly in support of renewable energy coming to Lyons, Nebraska, and being implemented. So with that we presented that to the city council, and the city council issued a renewable energy-friendly city proclamation, and I think this is a very significant political statement in that Lyons is declaring themselves open and available and willing to support a renewable energy-based economic development within Lyons. Projects that we have ongoing currently are a decentralized oil seed crush facility that has a wind turbine within city limits to run our business office.

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We've also started a Nebraska Green Fuels Cooperative. We just got our...the corporation is underway right now, and this is a gas-free gas station, again moving into old abandoned buildings within the city limits. We took over the old empty gas station in town and will be distributing renewable fuels only: ethanol, biodiesel, vegetable oils, and distilled water for hydrogen kits. This facility will also accomplish the vehicle conversions required to allow their utilization. One of the most amazing things is the ripple effect of the economic development that occurs. Nebraska Green Fuels has not even sold one gallon of fuel, yet there have been two other businesses that have come to Lyons to associate themselves with that project. So it's neat to see how the ripple spreads, and one never knows what all will come of things, but it is a tremendous opportunity. And as folks look across Nebraska at the opportunities that exist in existing buildings and infrastructure that is currently unused, cities that have a green portfolio, so to speak, stand out from the pack, and that's exactly what we saw with Lyons. [LR353]

SENATOR PREISTER: Okay. Thank you. [LR353]

SENATOR DUBAS: Other questions for Robert? I have a couple for you, Robert. At one time I had heard that even if someone wanted to put up a small wind turbine that it would almost be impossible for them to get one without an extensive waiting period. Are you finding that to be true? Is that an issue? [LR353]

ROBERT BYRNES: There is...it is a very active...outside of Nebraska and most...not just Nebraska. But in some states it is a very brisk market; in other states not so much, and there's a number of reasons for that. The suppliers I work with do not have any issues in getting turbines, but I will imagine as--I'm sure some do--and I would imagine as electrical rates continue to increase, this will continue, but I'm not aware of any waiting lists for equipment at this time. [LR353]

SENATOR DUBAS: Okay. That helps. I too would like to echo what Senator Preister said about your comments regarding a plan for the state. I think that is critical if we are

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going to expand outside of just wind or just ethanol or what have you. And it's my hope and my intention that with the elevation of the Energy Office to a cabinet-level position that we are going to be able to work with that office in putting a plan forward that's going to give us direction and leadership and move us up into the position that I feel Nebraska needs and should be in to show the rest of the nation what renewable energy development can do, not only just for providing us energy but also the jobs and economic growth that comes with it. So I appreciate your comments and that's an issue that I will continue to pursue. [LR353]

ROBERT BYRNES: I again just to echo that, I would apply...I learned in the military about the backwards planning process. I think the people of Nebraska have echoed where they want to be. I think where there's goals out there, we need to set aggressive goals and apply a backwards planning process of how we're going to get there. If we don't have so many megawatts installed by 2010 or 2012 or 20..., we're not going to make it. So I think the benchmarking and the goal setting in the interim period is critical. And I like the analogy--and I was pleased to come up with it at 2 o'clock in the morning--of building a house without a plan, and I think that's exactly what we're trying to do. If we don't have a sound foundation and a road map of how we're going to get where we want to go, we're just...it's just random. So thank you. [LR353]

SENATOR DUBAS: I couldn't agree more. Thank you, Mr. Byrnes. Next testifier.
[LR353]

LaVERN RAABE: I turned mine in earlier. This is my first attempt at anything like this, and if the find senators are open to a suggestion my previous experiences at this everybody was dressed alike... [LR353]

SENATOR DUBAS: Excuse me. Could I have you state your name and spell it, please?
[LR353]

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LaVERN RAABE: Yes. LaVern Raabe; R-a-a-b-e. And you have...some of you have been blessed...and it was my mistake; I sent it to the wrong committee but I will get it corrected. My comments are included and they were addressed to Senator Preister. Give me benefit...my background is I was a mechanical engineer; worked for a jet engine company. The last nine years I was the lead engineer for demonstration gas turbine air-breathing engines. I, first of all, express my deep appreciation and thanks to Senator Preister for all his effort in this area. I don't want to go any further without pointing out Robert Byrnes, who is probably, if not in this state, certainly in northeast Nebraska, the most resourceful individual that walks the soil up there. I find it interesting that he can't decide if he's from Lyons or Oakland, and I think that might be a subject for an investigation, maybe in Senator Chambers' last days, but be that as it may. I happen to support the mix of small and large wind energy. I think that we need to branch out. We need to establish where our roadblocks are and get this going. I know of no corporation in the United States, large or small, that would sit on the resources of this state in this area and not try to utilize it. I do not understand...Senator Preister cited the amount of installed energy in neighboring states, and he did include Minnesota, although I don't think we would touch them--but it's an embarrassment. I'm going back to Ann Arbor, Michigan, this coming Sunday afternoon. When I go there I will pass at approximately mile post 73 on Interstate 80 going eastbound there will be five brand new wind turbines erected; up but probably not running. That will be approximately more than 25 percent of what's going in up at Bloomfield. When I came out approximately two and half weeks ago all the parts were laying on the ground. I've observed this over the past couple of years, driving back and forth. You go down 80--it doesn't matter which direction you go--what do you see going east? Hay. What do you see coming west? Windmill parts. In a previous letter to Senator Preister, I said all you guys had to do was go out on Interstate 80 out there on 10th Street, put a Web cam, and start watching. It's amazing. I encourage the state, senators, its Legislature, to move out on this problem and figure out where our roadblocks are and get moving. And I thank you for your time. [LR353]

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SENATOR DUBAS: Thank you, LaVern. Do we have any questions for Mr. Raabe?
Thank you very much for coming forward. [LR353]

CLINT JOHANNES: Good morning. [LR353]

SENATOR DUBAS: Good morning. [LR353]

CLINT JOHANNES: (Exhibit 3) Chairperson Dubas, members of the committee, my name is Clint Johannes; C-l-i-n-t J-o-h-a-n-n-e-s. I live in Columbus, Nebraska. I work for the Nebraska Electric Generation and Transmission Co-op. We represent 22 rural power districts and cooperatives and purchase energy for them from the Nebraska Public Power District. I'm here today representing the Nebraska Power Association. That's an organization I don't know if you're familiar with or not, but that's a voluntary organization that represents all of the consumer-owned power industries in the state: the public power districts, the co-ops, the municipalities, and so forth. NPA, the Nebraska Power Association, has several committees, one of which is the joint planning subcommittee which I am chairman of. That committee prepares reports. It does some statutory requirement reports for the Power Review Board. Just as an example, one of the documents that we prepared for the Power Association is entitled "Renewable Energy Background and Outlook for Nebraska Electricity Consumers: A Reference Document by the Nebraska Power Association," a reference document by the Power Association. And if you haven't received a copy and would like a copy, we'd certainly make it available. It's a reference-type document. It doesn't necessarily draw conclusions or make recommendation, but it does have a lot of good information about Nebraska's situation in rural energy and how we might fit into that. I just provide that by way of example of what the committee does. They asked me today, the Power Association asked me today to represent them and give you some summary statistics and information on the economic benefits of our members' various renewable energy resources, which total at this time 73 megawatts. A major portion of Nebraska's renewables other than hydro, of course, are wind resources, the largest being NPPD's

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Ainsworth wind farm with 36 turbines; a total of 60 megawatts, which could serve about 19,000 homes. Also MEAN, Municipal Energy Agency of Nebraska's Kimball farm has 7 turbines; 10.5 megawatts. And then you're probably familiar, LES has a couple turbines here up along Interstate 80, and OPPD has a turbine by Valley. Examples of the economic benefits--which for MEAN's Kimball farm, it was built in 2002. They had a peak construction work force of about 30 people; cost about \$14 million. It took about six months to construct. The only domestic components were the blades and towers, which were manufactured in the Dakotas; the others were foreign. Maintenance on this facility of a routine nature is performed out of Cheyenne. There are payments to landowners which are a benefit--about \$14,000 per year, and there are also some transmission line payments that go to agencies in the area. As far as NPPD's Ainsworth farm, it was constructed in 2005; about \$81 million construction cost. There were about 92 workers at one time, on the site. Components came from all over: Denmark, England, North Dakota, Canada. There are six full-time employees assigned to the facility. As with most projects, economic benefits are much higher during construction and then they're smaller during the operating period. They go up some if there are some significant maintenance period. And that facility has landowner payments of \$2,000-\$3,000 per turbine per year. Economic development potential for wind generation is similar to other construction projects, as I mentioned. Benefits are highest when you construct them, and then they tail off, and, of course, then they level off at the maintenance operation level. Wind generation normally will require about one technician per six turbines, and they would be salaried about \$40,000-\$50,000 per year, so that is a significant benefit. A new facility that was built by Katanna Summit in Columbus will add benefits to that area. That company now has a plant in production, and it manufactures 80 meter--the big wind tower--turban towers. They have 175 employees now and are expecting to rise to 200 employees and to produce 300 towers per year. Nebraska location, because of our--in kind of the center of the wind area of the state--is good for the wind industry with fast access to those other states within this great potential. Manufacturers of large wind turbines, turbine blades, turbine towers, and associated businesses are looking to Midwest locations to better serve the wind

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industry. The continued attraction of these types of manufacturers to Nebraska represents an opportunity for us. Nebraska has generally had success in economic development, wind, and that industry, it's important to them to have low electric rates because we have low electric rates. So it's important that we keep our rates lower so we can continue to attract all industry, but I'm thinking now of wind-type industry to Nebraska. Thank you for your time. I'd be happy to try to answer questions. [LR353]

SENATOR DUBAS: Thank you, Mr. Johannes. Any questions? Senator Preister. [LR353]

SENATOR PREISTER: Clint, where are we in terms of training for people who would work on and service the turbines? I imagine there would be some additional learning for an electrician or someone who works for the utility to have more specialized knowledge of the generators, but is that training available here in the state? Is there a community college that does that? How does that training fit in with your existing employees and what's the availability? [LR353]

CLINT JOHANNES: Yeah, I don't have personal knowledge of that specifically, but just from a general point of view these would be the sorts of individuals that we would use at, for example, our power plants and our substations with our relaying equipment, and so forth. I don't know that there's necessarily any really unique equipment here that we wouldn't already have people that have comparable sorts of training. Maybe someone else that's more familiar with that could give you more detail but that would be my take on it. And so they would get their training at the community colleges or wherever we have...the utilities have extensive in-house training facilities that they also provide, and I'm sure that they would, if there was something unique, could gear up to help with that themselves if it's not available. [LR353]

SENATOR PREISTER: Okay. Thank you. [LR353]

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CLINT JOHANNES: Sure. [LR353]

SENATOR DUBAS: Other questions? Mr. Johannes, do you know if there are other companies who are, right now, actively looking at coming to Nebraska, whether it's building additional turbine or...? [LR353]

CLINT JOHANNES: I don't have personal knowledge. I understand there are and I know they're working with them, because it's an opportunity that we see because we are...the Dakotas have a lot of wind, Kansas has a lot of wind. It would be a good opportunity. We have good low electric rates. And I know they're working with them and I can't tell you the specifics of any. [LR353]

SENATOR DUBAS: Thank you very much. Appreciate it. [LR353]

CLINT JOHANNES: Um-hum. Okay, thank you for your time. [LR353]

SENATOR DUBAS: Next testifier. Mr. Hansen, do we have our technical glitches worked out yet? [LR353]

JOHN HANSEN: (Exhibit 4) Unfortunately, no. For the record, I regret to say that my name is spelled J-o-h-n H-a-n-s-e-n, and admit that I've been the source of all the this distraction so far. But we're not able to, for reasons that are less than clear, doing the normal sets of tricks that have worked so well down through the summer, get the signal from the laptop to the screen. So you have the PowerPoint in your packet, and if I may I could walk you through that PowerPoint. Unfortunately, the folks in the audience just won't be able to see it. I am the president of Nebraska Farmers Union and I appear before you today as their president and also lobbyist. And before we get to some of the materials in the packet that I have for the committee, would say that we have been a part of the outreach effort from the National Renewable Energy Lab this past several years, and we have been doing education and outreach around the state of Nebraska

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on wind, wind information, and all of the facets of it, from the potential to the regulatory side, to all of the issues that come up from siting and transmission and all of those things. So as we have been doing these meetings,--we've held 25-30 meetings in the last two and half months from one end of the state to the other--these meetings have been well-attended. There is enormous interest, and at this point the requests for opportunities to come into rural communities and make presentations comes from the rural economic development folks, the mayor's office, local landowners, the Extension, the RC&Ds, all different kinds of folks, and that we are swamped with requests to do public outreach meetings and that our phones just continue to ring off the hook with a wide range of issues, a lot of it centering on how does all of this work, how could we be a part of this, all of the landowner questions relative to contracts. It's very difficult for landowners to know whether or not they're being offered a fair contract when all of the nondisclosure procedures are there, and they've never seen anyone before. The lawyer that they hopefully take it to has never seen a wind contract before; not familiar with the particulars of a wind contract; wouldn't have an idea of what the industry standards are either in terms of the particulars and the normal conveyances and all that goes with that, much less the going rate for easements and all of those things. So the pot is boiling with interest in rural Nebraska on wind energy and rural economic development, and so what I hoped to do today was to just open with that and say that we have also been working with the Nebraska Department of Economic Development relative to recruitment of all different kinds of manufacturers to Nebraska. We're struggling right now because of a national problem, and that problem is the failure to move forward with the extension of the production tax credit. And the failure to do that sends all kinds of shock waves through wind development sectors, from developers to manufacturers to everyone in-between, and so our priority is to try to get that extended yet that year. The failure to do that will bring all kinds of problems to wind development very quickly, and the failure to have a long-term extension of the production tax credit has meant that the United States has just really missed out in its opportunity to do what it needs to do to actually move forward in a meaningful way by sending out a strong, consistent, strong long-term commitment to wind energy to hopefully get more folks coming back into the United

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States and saying, this is a place where we know that we're making a long-term commitment and we're going to build a manufacturing base here. So a lot of the manufacturing capacity that we have comes from Denmark, from Europe, from India, and so all of the transportation problems, all of the energy-based problems, and then the value of the dollar makes all of this increasingly difficult and expensive for wind energy right now. So we're struggling with all of those issues. And so if I might, why don't we walk through some of the more preliminary data, some of which you may or may not have, but we draw your attention to the handout that you have. "Economic Benefits...1,000 Megawatts of New wind Power in Nebraska" is this particular handout. This is a 30,000-foot look using industrywide standards. It assumes that everything in Nebraska would be similar to...in terms of wind development, would be similar to how it would be done elsewhere; it's just using widely accepted kind of industry standards for economic activities and all of those things. But when you look at 1,000 megawatts of wind in Nebraska, and especially as we work through this packet relative to Nebraska being a part of the national efforts to meet 20 percent of the nation's electrical generation from electricity by the year 2030, that then 7,880 megawatts is the projected level that Nebraska would be, and that's also a 30,000-foot estimate. But looking at where the wind resources are in the country, obviously Nebraska is one of those states. We're sixth in wind and we're obviously going to need to be able to be a part of a national transmission generation and line development in order for us to get to the point where we're able to take our excess capacity and move it around to other parts of the country that is long on load and short on wind. We are long on wind generation capacity and some would say a little short on people, so we have enormous resources in this state. Then they'd be a part of that national picture. So when you look at this handout, even these just very generic numbers, this would give you about a seventh or an eighth of real wind (inaudible) estimate of the amount of activity that would be involved in this. So as we look at rural economic development potential, the numbers indicate direct payments to landowners, \$2.7 million per year; local property tax revenue, \$3.9 million per year; construction phase, 1,634 jobs; \$188.5 million to local economies; operational phase, 260 new long-term jobs, \$21.2 million per year to local economies, and those

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are in direct impacts. And as we've tried to measure and as NREL has worked on--the National Renewable Energy Law is NREL--has tried to identify the economic impacts of the indirect and the induced impacts, and as you add those in then the totals and total economic benefit is \$1.1 billion for 1,000 megawatts of wind. The total economic benefit is very substantial; obviously, local jobs during construction, 3,298; new long-term jobs, 451. So that is one of the handouts. "20 Percent Wind Energy by 2030," which is also in your packets is the National Renewable Energy Lab's big picture. It's a two-page summary. We have some other more detailed piece in there which is the "Executive Summary" in your packet. I did not give you the full report; I tried to save you that. But the more exhaustive Executive Summary is here. The two-page summary is this one, this particular piece, and it indicates what the total national scenario is. These are huge numbers as you look at them, and it requires a substantial commitment on a whole wide range of fronts relative to incentives but also to dealing with grid problems and transmission issues. And so as we start getting into this, our system right now--and I think it would be fair to say in Nebraska a lot of what we do in Nebraska is built toward getting electricity from where it's generated out to the last person on the line with the least amount of wire--so as we build wind projects in Nebraska, if we're not taking where the best wind is and trying to identify where the arteries are that feeds the juice out into the rural areas is, that has untapped capacity, so not only do you have to have the wires but you also have the unused capacity in those wires to be able to take electricity from out in the country back into where the load is. So we have really, as we look at wind energy development in Nebraska so far, we're obviously looking at those spots where there is the best wind, where there's the best wires, where there's local landowner interest, and where our public utilities need the load and where it needs to originate from. So this is, if you think about it in terms of harvesting the apples on the tree, what we're doing now is the extremely low-hanging fruit. And so as we harvest one crop across the very bottom, then as we keep moving up obviously additional sites will become available and in the appropriate pecking order in terms of their capacity and the other variables considered. But also we have a lot of transmission work to do and a lot of those issues to work our way through if we're going to be able to, first of all, get

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Nebraska's total amount of consumption up to the 10 percent voluntary goal that NPPD has, or if we are interested in pursuing comparable goals to a lot of our Midwest states around us who have 15 and 20 percent goals, so just to get to the first 10 percent we're going to have not just generation but certainly transmission issues. And so I think that as we look in to the future, that's something that the Legislature may well need to look at as a part of helping develop the state's resources and how do we go about doing that in a fair and comparable fashion. So those are kind of the 30,000-foot numbers. I would also point out that in your packet we have the "Small Wind Electric Systems: A Nebraska Consumer's Guide." This is the very most recent, put out by Wind Powering America and the National Renewable Energy Lab. It's made available through all of the folks that are involved in that outreach program, so for those of you that are interested in small wind, this is the most up-to-date piece. Also included in this packet is the "Annual Report on U.S. Wind Power Installation, Cost, and Performance Trends: 2007." And in case you are having difficulty going to sleep at night, I would keep this by your bedside. I, for example, do read this in sections, and I've also been through a couple of the seminars on this. And what...as we look at the costs of wind, we're seeing some of those material costs, some of the energy costs that I referenced before relative to transportation, the value of the dollar for imports, so we're seeing some of the construction costs of wind go up, but we're also seeing the relative costs of wind-generated electricity become increasingly competitive overall as we see some of the other additional costs also starting to get realized in the system relative to some of the other sources. The cost of coal, for example, goes up. The cost of moving coal around goes up. None of the additional costs of carbon-based emissions has yet been realized in that system. So you have one source of electric generation in comparison to all of the other sources, and so they're all moving up and down in this pool of costs, and so wind is becoming increasingly competitive. And if you look at the windows of measurement, then that's when you see a couple things. One is that once you get through the construction phase with wind, you're able to lock in costs for generation and prices over 20-year periods, which is very difficult and mostly not possible to do in the other generation sources. So as you look at the rising cost of all sources, wind provides

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an opportunity to lock in some rates today, at competitive rates over a 20-year period. The second thing which is not as well-understood relative to wind is that if, depending on your assumption relative to the cost of carbon-based emissions, that at the very same time that a lot of the carbon emission-based sources of electrical generation become increasingly expensive, then wind becomes increasingly valuable because the environmental attributes or the green tags that come with wind projects become valuable ways of helping compensate for additional carbon-based costs of the other sources; coal, in particular. So the value of the green tags is not often discussed or considered in the public arena, and yet they are very substantial. And so depending on what your estimate of carbon-based values are in the carbon market, we are about a fifth of what Europe is. Most of the time in their market they have mandatory reductions. They're a part of the Kyoto Protocol. The U.S. is not and we're the only major industrialized nation of the world that is not. It would be, I think, safe to say that, regardless of who the next president is, that both of them support some form of cap-and-trade system and will be looking at this differently than the last administration has. If that is the case, the value of U.S.-based carbon is likely to go up. And if carbon goes up, carbon-based emission costs will go up, and the value of green tags will go up. So this source of generation can be a hedge against those costs that ratepayers will in some fashion have to absorb as that goes forward. What I would share with you is the PowerPoint that was not...did not happen today. I apologize for that. But we've been with the National Renewable Energy Lab on trying to help drill down in more Nebraska-specific terms, and so this came to me last night so it is fresh out of the hopper. And these are preliminary numbers, and would just caution you to say that they are preliminary, but we looked at...we're trying to quantify these numbers. And Eric Lanz will be a part of the efforts to look at the rural economic development benefits at the Nebraska Wind Working conference coming up on November 11-12, as Senator Preister mentioned. So we looked at different ways of taking cuts at it to kind of get some relative measures, and so the basic looks involve two categories of scenarios and a high and low scenario within each category. The C-BED category development model: The first assumption was the C-BED development model becomes the dominant

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development model in Nebraska; 80 percent of all projects at C-BED. The second is traditional: Assume C-BED takes only a marginal role in development; 10 percent of the projects are C-BED. The third is, in both cases we assume that developers meet only the minimum requirements to ensure C-BED status. So we're not assuming the full economic development benefits of C-BED based on the GAO studies or the other things, so this is a very conservative look. It doesn't assume the full 3.1 times rural economic development that the GAO said. So it's...these numbers, while are going to raise some eyebrows I suspect, we want them to be conservative. And the last scenario is, high and low scenarios are created to deal with the uncertainty associated with modeling such a great deal of development over an extended period of time: 2011 to 2030. So that was part of the reason that we really kind of tightened down the potential scope because it's a long time between now and then. And the local share values were determined based on considerations of current trends in the industry as well as through consultation and interviews with utility, wind development companies, and other stakeholders currently active in the wind industry in Nebraska. And the results are strictly based on the assumptions listed in Appendix 1. Deviations from these inputs will result in changes to the ultimate impacts. But if you look at some of the numbers--for example, the relative rate that is being projected in the earlier 1,000 megawatts of wind in Nebraska and some of those--I believe the number for per-megawatt for lease payments was \$2,667. Well, that's substantially below the going rate in Nebraska per megawatt for lease payments, for example. And so we've tried to help fine-tune with the latest Nebraska-based data--Nebraska Public Power District's economists have been involved in helping provide background information as well as everyone else that we can think of in Nebraska that has expertise in this area--so these are at least pretty good, latest-data snapshots of what we've got. So in the case of the basis of measurement, we have direct, indirect and induced impacts, and then the totals. And so you can see, from the first one, we have the 20 percent wind energy scenario with a high C-BED impact, and you can look at those totals on the right side as you look at those numbers. Total economic benefits, \$14.3 billion--and this is a part of the national 20 percent wind energy scenario, so now we're plugging in that scenario numbers; total

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local jobs, 47,482; new local long-term jobs, 4,725. So these are obviously very big numbers if you look at Nebraska stepping up to the plate and participating in that national goal. The second is the more traditional development where a C-BED would be at a lower form. It would be only 10 percent of it, which is traditional private sector development in other areas, and you can see those numbers. Also the third cut is where C-BED is at the lowest part. The second one was the scenario where...I think it was just traditional. And then you've also got a high and low of each one of these different cuts, and so you can compare each one of those as you do, and there's a chart following those numbers, as you can do your own comparisons looking at direct construction related jobs. And you can look at C-BED High, C-BED Low, Traditional High, and Traditional Low; and even at the lowest numbers, these are very substantial numbers. The question which, of course, has to be asked, is if you're going to do this why wouldn't you want to do it in a fashion that maximizes the rural economic development benefits? And so what the C-BED offers in the state of Nebraska is when you look at our public power system, the tremendous service it has provided our state--we are the fifth lowest in the nation in terms of overall rates--we have tremendous service that the C-BED model offers us the tool that does two things that are absolutely critical in our judgment. One, it is the tool, if we can figure out how to use it as its potential exists to maximize the rural economic development benefits, why not get three times more benefits for the same activity if you had the choice; and two, it's the system that most clearly complements and does not undermine either the integrity of the public power system or, in any way, shape, or form, the mission. And so where you're able to bring in private sector incentives, the C-BED system obviously does not offer the opportunity for mischief and undermining the integrity of the system where a C-BED project would be bought out by some of the folks who are in Nebraska today, offering contracts of folks from the third largest utility in the world has their development arm in Nebraska, buying up wind rights. We have Portuguese consortiums. We have all kinds of other private-sector developers with ties to private-sector utilities. All of these are to us a bit alarming, and so the C-BED is, I think, appropriately being viewed as a friend to public power; not a threat to public power, and is a tool that public power can use without

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undermining this long-term integrity or mission. So then you can go through these charts: Comparing Direct, Indirect, and Induced Jobs. Again, these are huge numbers when you look at the four different scenarios: high C-BED, low C-BED, and etcetera; and high and low, the traditional. And so as you look at these, the "Modeling Input Costs" are in the back so that we tried to put those out in the open, as well as the "C-BED, Tax, and Lease Payments." Those are estimates based on what we think are going on out there for all of the various shares of construction, etcetera. So these are good numbers. These are the latest numbers and I would offer them to the committee with the only caveat that they are still preliminary numbers and there will be more work done and there may well also be additional opportunities to change or refine some of these numbers as we do our very best job to try to come up with numbers that help us quantify the tremendous rural economic development opportunity that wind energy development provides us. And with that I will end my remarks and be glad to answer any questions that the committee might have. [LR353]

SENATOR DUBAS: Thank you very much, Mr. Hansen. Any questions for John?
Senator Karpisek. [LR353]

SENATOR KARPISEK: Thank you, Senator Dubas. And I would just like to thank John. He came down to Wilber a few weeks ago. We have some speculators in the state, as John said, trying to buy up wind rights. And giving out a little bit of information for people so they know that we don't get into a problem that both of you senators know is existing, so I do appreciate that. The other thing you asked about: if there are companies coming in. I talked to a Dave Savage from Renewable Energy Systems; yesterday they were in the Alliance wind farm. They are looking at more places in Nebraska. They were talking about 200-400 kW. So there are companies coming in that have been established in the state, and I thank John and everyone else for helping try to sort through some of the that because it is new. And also talking to public power representatives, you know, what I've heard is, we're interested in these wind developments but we are...we don't want to have to increase prices to do it. So I think that the C-BED is the way to go on that, and I

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think that everyone is listening and getting close to the same page. And so I just want to make those comments and thank John for the hard work that he's done on it. [LR353]

JOHN HANSEN: Thank you. And these meetings are...landowners are really struggling right now to sort their way through these contracts and figure out how this process that is less than clear, works; what are all the variables that go into the equation; how will decisions be made. When you talk to landowners...and most landowners are rightfully concerned about turning over control of this newfound asset they have. A lot of them are becoming aware of the fact that this wind that's been blowing over their property for all these year and has been, in a lot of cases, tolerated, at best, and cursed, at worst--it now has value. And so how do we participate in that? What is our role? And do all of these contracts require us to turn over our control for 55 years; or what's the going rate, what's the going number of years? And there's, I think, a lot of need for some standards for what we do in Nebraska. And obviously, there's...we have, quite frankly, contracts of most of the folks that are in Nebraska, because folks get offered these contracts; they send them to us and want to know what we think. We're not lawyers but we have some idea of what the rest of the contracts are, and there's some contracts that are, I think, much more reasonable than others. The only contract that I'm aware of right now that actually has a provision in it which gives landowners the option of participating in a C-BED project as the result of signing away their wind development rights and giving wind monitoring and then wind development easements, is the Nebraska Public Power District's contract, and I publicly applaud them for having that provision in there. And that, at least, keeps landowners' options. And so we have lots of folks who come out and say, we're very friendly to community wind, and they keep saying that, except that when you read their contract, it specifically forbids it. And apparently they believe that as long as a project is, in fact, built in a community, it must be community-friendly; but in terms of community ownership, no, not so much. [LR353]

SENATOR KARPISEK: Thank you, John. [LR353]

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SENATOR DUBAS: Thank you, John. Any other questions? Seeing none, thank you very much for your information. [LR353]

JOHN HANSEN: Thank you. And again I apologize for my technical meltdown this morning. [LR353]

SENATOR DUBAS: Any other testifiers? [LR353]

DAVID RICH: David Rich, R-i-c-h. Good morning, Senator Dubas and senators on the committee. I wasn't planning to testify this morning but I thought I would answer some questions that were addressed to Clint. First of all, regarding training, community colleges, NPPD has had requests and are coordinating efforts at North Platte and Norfolk campuses. They are attempting to get some grants to start programs specifically for training in the maintenance of wind turbines. And so we support their efforts because as we see this they'll be a lot of opportunities in the future there. Regarding other companies, this morning on the way down I visited with the Gage County economic development director. They have a firm there in Beatrice that is working with a firm in Utah, and if that comes about--it's another tower manufacturer--they would be looking at, initially, 100 jobs, going up to 200 jobs. And there's another tower manufacturer, some employees from the Valmont Company have a startup company in Blair--another tower manufacturer. Along the economic development, NPPD has been very aggressive in that front. We were at national trade shows in Washington, D.C., and at Houston, and the pins that they've provided earlier were pins that we provided to encourage that. And we've had a tremendous interest as a result of that. We're planning to attend the AWEA show again next year. OPPD will be participating. One of the things I heard that I think deserves a lot more attention is the incentives for public power for the addition of wind. Again I think that what public power's goal has been to provide the low-cost reliable power, and we're bringing wind in slowly, and NPPD has a plan. But we're trying to manage the costs. And so if we received some incentives, either for the transmission or the wind turbines themselves,

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the wind energy, that would in my mind drive it faster. One of the major roadblocks, and we were discussing roadblocks, the NPA report that Clint mentioned has three areas that needed further investigation, at least from the utilities perspective. One was the transmission additions and the cost thereof, and tied in with that was the land use. If you love wind you need to love transmission, and unfortunately those don't necessarily go hand-in-hand. Most landowners loved the idea of getting an annual...(recorder malfunction)...a fair value for the transmission lines that will be needed to support this. And then another factor is the integration of wind into the system. Wind is difficult to forecast. You definitely can't schedule it, and so we have to run our plants differently. Right now, we just balance the generation to the load. And I equate...you know, most of our generation right now is coal and nuclear, and we have a little hydro, very little natural gas. And that's one reason our rates are so low right now is we use very little fossil fuel, natural gas, and oil to generate. But those coal plants are more like locomotives. It takes awhile to ramp them up and slow them up and speed them up, whereas natural gas plants, of which Texas has a lot of, are more like a car where you just hit the accelerator and you can bring up the generation much faster. So when we add a lot of wind to Nebraska, we're going to have to look at how we're going to integrate that in our system. You know, hydro storage would be great, pump storage; you know, some way to better do that. But that is something that the NPA is working with NREL to study that cost. We just were awarded a grant close to a half-million dollars to study that, so we're moving forward there. On the transmission, you're aware that NPPD has recently enter into two C-BED-based power purchase agreements--20 years' agreements, both up at Bloomfield. The first is an 80-megawatt project that's coming on later this year, and the second will be a 42 the following year. Our board has approved the sale of up to half of those projects to OPPD, Lincoln Electric System, Municipal Energy Agency of Nebraska, and the city of Grand Island. And so we've been working through the agreements to transact that agreement, and both OPPD and LES have made requests to get transmission, firm transmission for this 20 years to move--for example, OPPD 25 megawatts would be what their take out of the 80--from Bloomfield to their control area. And that was denied due to the transmission model showing

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restrictions between Grand Island and Lincoln, and from the Gerald Gentleman Station area going into Kansas. And so the point of this is, is we're starting relatively small compared to where the neighbors are, but we still are having difficulty transmission issues even moving that small amount. And so we are going to need to invest many, many hundreds of thousands, if not millions of dollars in transmission if we're going to add significant amounts of utility scale wind where the best wind is. Unfortunately, now we are working through our initial transmission request was taking all 122 megawatts of both projects into our system, and we're going to be redoing the study and submitting it to the regional organization that coordinates reliability, and we'll be backing down ours and hoping that will allow that to go through. We won't know that until December. So it could potentially kill the movement...or them providing or participating at half level on those projects. So I want to point out that transmission is still the biggest issue, and not only in the state, but if we are going to take advantage of the resource we have, we definitely need to be a participant in some high-voltage transmission network grid that's been proposed by AWEA and their study. That's the end of my testimony. Any questions? [LR353]

SENATOR DUBAS: Thank you, Mr. Rich. Any questions? I do appreciate you...oh, excuse me. Good ahead, Senator Preister. [LR353]

SENATOR PREISTER: Thank you, Senator Dubas. David, I do appreciate you coming up because you've answered a number of questions and some I didn't even think to ask, including the study on the ramping up and ramping down, because I recognize that is more of a factor when you're using a coal-fired plant versus a natural gas. Are there any other grants or issues or things that have happened or that are in the works that NPPD is doing in addition? [LR353]

DAVID RICH: One of the other areas of study was definitely this transmission. And I guess we...it's get back to maybe this plan of how much we as a state and how fast we want to move. I've read articles where the Governor has proposed that we get in the top

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ten of wind producing states, either five or six years from now or a decade from now or something along that line. And that is a very ambitious goal, because that's a moving target. To get to ten right now would be 500 megawatts, and as that continues to grow...so we're going to need to determine what target we as a state want to make, and then how we're going to get there and what's the cost of that--the cost of the added transmission line and the challenges associated with building transmission. You know, we are working on a line from Columbus to Lincoln, and again it's not an easy process to build transmission in the state. But if we're going to move the wind from where it is to the load centers, more transmission will be needed. [LR353]

SENATOR PREISTER: Sure. Okay, thank you. [LR353]

SENATOR DUBAS: Thank you, Senator Preister. I too appreciate you bringing up the issue of transmission. I know I've been talking with Congressman Fortenberry's office, and he's definitely interested in renewables; and that's the issue that I've raised with him, is creating the energy is probably the easiest part of the formula. It's the "how do we distribute it." And so I'm asking him what can the federal government do to help us in creating and putting the transmission issue in an easier position. So thank you for bringing up that fact and hopefully we can get some things done in that direction. [LR353]

DAVID RICH: Thank you. [LR353]

SENATOR DUBAS: Any other questions? If not, thank you. Is there anyone else who would like to testify this morning? If not, that will close our hearing on LR353, and I thank all of you for coming forward this morning and sharing your information and thoughts with us. [LR353]

SENATOR DUBAS: I think we will call this hearing to order, if we could have everybody find a seat, please. And I know we still have at least one other senator who will be

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showing up, and we'll make those introductions as they appear. I would like to welcome everybody this afternoon to the Ag hearing on LR350, a hearing dealing with renewable energy issues. It's definitely the topic of conversation these days, and so we're very excited about the testifiers that we have lined up and the information that they're going to bring forward to us this afternoon. My name is Senator Annette Dubas from Fullerton, and I am the Vice Chair of the Ag Committee. We'll take care of a few little housekeeping matters first, and then we'll get moving. First of all I'd like to ask you to please either turn off your cell phone or put it on quiet or vibrate so that we don't interfere with the transcribing and don't interrupt the hearing. I'd appreciate you paying attention to that matter right now. As you come forward to testify, if you don't have one filled out yet, if you'd please pick up a testifier sheet at either one of the doors and fill out that information and turn it in to the clerk. She uses that information. Should she have any questions about your testimony she can get ahold of you, and it's a record that we need to have about who has testified. I believe there's also sign-in sheets at the door that, even if you prefer not to testify but would like to have in the record that you were here and your position on the issue, you may sign those. I also ask that you state your name and then spell it for the record when you come forward. If you have any handouts, we do have a page here, Brennen Miller, from the University of Nebraska at Lincoln, and he is from Lincoln, so we appreciate him taking time out of his day to be with us today and help us. But if you have anything to hand out, Brennen will make sure that the committee members receive those handouts. I'll take the opportunity to introduce the senators that are here. To my extreme left is Senator Vickie McDonald from St. Paul. I know Senator Karpisek from Wilbur is here and will be joining us shortly. To my far right is Senator Don Preister from Omaha. Melissa Lunsford is our committee clerk. Rick Leonard is sitting at the testifier's table right now. He's a research analyst and he'll be introducing this resolution for us today. I think I hit...here we go--Senator Russ Karpisek from Wilbur. So we do appreciate all of you joining us today. We do have some invited testifiers, so we'll be calling those people forward first to make sure that we're able to get them into the schedule, and then anyone else please feel free to come forward and testify. I think I've taken care of all of the housekeeping matters, so we will go ahead

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and let Rick open for us. [LR350]

RICK LEONARD: Thank you, Vice Chairman Dubas. My name is Rick Leonard, as you mentioned, research analyst for the Agriculture Committee. Senator Dubas is introducer of this resolution, LR350, and it results, as I understand it, as follow up to legislation that you, Vice Chairman, introduced this past session, LB922 to create the Cellulosic Biomass Renewable Energy Initiative. That initiative was designed to create incentives for advanced cellulosic and biomass technology. It would have provided a flexible package of incentives for applied research, demonstration projects, and production aimed at increasing private-sector investment and attracting federal funding for advanced cellulosic and biomass technology. As we will learn today, second-generation cellulosic ethanol and biomass production could assist Nebraskans to pursue the opportunities presented by the federal Energy Independence and Security Act of 2007 that Congress adopted late in 2007 and this year's farm bill. The committee has been provided with some briefing materials. These include a brief overview of federal policies to be aware of, which include the Energy Independence and Security Act of 2007. According to the Act the renewable energy fuel standard is meant to increase to 9 billion gallons this year, increasing to 36 billion gallons by 2022. Beginning in 2016, the renewable fuel standard requires that the increase in biofuels utilized to meet the RFS be derived from cellulosic biofuels. You may have also noted The Food, Conservation and Energy Act of 2008, the most recent farm bill recently enacted, establishes multiple programs for biomass development specifically aimed at rural areas, and I'm sure Senator Dubas is delighted that we have with us today USDA Undersecretary of Agriculture for rural development programs, Mr. Thomas Dorr, who will be leading testimony today. Specifically we have lined up some testimony to underscore the importance of federal programs and federal funding in developing an infrastructure for transport, technology and development of renewables. Nebraska must be at the forefront of the production of renewable energy. Today we can find ways to coordinate our state efforts closely with the programs that have been developed at the federal level. In addition to testimony from Mr. Dorr, we will be hearing also from Prem Paul,

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Vice Chancellor of Research and Economic Development at the University of Nebraska at Lincoln, a representative from Abengoa Bioenergy--which does have a facility in Nebraska at York--Robert Byrnes, a Nebraska renewable energy association, and others. Senator Dubas has personally extended an invitation to the Nebraska Energy Office and its new director. And we understand they will have a representative here today as well, and hopefully we'll be able to learn more about statewide efforts that Nebraska is undergoing to become more energy independent. In addition to the federal policies, the examples provided to you regarding state incentives and policies are significant; again, additional item included in the briefing materials. There are three basic types of policies to put in place: incentive programs that include production incentives, and infrastructure incentives, and the exemption of sales or excise taxes to spur development. I would encourage you to specifically look at Iowa and Kansas, surrounding states that we regularly compete with in the business and ag world. Kansas, for example, has cellulosic ethanol production incentives in place, biodiesel production incentives, and infrastructure incentives. And I express for Vice Chairman Dubas, as introducer of the study, her gratitude for your showing up and your interest in this hearing. And I think, Madam, that you would like to invite Mr. Dorr to follow my testimony. [LR350]

SENATOR DUBAS: Thank you very much, Rick. It is my pleasure today on behalf of the Ag Committee to welcome Undersecretary Dorr to Nebraska and to the Nebraska Legislature's Ag Committee hearing. We are very appreciative of you taking the time out of your busy schedule to come and address this issue. Had the opportunity to visit with him over lunch, and we even found out we have kind of family connections. My family and his family are from the same area of the state in Iowa, so we had mutual acquaintances, and I also know that he has a very keen interest in renewable energies and how those can benefit for real economic development. So thank you very much, Mr. Secretary, for coming to Nebraska today and sharing your information with us. [LR350]

THOMAS DORR: Thank you, Vice Chairman Dubas. And as I told you at lunch--and to

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your colleagues I apologize; I don't know if I'm speaking loud enough or not loud enough--my ears are totally plugged from flying, and so bear with me. And if I'm one or the other, don't hesitate to tell me. It is a distinct pleasure and honor for me to have been asked to testify before this committee. I think this is an extraordinary opportunity, not just for Nebraska, but for all rural America, and I look forward to sharing my comments with you. And if there are a new questions or however you care to handle it, I'll be glad to spend whatever amount of time is necessary. Madam Vice Chairman, members of the committee, thank you for the opportunity to participate in your consideration of LR350, which seeks to identify strategies for promoting the development of renewable energy in Nebraska. First and foremost I wish to commend you for addressing this rapidly developing issue. Renewable energy, because of its feedstock and its siting requirements, is largely rural--it's largely rural energy. It is, in fact, perhaps the greatest new opportunity for economic development, jobs, and wealth creation in rural areas in our lifetimes. USDA Rural Development is deeply involved with the renewables revolution because our mission is to increase economic opportunity and to improve the quality of life in rural communities, and as a result, we believe that we are on the cusp of what we call a "rural renaissance." As renewable energy as emerged as a major economic driver in rural America, it has become a key priority for us and indeed for all of USDA. From FY2001 through FY2007, USDA Rural Development alone has invested over \$675 million in more than 1,700 renewable energy and energy efficiency projects all across the rural area of this country. That has been leveraged with an additional \$1.6 to \$2 billion of investment in these same rural areas. We've invested in ethanol and cellulosic ethanol, biodiesel, wind and solar, geothermal, small hydro, anaerobic digesters, and landfill gas recovery. We also invest in energy efficiency improvements for world businesses. We cover the spectrum; literally ten separate programs within USDA Rural Development have contributed to all of these results. We are now approaching the end of FY2008, so we will be adding to these numbers very shortly; in fact, just next week we expect to announce the recipients of this year's Section 9006 funding. Section 9006 has actually been replaced in the 2008 farm bill, with now a similar section, but now known as 9007 and will go by the title of Rural

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Energy for America Program. But that program, which is, by the way, competitively awarded, we are going to be making these announcements. Now I can't get ahead of next week's announcements, but I'm happy to remind you all that Nebraska, clearly under the leadership of our state director, Scott Blim (phonetic), has historically done very well in this competition, and I'm afraid you're going to have to wait till next week. We'd love to have some announcements, but I can't get ahead of the Secretary, but we're going to have to wait for next week for these further details. But I am confident that once the announcement is made that Nebraskans will again be proud of what you are continuing to achieve in this particular area. Nebraska has been a leader in the renewables revolution, primarily because of its early commitment to ethanol. In fact, the lunch that I had today with Mr. Schmit, with Mr. Sneller, and reflecting on the mandate that came out of the 1971 gasohol mandate check-off, is one of the very basic underpinnings of this industry that we now call ethanol. And you in Nebraska should be very proud of the ground that you have plowed in this area. But as the renewables revolution gathers momentum, as we move to second-generation feedstocks, and as renewable energy technologies in other sectors mature, I believe it's important for not just Nebraska but other states, as well, to constantly reevaluate your options and to expand your horizons and ultimately look for the new opportunities and ways to capture them. I know you are particularly concerned with the transition to cellulosic ethanol and next-generation feedstocks, and those are important questions. But I would suggest that as you consider LB350 that you keep in mind other issues as well, particularly as they relate to Nebraska in terms of investment, in terms of business models, in terms of ways in which you facilitate local ownership, in terms of addition to those regulatory policies, that deals with the critical infrastructure and the distributed nature of these production systems. This is clearly going to include truck and rail transport, and down the road pipelines to move the biofuels from the Heartland to the coasts, but it is also going to include, how do you develop a continuing robust, dynamic rural broadband similar to the work that Mick Jensen (phonetic) out of Blair, Nebraska, has done with his firm. And this is a key infrastructure, perhaps the most key infrastructure to achieving production efficiencies for small-scale, distributed rural producers and for integrating these

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distributed generation into the grid, whether it be electric or whether it be liquid fuels. This also is going to include enhanced electric transmission capacity, both interstate as well as intrastate--to move green energy from rural areas to urban areas. Now these areas are all critical investments--they're critical in the context of investment, of business modeling, and of regulatory and infrastructure development, and they all pose challenges at the state as well as the federal level. And I hope that they will be included in the LR350 agenda down the road. USDA Rural Development two years ago initiated a series of studies on these topics, which have now been published, and they're available on our web site, and I won't give you a lengthy web site, but I'm sure Scot will be glad to share it with you. But nevertheless they are certainly, I would suggest, not the final word or even the final definition. And yet, we think it's important to look forward to further analysis, which we hope you may choose to undertake as well. I want to be brief, to allow as much time as possible for questions, but do permit me to make three overarching points about renewable energy. First, I believe it is very important to recognize that the transition and indeed the turbulence that we are currently experiencing in the energy sector and the food sector is fundamentally a good news--it's fundamentally a good news, not a bad news story. Not everyone sees it that way. The news media is full of end-of-the-world-as-we-know-it stories about energy prices. There is no question that recent oil prices and gasoline prices at or near \$4 a gallon and natural gas prices at record levels are painful--we know that. These prices are a punch in the wallet every time we go to full up the automobile at the gas station or pay our electric or our utility bills. They burden businesses and in some respects they do slow economic growth, and they even challenge farmers. I am myself a farmer from northwest Iowa, and I've seen the price of inputs literally double over the last couple of years, largely again, due to soaring energy costs. But when all that is said and done, the underlying fact remains that the higher energy prices we are experiencing today, painful as they are, are ultimately a reflection of economic growth, and in my view, that is in fact a good thing. Since the fall of the Berlin Wall, almost three billion people have joined the world market system. The two fastest-growing major economies in the world today are India and China. Hundreds of millions of people are graduating to the global middle

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class, eating better, and moving from buses and bicycles to automobiles and better heated and cooled homes. These are in the long run very good things, and in my view, we should not fear them. It's in a growing world economy, commodities are being revalued across the board, not just oil and natural gas, not just corn and soybeans, but rice, wheat, steel, concrete, and everything else. Why? Because the world is a much richer, much more competitive, and much more interdependent than it was 10 or even 20 years ago. And for those who are prepared the opportunities, in my view, are also greater as well. Twenty/twenty hindsight is a wonderful thing, but in retrospect it is quite clear that most observers--the private sector, international organizations, NGOs, governments around the world alike--failed to anticipate the remarkable growth in energy consumption that has occurred over the last several years. And as a result, if you go back over the past 15, 20, or 30 years, it is clear that the world, including the United States, has under invested in energy infrastructure, and we are encountering as a result transition turbulence. But still, as we assess new directions in energy we need to step back and recognize that surging energy demand, as reflected in the new price structures, reflect a robust underlying growth curve. Growth creates opportunities, and one of those opportunities is renewable energy. Secondly, while the renewables revolution is still in its early stages, it is important to recognize that it is already a tremendous American success story. We shouldn't be afraid to celebrate success. In fact, it's imperative that we do that and continue to look at these opportunities. The United States is now the world leader in biofuels. Since 2000 U.S. ethanol production has quadrupled, biodiesel production has soared from literally nothing, or about 2 million gallons, to in excess of 450 million gallons last year. Cellulosic ethanol, which will derive fuel from non-food sources, is moving into production at a much more rapid pace than I think most people recognize. Biofuels last year trimmed U.S. greenhouse gas emissions by more than 13 million tons and are already reducing U.S. gasoline prices by somewhere between 20 and 35 cents a gallon, and some reports I've recently read suggest even more upwards of 40 or 50 cents a gallon. Next-generation technologies in feedstocks hold even greater potential. Since 2000, U.S. domestic shipments of photovoltaic cells and modules have increased more than tenfold. There are areas in

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Nebraska that have incredible potential in this area. Installed wind capacity is up 700 percent, and we have led the world since 2005 in this installation of this wind capacity, and we lead the world in geothermal, solar thermal, and waste-to-energy, as well. Across the spectrum America is literally rising to the challenge. Now I would like to make a brief point: I think that there has been more done by the current administration, and particularly President Bush, in this area of renewable policy development, in the context of diversifying away from fossil fuels in the last seven or eight years than in any previous period in our history. And renewable energy has been a key priority for this President since the development of a comprehensive energy strategy released back in May of 2001. That was followed by the 2002 farm bill with the first ever energy title, by a series of pro-renewable tax incentives, by the 2005 Energy Policy Act, the advanced energy initiative in 2006, the 2010 initiative in 2007, the 2007 Energy Policy Act, and another strong energy in the 2008 farm bill, which Nebraskans particularly should take pride in, because then-Secretary Johanns had a very significant hand in moving that part of the farm bill forward. We are now beginning, in the production figures I mentioned a moment ago, to literally reap the benefits. The next administration, regardless of who wins the election, is going to set its own agenda. But the next president is going to inherit an energy policy that has made America, for really the very first time, the true global leader in renewable energy. And I think it's important to acknowledge that success and ultimately to build on it as we approach these next steps with confidence, and build on it in a way that allows rural Americans to attain some of the benefits that are there to be attained. Finally, I would anticipate that these priorities are likely to continue. The strong energy title in the 2008 farm bill is just one indicator. We are now in the process of implementing the 2008 farm bill, and that is to say that we are in the process of burning the midnight oil to literally write new regulations or adjust our existing programs to these new authorities. For obvious reasons I can't get into the details of implementation while that rule-making process is underway, but I do want to note that the rapid commercialization of cellulosic ethanol is clearly a top priority for us, as it is for you. For example, the 2008 farm bill establishes a major new bio-refinery assistance program in Section 9003 of the energy title, focused on advanced biofuels.

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Report language directs us to implement this initiative as early as possible. In FY2009 we have mandatory money available; that is on us in about five weeks. This is a very challenging timetable, and we are determined to meet it. In fact, I think that perhaps we are on track to make our first loan in this area sometime in the first half of FY2009. The farm bill also provides assistance to existing biorefineries in Section 9004, entitled The Repowering Assistance Program, which enables us to install equipment for utilizing renewable biomass. It provides for direct payments in Section 9005, the advanced biofuels program, to producers of advanced biofuels, and it expands and renames our Section 9006 program that I mentioned earlier, which is now to be called the Rural Energy for America Program in Section 9007. But like its highly successful predecessor, it will provide grants and loan guarantees to producers as well as rural small businesses for renewal energy, energy efficiency projects, and now as well for energy audits. The farm bill also provides funding in Section 9009, the Rural Energy Self-Sufficiency Initiative, to assist rural communities in assessing and hopefully reducing the community energy footprint. And last but not least on the research front, it extends our commitment in Section 9008, better known as the Biomass Research and Development title. So if you add all of these up we have an incredibly full plate. In fact, we have nearly a billion dollars of budget authority that will be leveraged into multi-hundreds of millions of dollars of investments across rural America. The build-out of renewable energy is an historic opportunity for Nebraska as well as the nation, and we look forward to working with all of you to ensure that the potential is realized. Thank you all very, very much for this opportunity. [LR350]

SENATOR DUBAS: Thank you very much, Mr. Secretary. Do we have questions?
Senator Preister. [LR350]

SENATOR PREISTER: Thank you, Senator Dubas. Welcome to Nebraska. It's nice to have you with us. Can I assume that the midnight oil you were talking about burning is an ag-based oil? (Laughter) [LR350]

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THOMAS DORR: We hope so. [LR350]

SENATOR PREISTER: Good. I do, too. Any idea about the REPI credits and the funding? Is the administration going to push for that, to get that refunded by the end of the year, do you know? Can you comment on that at all? [LR350]

THOMAS DORR: That clearly is not administered by USDA and so I'm not really...I mean, I'm familiar with what you're talking about. I do not know what the status of those refunds are, and I don't know where they are in dealing with that issue. [LR350]

SENATOR PREISTER: I realized it was a little out of your area,... [LR350]

THOMAS DORR: Right. [LR350]

SENATOR PREISTER: ...but I thought I would ask because it would be very helpful [LR350]

THOMAS DORR: And if I gave you an answer it would probably be wrong, and I'd surely get in trouble anyway. [LR350]

SENATOR PREISTER: And we wouldn't want that to happen. Thank you. [LR350]

THOMAS DORR: Yes. [LR350]

SENATOR DUBAS: Other questions? I do have a few for you. [LR350]

THOMAS DORR: Okay. [LR350]

SENATOR DUBAS: We know that energy in general, and specifically renewable energy, is a very multifaceted issue, and there's a lot of different components that come

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into the development, whether it's infrastructure like you mentioned, or the actual production of the energy, or financial incentives, or...there's just a wide variety of issues that impact us moving the renewable energy agenda forward. Would you think that there's any one of those that are more important than the other, or do they all need to be moved forward kind of in a coordinated effort? [LR350]

THOMAS DORR: Well, I mean clearly any strategy is built on where your strengths are at, and the strengths that Nebraska has exhibited in biomass and now, I suspect, in wind are clearly areas that you need to continue to focus on. But I think there's a bigger issue here relative to these rural economies that we need to keep focused on. What has happened over the last six or seven years, because of renewable energy, we have literally more than doubled the net equity value of all farmer- and rancher-owned farm, forest lands, and ranchlands. This equity has doubled from 1.1 trillion to now 2.3 trillion--that is net equity. We have less than a 10 percent debt-to-equity ratio. Rural America is literally awash in capital to make investments in these areas. Historically, rural America has been asset rich and cash poor, and because of that, these things are somewhat viewed as challenges. On the other side of this issue, as I alluded to and actually mentioned in my remarks, all of what is now going on is possible only because we have a dynamic and robust interconnectivity via broadband, with all of these individual plant production facilities. Literally, an ethanol plant or a biodiesel plant or a wind farm would not be possible if you couldn't have access 24/7 to monitor it, to implement technology, management, or process controls necessary to make it cost effective. But that's also what has legitimately made these cost effective. These are literally distributed energy production systems, and when you look at that in that light, you have three issues that I think need to be addressed if you're going to capture the equity value or as much equity as you can in these opportunities for rural areas. Number one, are the business models that are currently available truly effective? When we first started doing these things in rural America, we typically used a traditional supply co-op. That has obviously migrated to the point where we use now Sub-chapter S, limited liability, or new generation co-op structures. Why? Because they have

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transferability, they have transparency, they have appreciation capacity. They are a much more liquid investment asset that makes sense for the investors. Number two, how do you access this investment capital in a transaction-friendly basis? If you're going to build a 100-million-gallon ethanol plant you've got to raise 40 percent, maybe \$100 million. It used to be when Mr. Schmit and Todd Sneller and others started building the first ethanol plants, they'd go to the community and they'd have a fund drive. Now, to do that, it's far too expensive. It's easier to go to Omaha or Lincoln or Des Moines or Sioux Falls or Chicago and raise the funds in three or four or five transactions. What can you do as state legislators to develop new and innovative, transparent and responsible investment tools that enable everybody from the landowner to the school superintendent to the druggist and the doctor, to make \$5,000 or \$10,000 or \$50,000 or \$100,000 investments into a vehicle that the developer can tap, a vehicle that is taxed perhaps similar to an LCC, a vehicle that is transparent, that the risks are clearly identified. Those kinds of investment vehicles typically are not yet available, because we're more interested in the legacy investment models. And then finally, there's a regulatory model. I know, I mean it's pretty common knowledge, that Nebraska Public Power, over the years, was not initially particularly friendly to incorporating wind into their system. I think that's changing. But you know, I used to encounter producers who got very upset about that, and I could understand that. By the same token, when one stops and thinks about the challenges, they have a legacy, generation, and distribution model that was predicated on certain precepts of a contract, and you couldn't expect them to incorporate these distributed systems into their existing regulatory and pricing models without it disrupting that. So what does it mean? We have to get creative about how do we develop new regulatory processes that respect the old contracts and yet allow the integration of these distributed production systems into them. I think the state, the organizations that figure out how to address the investment, the business model, and the regulatory issues, are going to set themselves a very substantive foundation to benefit greatly from these distributed energy production systems. [LR350]

SENATOR DUBAS: Thank you very much. Do you see that the location of like ethanol

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or cellulosic plants...let me start over here, get my thoughts in order here. Do you think there are economic limitations on the radius from plants supplying biomass, whatever it would be, and how will this affect the size and the viability of such facilities? [LR350]

THOMAS DORR: I don't know that. I mean, my inclination is that the market will sort that out. There will be some facilities built too close and they will fail. There will be others that will figure out how to deal with it. It's just a market issue that I think, generally speaking, market forces will probably sort out. [LR350]

SENATOR DUBAS: You've talked a lot in your testimony about the creation of new energies. Is there anything in the energy bill or the plan that you referred to earlier that looks at, how do we save energy? How do we conserve? [LR350]

THOMAS DORR: Yes. The energy...Section 9007, I think it was Section 9009, both have elements that are clearly focused on energy efficiency issues, doing energy audits. I think it's clear that a lot of facilities in rural America may have to be retrofitted. I mean, for example, if you go into a number of these smaller communities or county seat towns that have grocery stores that are retrofitted with new high energy efficient cooling systems and heating systems, and those sort of things, become far more competitive and make it a much greater likelihood that they will continue to be viable in those communities. We've actually already financed projects like that in some states. But it is going to be important to make available the tools to foster this energy efficiency and audit mechanism, but the farm bill does provide resources to do that. I'm certain that it won't be near enough, but whether it's in livestock production, feed production, community facility development, whatever the case, I think Congress is very cognizant of that and did, in fact, incorporate that into the farm bill. [LR350]

SENATOR DUBAS: [LR350]

THOMAS DORR: You know, I certainly don't profess to be a technology expert in this

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area. I know that there are varying thoughts about how rapid cellulosic is going to develop. I think it's important, though, to point out how the dry milling industry developed. It took literally 20 or 25 years, but there were, from 1980 on, there were essentially three farm families, the Fagans (phonetic)--I call them farm families, I don't know if they consider themselves--but the Fagans, the Broins (phonetics), and the Vandergrens (phonetics), ICM Fagan and Poet (phonetic). They did a number of things that those in the wet milling industry thought were just crazy. I mean, they viewed many of those folks that were trying to modify the dry milling industry almost as prehistoric creatures that couldn't walk and get both hands off the ground. Much of what occurred, though, I would suggest is probably going to provide the capacity to be iterative in the development of the cellulosic energy. It will be much like technology. You know, when you bought your first IBM XT or AT computer, they were pretty slow, archaic things; and the time between the next iteration and the next iteration progressively got shorter and shorter as you got faster and faster chips. My sense from talking to people in the business is that this is probably going to be the case now. Because of the financing that we do, I've just been fortunate to be in a position to meet with and talk to a number of people, both in the enzymatic hydrolysis area, the gasification area, and a number of other areas, and I really am of the view that we're much further down the ground on the technology necessary to convert cellulosic into ethanol than perhaps the general public would believe. But certainly, you're just taking my word for that. I have nothing more to base that on, other than my observations, and some of you may have closer connections than I do on that. But I am of the view that this will happen quicker rather than later. [LR350]

SENATOR DUBAS: You referenced that we do have a federal energy plan that was put in place on '01, I think you stated. Has that been a plan that has been ongoing and evolving as research has...I mean, things are just moving so quickly now. Is this something that... [LR350]

THOMAS DORR: It certainly has. I mean, I literally listed almost every one of these

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initiatives. The federal government has invested over \$12 billion. I mean, President Bush has made a very strong commitment to investing in these technologies. Does it mean that we've done everything right? Obviously not. But it, in my view, is a very substantive commitment as to where we were when we started. Does that not mean that we might make more commitments down the road? I suspect we will, but what we have done, I believe, is shown that you can build out an industry. I mean, stop and think about it. We were producing less than .5 percent of our total gasoline fuel consumption out of biomass in 2000. Today it's nearly 4.5 percent. That's a remarkable success story. Literally last year we produced 100 percent of all the growth in demand for gasoline came out of ethanol. What we've shown, not just in the ethanol and the biodiesel--and the biodiesel clearly has some other challenges--but even in the wind area, is that we clearly have developed the technology and the ability to begin building out these industries in very substantive ways and thoughtful ways. And I think we're going to continue to do this. I'm actually more concerned long term about, you know, where this will lead to some of the international trade issues that we're going to have to deal with as we build out a more robust biofuels energy industry, because I think without question the U.S. is the technology leader in this area, and I think we'll begin to produce greater and greater quantities. It's going to create some very interesting trade issues down the road that I think are going to be things that we're going to have to start looking at, as well. [LR350]

SENATOR DUBAS: One final question for you: Oftentimes I think the best way to lead is by example, so if government can set the example on the use of renewables, whether it be the mandated use of ethanol in vehicles. I had someone tell me about the use of rerefined oils to use in our vehicles. Are there things that the federal government is doing as far as mandating, by example, the use of renewables? [LR350]

THOMAS DORR: One of the things that I neglected to mention in my testimony was we have the biobase products component of the farm bill, and that started in 2002. We have a unit within USDA, within the Office of Energy and Policy, new uses...I can't keep

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straight all the acronyms, but anyway, they're in the Chief Economist's Office and work with our Assistant Secretary for Administration. And they've made gigantic strides developing biobase products, definitions, testing standards, and there are a whole host of those that are coming down the stream. As a result, one of the things that is happening is where these products are viewed as cost competitive, as efficacious as whatever they're replacing, the federal government is mandating that we use those. These are the sorts of things that state governments, if they're so interested in developing these new industry opportunities, can certainly have access to the things that we've done and decide whether or not it's of interest for them to consider how they begin to develop utilization standards for those new products. And those biobase products, I think, are going to be a remarkable success story. You are clearly, here in the state of Nebraska, one of the major drivers with the facility at Blair, Nebraska, that...I believe it's Cargill Dow have. And those kinds of projects are growing now throughout the industry because of some of the path-breaking work that companies like that and others have done, and the federal government is trying to essentially affirm that and assure people that these products are usable, with developing standards and certification processes. [LR350]

SENATOR DUBAS: Thank you very much. Are there other questions for the Secretary?
[LR350]

THOMAS DORR: Thank you. [LR350]

SENATOR DUBAS: Well again, I'd really like to thank you for coming to Nebraska today and sharing your information with us. We really appreciate that. We had extended an invitation to the Nebraska Energy Office to come and testify, and Director Neil Moseman did call and tell me that he was going to be out of town but that possibly there would be a representative from that office here today. Is there someone from the Energy Office here today who would like to come forward? Okay. If not, I'll ask Robert Byrnes to come forward. Robert has some other things on his agenda today, so we'll let him share his

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testimony with us before he has to leave. [LR350]

ROBERT BYRNES: (Exhibit 2) Good afternoon, Vice Chairman Dubas and members of the Agriculture Committee. I appreciate the opportunity to get my testimony in. I'm headed over to the State Fair. We have a number of renewable energy exhibits at our joint site there in the marketplace. I invite you all to come over when you have the opportunity. My name is Robert Byrnes; I'm from Lyons, Nebraska. My last name is spelled B-y-r-n-e-s. I'm a renewable energy developer and producer in the state of Nebraska. I do appreciate Mr. Dorr's comments and the USDA Rural Development team in Nebraska. They have done tremendous work and continue to do tremendous work in assisting renewable energy producers in the state, and they remain probably the largest and sole source of support for such projects in the state at this time. So we sure do appreciate them, and the \$800,000 that the Scribner Biodiesel plant received through USDA was very well appreciated and well spent. I do thank Senator Dubas for sponsoring this resolution in order for the discussion on the second generation of biofuels. It can be both discussed and policies developed. I will keep my comments concise and provide a number of areas for potential policy development, and I was particularly drawn to the attention to the waste streams and the conversion of our waste streams. Of the 90 quads or quadrillion BTUs of energy that go into the U.S. economy on an annual basis, only 35 quadrillion BTUs or quads come out as useful energy. The other 55 quads are waste. The biggest waste streams in our system are transportation and electrical generation and transmission. The opportunity to sift through our trash, so to speak, is very real and must be vigorously pursued. While waste recovery can provide excellent returns, ag products of all sorts can undergo value-adding processes that can result in renewable energy outputs. As a renewable energy developer in Nebraska, I can say much more can be done to improve the operating environment for development of renewable energy in our state. The development of the Scribner biodiesel plant and the current state of the biodiesel industry in Nebraska is an excellent example. Though we produce over half a billion gallons of fats and oils in Nebraska annually, only a tiny fraction is used for biodiesel. Most biodiesel consumed in Nebraska

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comes from our oils and fats, but it's processed out of state. USDA 9006 grants were a tremendous boost to our project, but the state of Nebraska currently has no stake in supporting Nebraska's largest and 100 percent farmer-owned biodiesel plant in Scribner, which is currently reeling from high vegetable oil prices. I would offer the following suggestions for development of renewables in Nebraska, to address situations and conditions that I have encountered. LB1053 provides incentives for biodiesel production from nonfood or animal feed, as well as waste streams. This legislation is fully developed and needs to be immediately advanced out of committee. This program will incent the innovators and risk takers to build the solutions right here in Nebraska, and that is an excellent piece of legislation I had the opportunity to contribute to, with Senator Erdman's office and Rick and the university, and that would be an excellent piece to incent our biofuels' wing. State tax credits up to \$1000 per vehicle or so should be allowed for vehicle owners who install E-85 conversion kits. With EPA-approved equipment now available on the market for most existing vehicles, this is something that can be done immediately utilizing the legacy fleet. These kits reduce mileage loss to 2 to 7 percent when using E-85 and run about \$1600 installed. We will be doing this work in Lyons, Nebraska, as part of our green energy project. Incentives for noncorn based ethanol should be considered. Incentives are required if we are to stay on top in the ethanol production world, and this would include the cellulose-based ethanol that I know you have been supporting. And just to redirect a comment to Mr. Dorr's...to the question you had given to Mr. Dorr, I think radius from the plant is a significant issue with cellulose-based resources, because of the low density and the characteristics of the feedstock. You'll have kind of a gold rush at the end of the season, and this material needs to be transported, stored, and kept in such condition that the fermentative process can do that conversion. So I think we will see a significant difference in how cellulose ethanol develops compared to ethanol. The bridge to commercialization of university research needs mending. Where university and Energy Research Center data exist, it must be made available to the Nebraska-based businesses that are paying the tab. The near complete lack of renewable energy intellectual property and manufacturing is a clear indication of poor technology transfer to industry. Net metering

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is a dam in the stream that is holding up development of a number of renewable energy electricity technologies, and not just wind. A fair program with a 100KW cap is needed and applied uniformly across the state. Methane digestion of animal waste is an excellent example of a needed technology being suppressed by shortsighted policies, in my opinion. As the first registered biodiesel producer in the state, I am very familiar with our state requirements. While I comply with everything required of me as a small biodiesel producer, many citizens of Nebraska do not. I would recommend a road tax exemption be created for the first 5,000 gallons of biofuel produced by a licensed producer. This would encourage both proper licensure and making things simpler for everyone, which reminds me, I have to file my report by the 25th. Specific renewable energy grants and incentives must be provided for in a focused, renewable energy grant program that Nebraskans can participate in. Innovative technologies and demonstration projects must be developed to bridge the gap to implementation through visualization. The Value Added Producer Grant has been a tremendous program in our state, a renewable energy, focused version is needed, in my opinion, to foster innovation in that specific area of renewable energy, along the lines developed by the LB90 program. These can be developed along the lines of the successful USDA energy titles. Gasification of municipal waste, biomass, etcetera, can result in heat, green electricity or reformed to liquid fuels like ethanol, butanol and renewable diesel. This technology is over one hundred years old and was used by the Germans to make liquid fuels from coal in two world wars. Grants and incentives are needed to provide for demonstration projects. Algae has the potential to replace 100 percent of our national petroleum diesel requirements. Algae can grow in and augment municipal waste treatment systems, can sequester old carbon, carbon dioxide, and heat from Nebraska's numerous coal-burning facilities and results in a complete and nutritious food and feed product. Projects of this nature should be given the highest priority of support in the best interest of the citizen and Nebraska's future. As I have also stated, all of these things start with a sound and complete plan. Nebraska needs an updated energy plan and state government must decide how to best use taxpayer resources to reduce imported energy into our state and prepare for an uncertain energy future. I do have, as news as of last night, we will

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shortly be announcing to the public, so this is the first public announcement, of a joint venture project in Springfield, Nebraska, that will combine cellulosic ethanol production on the farm with a biodiesel facility that will use ethanol to convert vegetable oil to biodiesel. This will be the first integrated facility of its type, to my knowledge, and certainly the first of this type of facility on the farm. So this is going to be an exciting project, and we look forward to start up in the spring of next year. [LR350]

SENATOR DUBAS: Thank you, Robert. Any questions for Robert? I would have a couple for you. If you were to prioritize the major obstacles or stumbling blocks that are in place right now as far as moving the renewable energy agenda forward, what would be at the top of your list? [LR350]

ROBERT BYRNES: Well, I think garnering investor capital is tough, because of the short-termed incentives. Incentives that come up for renewal on an annual basis create a great degree of uncertainty year to year. No one knows if they're going to be renewed or not, and it's a start-and-stop kind of environment from an investor outlook. I've visited with many folks in that regard, so the uncertainty of the incentives that are out there is probably the biggest one. I think awareness and education of the opportunities that exist is something that can always be increased, but there is a tremendous lack of awareness. I'm always reminded of that coming to the fair, and that's one of the reasons I come to the fair, is to try to address that. People just don't understand what's possible any more. This is not 1975; this is 2007 (sic), and there's a tremendous amount of technology and things that we can do now that weren't done before. Unfortunately, past lessons are often referred back in people's minds. I think the state needs to, again, set that climate, and I've talked about that a little bit this morning--set the climate that we want this, we want to foster this development, we support this development in deeds, not just words. And investors know that climate. They understand that climate, because they see it in the states all around us; and I think that is going to continue to hold up the funding of the more innovative, high-risk type of projects, and those are the exact ones that we need to keep the ball moving forward. There are regulatory burdens, having

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written permits for the Scribner biodiesel facility. They're there for a reason. I mean, safety and environmental stewardship is an important part of developing renewable energy along the proper lines. But unfortunately the biofuels industry in particular oftentimes has to follow the precedent behind petroleum diesel, and a lot of things that have to do with vegetable oil and biodiesel are treated as petroleum diesel, and they are not. The toxicity differences alone make them very different products and materials, but unfortunately a lot of times they fall into the same category, because it has historically always been that way. So a lot of the...I think the industry would benefit by maybe separating those things so that the advantages and the environmentally friendly attributes of renewable biofuels could be brought to bear. [LR350]

SENATOR DUBAS: Do you think...you know, it seems like now this issue has really come to the forefront. Everybody is talking about, everybody wants to get on the bandwagon; and we've discussed infrastructure and the needs of developing infrastructure or the lack of infrastructure. Is that something that you see as being an issue that might be holding back the production of renewable energies, or do you see that being addressed in a timely fashion? [LR350]

ROBERT BYRNES: Well, certainly with wind it's an issue. With ethanol it's an issue; getting ethanol out of state on fully appropriated rail lines is a challenge. With biodiesel we're actually importing what we use more than producing what we consume. The smaller decentralized types of biofuels facilities don't have infrastructural issues, per se, because they utilize locally produced raw materials and sell them to local markets. So the infrastructure requirements of decentralized facilities are much less than a hundred million gallon plant that can only fill railcars. So capacity diversity, I think, will be a great benefit if we, in my opinion, properly develop the resources, because some things we send out of state were appropriate and it's able to do. Other materials we use locally from things that are grown locally, and that whole infrastructural burden can be lifted, and we see that in Scribner. Scribner utilizes oils that are grown in Nebraska, processed in Nebraska, sold and consumed in Nebraska. We don't need...they don't need rail,

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don't need long trucking routes, so everything is right there. So it's...proper development is key. [LR350]

SENATOR DUBAS: You mentioned something about algae and that it could replace all of our petroleum needs. Is that what you said? [LR350]

ROBERT BYRNES: Yes, on the...currently, give or take a few million, but on the 950 million acres that are currently dedicated to agriculture in the form of livestock or row crops, if all of the fats and oils created on that agricultural ground were converted to fuels, we would provide somewhere from 10 to 15 percent of our nation's petroleum diesel requirement, and as Congressman Bartlett in Washington, D.C., pointed out to me, that is before we figure in the old carbon energy inputs it took to grow it. So it could be actually closer to 6 to 8 percent replacement of what we're currently using. Algae, because of its photosynthetic growth rate oil content, if grown...and NREL did this study, and actually the biodiesel report that contained this study was presented to the Ag Committee last year as a product of our internship work. But the NREL study years ago found that if a portion of the Sonora Desert in Arizona were dedicated to intense algae farming, it was about 9.5 million acres, the productivity of those farms could replace 100 percent of the national petroleum diesel requirement. That is 50 times the oil per acre of soybean. It is highly productive. It is nature's most efficient way of storing the sun's energy in carbon-carbon bonds. This is also some research work that's part of Lyons green energy project. It was announced a few weeks ago, and that is a very exciting opportunity for Nebraska. We have some climactic challenges. However, we do have the solar energy potential that drives that process. [LR350]

SENATOR DUBAS: Where are we at in the research and the actual putting that into production? [LR350]

ROBERT BYRNES: In Nebraska, I don't know that we're anywhere. But I know...for nationally, I know a tremendous amount of research has gone into organism types, into

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growing techniques, photobioreactors. They've drastically reduced the floor space, so to speak, it takes to do algae ponds. You don't need...I mean, the sun only penetrates six inches into the top surface area of a pond, so they've vertically stacked them and they do all kinds of things to reduce the footprint that's required. The separation and thickening of the algae, it's obviously aqueous, is fairly well developed. Nebraska Screw Press in Lyons, Nebraska, is working on the research and technology required to remove the oils from this material, and then the final...and there are a number of biodiesel processors that are working that final linkage between getting it into the fuel tank. So those final steps are still being worked on, but it's getting close to a point where it should be able to be demonstrated in its full capability. [LR350]

SENATOR DUBAS: Thank you very much. Any other questions for Robert? Thank you. Thank you, Robert. [LR350]

ROBERT BYRNES: Thank you, Senator. [LR350]

SENATOR DUBAS: Prem Paul, would you like to come forward? [LR350]

PREM PAUL: (Exhibit 3) Good afternoon. My name is Prem Paul, P-r-e-m P-a-u-l. I am Vice Chancellor for research and economic development at the University of Nebraska-Lincoln. Madam Chair and members of the Legislature's Agriculture Committee, I'm here to provide testimony on LR350, which proposes to examine opportunities in the growth and development of renewable energy, including cellulosic ethanol, biodiesel, and other systems for capturing energy values from agricultural products and waste streams. I want to thank Senator Dubas for her leadership and interest in his important area. Our professor, Ken Cassman, who is directing Nebraska Center for Energy Sciences Research is out of the country, and I'm trying to fill in for him. I work very closely with him, and that center reports to our office. We are very supportive of this planning effort. The goal of this study is to identify policies, programs, and strategies to optimize economic value realized by production agriculture and related

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economic sectors in the renewable energy development. As Vice Chancellor for Research and Economic Development at the University of Nebraska-Lincoln, I am very pleased to see a forward-looking study like LR350 that seeks to position Nebraska for economic growth, especially through the renewable energy sector. As you know, Congress has mandated a renewable fuel standard in the Energy Independence and Security Act of 2007 that will require production and use of 36 billion gallons of biofuels by 2022, of which 21 billion gallons must come from second generation biofuels such as those made from cellulosic biomass. This represents a fourfold increase in biofuel production capacity compared to current levels, which is almost entirely based on corn grain ethanol, and it will greatly reduce our country's dependence on imported oil. In fact, the long-term viability of the biofuel industry will be a major driver of economic development in Nebraska. Our state is second nationally in corn-ethanol production, and this industry is now one of the three largest industries in the state. Nebraska also has an emerging biodiesel industry, and the Abengoa Company is development a pilot plant for cellulosic ethanol production in York, Nebraska--a project partially supported by the Department of Energy. Like many regions of the country, Nebraska's entrepreneurs are looking at advanced cellulosic biofuels and considering their potential. But the rapidly developing biofuel industry is highly competitive with regard to attracting capital for investment in new facilities and operations. This competition is very fierce in the Corn Belt and Great Plains. Many of our neighboring states are making strategic investments in biofuel research and policies that help accelerate technology development, expand educational opportunities, and provide incentives to position their states at the forefront of this dynamic industry. Given this competitive environment, it is important for a state like Nebraska with a relatively small population base, to identify those areas in which it has comparative advantage and develop a strategic plan that would help focus our efforts on these areas. To this end, LB350 would serve as the vehicle to develop such a strategic plan. The University of Nebraska-Lincoln has also seen the emerging opportunities in the biofuel industry and is making investments in research and education to support it. With partnership with the Nebraska Public Power District, we have established Nebraska Center for Energy Sciences Research, which

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provides seed grants to support faculty research and education on renewable energy options. This particular center has really served as a catalyst to bring faculty from multiple departments and colleges together and discuss about the common area that we can work together. One outcome of this program is a new interdisciplinary, campus-wide, energy sciences minor that will include substantial coverage of the economic, environmental, and geopolitical impact of biofuels and the emerging technologies to support this industry. And I think that talent base is going to be very important to support this emerging, growing industry. Since the center was established, we have allocated nearly \$2 million for faculty research projects with the goal of helping them obtain preliminary data and initial findings that will make their programs more competitive for large, competitive grants from federal agencies such as the Department of Energy, United States Department of Agriculture, and National Science Foundation. A number of these grants have gone to faculty who conduct research on various aspects of biofuels. I must say that there is a project also...at least the team is working on algal biofuels. But these efforts are relatively small compared to the investments being made by our neighboring states. Indeed, Nebraska has a number of comparative advantages that with vision could be leveraged to accelerate expansion of our biofuel industry in the state. Our irrigated corn production is the largest among all states and these high-yielding systems provide large amounts of cellulosic residues such that some of it could be used for biofuel production while also protecting soil and water quality. We have significant areas of marginal land that could be used for new, dedicated biofuel crops such as switchgrass. With our USDA partners at the University of Nebraska-Lincoln, we have the most highly developed research capacity on the genetics and production of this promising new biofuel crop, and we are currently seeking resources to expand our efforts in this area. And this is really...worth noting is that we are a powerhouse, we are really an international leader in this area of research, for a long time. And this provides an opportunity for the state of Nebraska to capitalize, if we wish. In closing, I would like to confirm my support of your interest and for strategic planning efforts to help position Nebraska at the forefront of the emerging biofuel industry. I believe that LR350 is an important step in this direction. Thank you. [LR350]

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SENATOR DUBAS: Thank you very much. Question for Mr. Paul? I would have a few for you. What would you consider to be our most critical research and development needs? [LR350]

PREM PAUL: I think that clearly there really...in order to develop successful, strong research programs where we've been able to succeed, it takes talent and it takes infrastructure. I think the facilities and then talent and then providing some seed funding so they can get started, and then we can leverage those resources. And then the private/public partnership, so not just faculty working...you know, we need to have faculty be addressing both the fundamental research and the applied research, but that can be done very, very nicely in a partnership with the private sector. That's where the Innovation Campus comes in very nicely. I think that this is an area that would be a very high priority to be addressed in the Innovation Campus, because we need those faculty members who understand the problem from a basic standpoint, and the private sector that understands the problems and also how to take those new ideas and new information into the marketplace. [LR350]

SENATOR DUBAS: You stated in your testimony that our efforts are relatively small compared to other states. Is it because of these reasons that you just outlined? [LR350]

PREM PAUL: Yes. Right, absolutely. But I think that this an area that we can really play, and we can make an impact and help the growing industry in Nebraska. And I'm very proud of my faculty colleagues in the last years, recent years, that they've put their efforts into the energy areas. And there are a lot of positive things that have come out of that. [LR350]

SENATOR DUBAS: So you feel that this issue has definitely been elevated in importance, as far as the university and the work that the university is doing? [LR350]

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PREM PAUL: Very high priority of us--energy, water, where they intersect, because historically, if you look at UNL, our major strength historically has been agriculture and we have, in the Beadle Center, a lot of exciting work going on in developing new crops that would produce...that would be more appropriate for biodiesel and other renewable energy--switchgrass, sweet sorghum work. So really the long-term investment that the state has made into the University of Nebraska-Lincoln, in not just only the agriculture part, because I think that what we're talking about is going to take the chemists and biochemists and physicists and engineers in a very multidisciplinary, collaborative way to address this problem. So from that perspective, I'm really very proud of my colleagues, what they're doing. But if we really want to be a player, then it is going to take huge investments. [LR350]

SENATOR DUBAS: We've been talking mainly today about what we can grow to produce energy. We haven't really talked about solar or like methane capture, some of the other things. Are those areas, too, that the university is looking at? [LR350]

PREM PAUL: Well, I'm glad you mentioned that, because I think that no single solution is going to help us solve this problem, because it's a mega problem. Yes, we have expertise all the way from energy efficiency...our engineers at the Peter Kiewit Institute in Omaha, part of the College of Engineering of UNL, they're doing very excellent work, top-notch work. We have engineers working on producing better engines and better blades for the wind energy, and we have expertise in solar energy. So there are...in some of the those areas the research efforts are very small, but our major strength is in the renewable, you know, more in the biofuel area. [LR350]

SENATOR DUBAS: Thank you very much. Any other questions? Thank you, Chancellor Paul for coming today. [LR350]

PREM PAUL: Thank you. Thank you. [LR350]

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SENATOR DUBAS: I believe we have a representative for Abengoa. [LR350]

CHRIS ROACH: (Exhibit 4) Good afternoon, Vice Chairman, distinguished committee members. Thank you. My name is Chris Roach. I am project development manager for Abengoa Bioenergy. We're a renewable fuels company headquartered in St. Louis. We've got a number of ethanol plants that we operate in the Midwest today, including two in Nebraska--in York and Ravenna. On behalf of my company I'd like to thank the committee and the Nebraska Legislature for their continued support of the renewable energy industry and for the invitation to speak today. We received an invitation a few weeks ago. Mr. Chris Standlee is our executive vice-president. He was not able to be here today and he's a very good speaker, so hopefully that's not to my disadvantage. But I am working currently on our first commercial cellulose-to-ethanol project and can probably lend some insight on our efforts there. There were some questions posed by Senator Erdman in the invitation letter that we received. My testimony attempts to cover the questions, and then at the end I'll entertain the questions that you have in addition. Abengoa Bioenergy today operates four grain-to-ethanol facilities in the U.S., including plants in York and Ravenna, for a total capacity of approximately 200 million gallons per year. We also have plants in Europe and Brazil, with a total global capacity of about 400 million gallons per year. Currently we also have two projects under construction in the U.S., and one in Europe, and we'll have a capacity of approximately 700 million gallons per year by approximately 2010. There's another project that we're working on today, a project that I'm spending all my time on. It's development of a 100-million-gallon-per-year ethanol facility that's going to be an 88 million gallon per year traditional grain-to-ethanol facility colocated with a 12-million-gallon-per-year cellulose-to-ethanol facility, and there will also be a biomass-to-synthesis gas facility installed that will provide most of the process heat required to run both plants. Our feedstocks we're targeting for this project are primarily corn stover, wheat straw, milo stubble, and eventually we'll move towards more dedicated energy crops like switchgrass. This is a project that we've received a grant from the Department of Energy in support of, for \$76 million, that is to help develop, design, and construct this facility.

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Before I get into more of the details of the project, let me provide a little more background on some of our efforts that are supporting the development of this project and this technology. In 2007 we started up a biomass-to-ethanol pilot plant at our York operating facility. This is a 20,000-gallon-per-year pilot plant that is testing different biomass feedstocks using our enzymatic hydrolysis technology to convert to ethanol. We've been testing wheat straw and we're currently testing corn stover, and we are producing ethanol today at the pilot plant. The goal of the pilot facility is to provide our process design data for the hybrid facility that we're designing for Kansas but also to achieve a process that ultimately can be competitive with traditional grain-based ethanol production, which is one of our commercial hurdles, to make this technology long term financially viable. In Spain we are nearing the completion of another biomass-to-ethanol demonstration unit. This one is larger; it's a 1.3 million gallon (inaudible) facility that's going to be testing wheat and barley straw. This is also providing design data and support of our development of the hybrid facility that we're developing in Kansas. With the project progress, let me give you some background on where we are with that. This is...ABHK is Abengoa Bioenergy Hybrid of Kansas, and we call it ABHK. We're expecting to begin construction in about a year from now. Our major efforts in business development: We've submitted our air permit application; various other permits are being worked on. We're in the middle of a NEPA review process with DOE, which is required because of the DOE grant. We've got our site secured; we're negotiating utilities and other agreements, like rail. We've not yet started efforts in financing, because frankly it's a little early yet to begin, and the market is not quite favorable enough, we believe, to approach it with our project. Biomass procurement: Significant effort here, because we're essentially creating a new business. We're looking at the methods, both technically and then also commercially, how we can secure over 1,000 dry tons per day of biomass to this facility, which is quite a bit. And it's also imperative from a development standpoint for financing that we're able to secure a long-term, reliable supply of biomass, and that's also something that's new. Process engineering: We've got a group of process engineers in our Colorado office that are working with the pilot plant folks and also doing development of the process design for the project. And

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then in engineering we've got 20 in-house engineers and several outside engineering companies working on the detail engineering for the plant. Overall we have 150 direct and indirect employees working for the project. To date we've invested, just in the project, over \$20 million, which does not include our pilot plant investment, which is approximately \$60 million. And again, we anticipate beginning construction mid to late next year and having the plant operational by 2011. Long term our strategy is to deploy this hybrid technology to our existing facilities and to other new facilities that we might develop in the future. So our two plants in Nebraska are going to be candidates to bring this biomass technology to, based on the success and the development that we do with the first project. One of the questions in the letter, invitation, had to do with the cellulosic industry and its current state of development and what we see today, as far as how it's progressing. We see that there are a few companies today like ours making real headway towards developing and constructing commercial facilities within the next few years. These are also projects that have received DOE grants, the 932 awards. Originally there were six companies, projects, that received these awards. It's our opinion today that about half are making good progress moving forward and should be staying close to their schedules. This is an important step in the development of this technology in this industry, because this is almost like a commercial demonstration stage. There's going to be a lot of challenges for all these projects to overcome. There's going to be a lot of challenges that we see that we need to overcome, that we really can most effectively do by having a commercial operation put in place and learning from that experience. Having said that, these projects really stand alone, probably would not happen if not for the support we're receiving from DOE and the investment we are getting from our parent company, and certainly the other projects from their investors, because the cost of these plants is still quite high compared to grain-based facilities, and the cost of production of a gallon of cellulosic ethanol is still higher than grain-based ethanol. And those are both things that need to be overcome for this industry to be successful long term. In particular, with our facility we've got some challenges that we need to overcome. One is in the cost of enzymes for the enzymatic hydrolysis; that is still an expensive input to the process. We're working with some enzyme companies

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today to get that cost down and get the efficiency up. Fermentation organism efficiency or yield needs improvement. We're currently working with Cargill on that effort. Biomass pretreatment costs needs to be improved, and that research and work is being handled by our process group. And then the overall capex I mentioned is still quite high. I would estimate that it's...it can be five to ten times higher on a per-gallon basis than a grain-to-ethanol facility, capital costs for a facility like this. Today the work at our York, Nebraska, plant, along with our collective efforts of our R&D group in the U.S. and Europe are focused on addressing all of these challenges along with refinement of our overall process design for ABHK. We are successfully producing cellulosic ethanol from corn stover at York and have also demonstrated the process on wheat straw, so that's obviously a significant step forward. Regarding significant technological, regulatory, practical, and economic constraints to achieving economic viability for cellulosic ethanol, I've just mentioned some of the technological hurdles. I can't speak for all the technical hurdles of the other projects out there, but there are surely going to be similar to the ones that we're facing. Some other constraints that we see: There needs to be public and private support for the funding and financing of these second-generation ethanol facilities. Without this these plants may not be built and the improvements needed to achieve commercial viability, such as the technical improvements mentioned above will not be realized. Public sector support comes in the form of the RFS in the energy bill with its requirements for cellulosic ethanol; incentives, both state and federal; loan guarantees--there's loan guarantees in both the farm bill and energy bill that we're watching closely, that could be a great benefit to us to receive financing for this project. The public sector support will also drive private sector interest and investment. The development of a sustainable supply of biomass is also critical. Demand for biomass will be growing, not just with cellulosic ethanol but with biomass to energy in general. A reliable supply of biomass that is sustainable over the life of the project, 30 years and beyond, will be needed not only to finance these projects, but also to sustain profitable operation long term. There are many new challenges involved with these feedstocks that have to be overcome. The technical and economic development of additional value-added coproducts that can add to the profitability of these facilities are also

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needed. As with a grain-based ethanol plant, there are coproducts other than ethanol that have value. In particular I'm speaking of lignin. This is an organic compound that has been investigated for many years and is just finding commercial viability in select applications. If successful, this could bring an additional 10 to 25 percent revenue to an operation like this and could put it into an economically feasible position. We think long term the industry will also be looking at its carbon emissions and looking for ways as an opportunity to gain value there. I put this comment in here, and as I've reviewed by testimony, I want to just stress that cellulosic ethanol is a significant advantage over gasoline and other petroleum-based transportation fuels with regard to greenhouse gas footprint. With our technology we're seeing a 70 to 80 percent reduction based on the GREAT (phonetic) model, which is the one developed by Argyle National Labs and greenhouse gases compared to gasoline. The carbon emissions I mention here are really still based on renewable feedstock's, so the carbon that's consumed was carbon that was captured from the atmosphere. But there is an opportunity with these facilities to do something with that CO₂. And today there is not really a solid technological or commercial solution as to what to do with the CO₂. But we think that's an opportunity for these plants to add additional value as the CO₂ credit market becomes real. Generally speaking, there are many challenges to overcome for cellulosic ethanol to grow and survive. We believe that ultimately the best path forward is to get a handful of commercial facilities into operation and get through this demonstration period, say the next five years, to overcome these challenges. It is critical to this industry that these projects receive all of the needed support to get developed, financed, and built. In the end, there is no substitute for these full scale experiences. The public sector plays an important role in achieving this. We see some areas of contribution: Continued support for research and development efforts, including the development of biomass supply are going to be critical. There are several programs at the state and federal level that do this, and they need to continue. Support through incentives for cellulosic ethanol. These incentives will be critical in achieving some minimal level of commercial viability in the early years of operating to attract private investment. Loan guarantee programs can play a significant role in achieving financing as well. Today there are programs in the

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Energy Bill and the Farm Bill that may be available to biorefinery projects like ABHK, and other efforts including biomass growing, collection, and harvesting. We need to ensure that these receive adequate funding. Importantly, stable policy on renewable energy. The private sector will be less apt to invest in these technologies if they perceive that the mandate to diversify the nation's fuel supply is unstable. Generally there needs to be public sector support for sustainability and carbon reduction to continue to attract private investment into these technologies. On the question of higher fossil fuel prices on private investment into renewable energy, some observations regarding ethanol and second generation ethanol technologies. In spite of higher gas prices, ethanol price has remained low. We're in a period of oversupply that has resulted in significant downward pressure on ethanol pricing. This will likely last until the end of 2009 or into 2010. Higher fossil fuel prices have greatly increased the cost of inputs. Both grain and natural gas have seen significant increases in the last two years, cutting into the profitability of the industry. In the last two years, and for many reasons including the rise in fossil fuel cost, investment in renewable fuel technology has slowed, especially for first generation technologies. Investment interest in second generation technologies is affected by this investment slowdown, caught up in a general mood swing in the financial market. This is also more directly obvious where the profitability of first generation technology could support new technologies in a project or business resulting in overall profitability, such our hybrid project. The net result of higher fuel...fossil fuel prices today is lower profitability in our industry and lower private investment. That's the end of my testimony, so... [LR350]

SENATOR DUBAS: Thank you very much, Mr. Roach. Any questions? I would have a couple for you. Based on what you just stated about economic impacts on ethanol production and then looking at the mandates that have been laid out in the Energy Bill as far as, what, 36 billion gallons by 2022? [LR350]

CHRIS ROACH: Um-hum. [LR350]

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SENATOR DUBAS: Are we going to...is that an achievable benchmark? [LR350]

CHRIS ROACH: Yes, we think it's achievable. The 36 billion is, obviously, broken into grain-based, advanced biofuels, and cellulosic. Cellulosic is the biggest piece of the future increase. As these technologies get commercialized and gain efficiency in production cost and capital cost, we see that they will actually be more cost-effective than grain-based ethanol long-term. Today, even with the current economic conditions, I think if two or three years ago you looked at how much ethanol was blended, about 25 percent of it was...or 75 percent was by mandate, 25 percent was voluntary. Today it's more like 50-50. The economics are still there for continued growth. And frankly, if you look at the price difference between ethanol and gasoline there's still strong incentive to blend. As the market conditions continue to move forward we see gas prices still saying...staying relatively high. I mean we're not going to see, you know, in the \$2 gasoline range. At least that's what...I'm not predictor, but that's certainly what I've read. At those prices and at the costs that we see for grain-based ethanol and what we project for cellulosic-based ethanol there should be a strong economic incentive to blend that fuel. So we think the growth is going to be there. [LR350]

SENATOR DUBAS: Good. Do you think that the biofuels technology has the ability to mitigate a lot of the concerns that we're hearing in the media right now, you know, the food versus fuel, the consumption of natural resources? Do you see your industry able to address those concerns? [LR350]

CHRIS ROACH: Well short-term what our industry is attempting to do is to try to get the facts out there about what are our real impacts on food prices. I think anybody who's been observing commodity prices in the last year probably is not drawing the same conclusions that they had six months ago. We are always looking at the sustainability of our technologies. All those factors have to be taken into consideration. We think and we see that on the grain side, which is really where some of the controversy is derived from, with the projected increase in yields that should be realized in grain production,

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that will more than offset the growth and demand from ethanol consumption. In fact, that's been historically the case as well. The yields we've realized over the years have more than made up for what we have seen in the growth in demand for ethanol companies. On the biomass side that's the whole story is about sustainability and reducing our consumption of resources. The biggest impact there is in fossil fuel. Obviously, we're getting totally away from that as far as feed stock. We're also looking at ways to move away from natural gas consumption as another limited resource that also has greenhouse gas emissions. And we're looking at, on the supply side, we have a significant amount of biomass available in many forms, just undeveloped. There's a lot of work to go into how to best utilize all of these different types of biomass. We may find that it's region to region there will be differences in how these plants are designed, how these business models are put together. But clearly we have a significant resource there that's basically untapped. Our responsibility is going to be to utilize that in a responsible manner, to look at the effects on the land, to look at the effects on the local economy to make sure it's all done in a way that's responsible and mitigates any issues that may arise there. We're certainly doing that in an active way with what we're doing. Frankly, with our involvement with DOE and going through our NEPA process it's all about looking at impacts across the board, looking at water resources, looking at the effect on the local economy, looking at transportation, looking at all sorts of issues. It's very comprehensive, and it's giving us an opportunity to take a real hard look at all the aspects of design, not just technically, but commercially how we put this thing together. So I think there is a real drive to have that responsibility. And I think we're going to have the ability to do it in a sustainable way. [LR350]

SENATOR DUBAS: I'm glad to hear that, especially that you mentioned water, because I mean that's... [LR350]

CHRIS ROACH: Obviously... [LR350]

SENATOR DUBAS: ...of course in Nebraska and across the nation that's a big issue.

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And so that's also a public concern is, you know, are we using more of our water resources to develop energy than is good for society? So I appreciate the fact that your company is looking into that. [LR350]

CHRIS ROACH: Good. [LR350]

SENATOR DUBAS: Other questions? Thank you very much, appreciate you coming today. [LR350]

CHRIS ROACH: Thank you. [LR350]

LORAN SCHMIT: (Exhibit 5) Madam Chairman, members of the Agriculture Committee and staff, it's always a pleasure to appear before the Agriculture Committee. And my name is Loran Schmit. I'm testifying here today on behalf of the Association of Nebraska Ethanol Producers. Thank you for holding this hearing. I want to commend you, Senator Dubas, and the other members to have brought an under secretary of agriculture to Nebraska to testify on this issue, testify (inaudible) I could say to the importance of what you are discussing. And certainly I believe that under secretary Dorr emphasized that, and has emphasized also the fact that the development of what you're doing is an ongoing process and one which has been a long way getting to this point, and is a long way down the road yet to its culmination. But there's no single answer. And what you are addressing here is one major important part of that answer. And as a member of the Association of Nebraska Ethanol Producers, I want to thank this Legislature and each of you for what you have done for the ethanol industry. It's been more than 30 years since the OPEC Oil Embargo which was a major notice to the United States that our reliance upon imported fuels as the major source of energy for this country could be a mistake. Many years have passed since that time. And although the Congress has taken some significant steps to encourage the development of alternative fuels, and specifically ethanol, it was not until 2005 that Congress passed the first bill which recognized the necessity of establishing a definite amount of ethanol to be blended with gasoline. The

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2007 energy bill further expanded those goals to include 15 billion gallons from corn and 21 billion gallons of ethanol from cellulosic sources. The Congress continues to encourage the development of additional sources of alternative energy. An alternative energy plan approved by the Congress must not be reversed upon the whim of a few of its members. I'm embarrassed that 26 members of my own party in the Senate sent a letter to Secretary Thompson, of the EPA, asking him to reconsider the mandates for the goals placed in the 2007 energy bill shortly...less than six months after the bill was passed. In other words, they're saying, whoops, we made a mistake, forget what we said last December, let's go back and take another look. There isn't anyone in business, in private practice, or any kind of governmental position that can change directions that fast. And so to be effective any alternative energy plan must be followed through with consistency. We've increased the production of corn in Nebraska and in this country since 1990 at a rate that exceeds the consumption of corn for ethanol production. It's interesting that in 1990 we produced about 800 billion to 900 billion bushels of corn anyway. Last year we produced a billion four hundred million. In the sixties we produced only 200 million bushels of corn, so it's evident that our ability to increase the production of corn as addressed by the previous speaker is very far (inaudible) identified. We're going to increase our production of corn far beyond the production levels. And this does not necessarily mean that we should discontinue the research of the development of ethanol from other sources. You have heard Mr. Chris Roach, a representative of Abengoa Bioenergy. I am proud Abengoa is a member of the Nebraska Ethanol Producers Association. And he's outlined what they have done in that area. Another leader in the ethanol industry, aware of the argument food or fuel, has made great progress in producing high value products including food grade protein and corn oil. I might suggest that the committee might want to contact NICM Company who have been doing some research on this at St. Joe, Missouri. And you could get some good information from them. Several other companies have developed fractionation systems that increase ethanol production, reduce energy requirements, and produce additional high quality products. Another readily available source of cellulosic ethanol was recently described by Jeff Broin, CEO of Poet Ethanol, when he announced that their company

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is successfully making ethanol from corn cobs. Corn cobs can be easily harvested at harvest time right along with the corn. They provide little or no benefit to the soil, and can be harvested with no detrimental effect to the soil. Mr. Broin explained that their pilot plant can produce 80 gallons of ethanol from 1 ton of corn cobs. That means that Nebraska alone could produce 784 million gallons of ethanol annually from a product that is presently being discarded. Nebraska produces approximately 10 percent of the corn produced in the United States. Using the Broin figures, we could produce more than seven billion gallons of ethanol annually from the total cob production at the present time. Corn production, again as indicated by Mr. Roach, is expected to increase by 40 percent by 2018. That increase in production should equal more than 10 billion gallons of ethanol annually from corn cobs. I predict that we can produce another eleven billion gallons of ethanol annually from the corn stover easily meeting the 21 billion gallons of ethanol from cellulosic sources by 2022 proposed by the 2007 energy bill. I want to emphasize that that much ethanol can be produced from the crops we are already producing. And we would not need to (inaudible) nearly all of the corn stover to produce that much ethanol. Mr. Bill Shiller (phonetic), a chemical engineer from the University of Nebraska, 25 years ago estimated that if we were to remove one-third of the stover from the corn stalks we could produce that amount of ethanol, which would leave two-thirds of the corn to be left on the land. I believe that we will develop ethanol from the solid waste produced by our cities, turning a municipal problem in a beneficial resource. If we are to develop such a program we know that the Congress must not reverse their position the first time there is a slight decrease in the price of oil. The most effective action that can be adopted today by Congress and state legislators would be to let the citizens of the United States and foreign oil producers know that we're going to reduce our dependence on foreign oil and will do so on a permanent basis. I believe that knowledge will cause a reduction in the world price of oil long before new U.S. production reaches the market. Ethanol production has reached a significant contribution to liquid energy supplies in this country. It is unfortunate that the major oil companies have chosen to finance an attack on the ethanol industry at this time. Oil companies and their new allies, the grocery stores of this country and regrettably some

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of our livestock and poultry producers are attempt to blame food price increases and food shortages in some countries upon the production of ethanol from corn. It is the price of jet fuel that is forcing airlines to ground a significant percentage of their planes. It is the price of diesel that has driven up the cost of operating our trucks and trains. It is the price of gasoline that is causing a major hardship to our working men and women. Oil companies refuse to use ethanol even when it is a significant income benefit to their business. Oil company lobbyists told me years ago, and I quote, we will never surrender 10 percent of our market to a bunch of farmers, unquote. In fact it is on record, if you go back in the early seventies, the hearings before the Revenue Committee. I was also reassured at that time by the oil companies that they have billions of barrels of oil in reserve and that we will never see a shortage of oil and petroleum in this country. They are working hard to make good on the first promise. They obviously have failed on the second. U.S. production of corn is at a record level. Corn exports, corn consumption by livestock, corn used for ethanol production and carryover stocks of corn are at record levels as of now. If it were not for the use of corn for ethanol production we would have historic overproduction of corn and disastrously low market prices. The financial disaster in the Corn Belt would be unprecedented and the entire economy of the Corn Belt would be a disaster. I would point out to the members of this committee the strong financial position of this state contrasted with some of the other states, some of that at least is due in fact to the fact that our \$1.4 billion bushel corn crop is worth about \$3.60 more today than it was two years ago, which adds over \$5 billion to the economy of this state. I encourage the Nebraska Legislature to continue to support the programs designed to relieve our dependence on foreign oil. This will not be the first time that a state legislature took positive active without waiting for the Congress to act. I want to commend this committee or the members of it for their long record of support of alternative energy. And I am a firm believer that we need to pursue all sources of alternative energy. Be it solar, be it wind, be it hydro, whatever you have, we cannot afford to overlook any source of energy. In conclusion I just want to say that as you listen to the testimony here today and recognize that the goals that we're looking at are three to five years down the road. The younger persons in this room might think that's a

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long way away. But when you sit where I sit and you look back 37 years (laugh), it seems like the flick of an eyelash. And so if you don't take the first step then you never get started. And no matter what we do, we have to continue to try to develop (inaudible) new resources. We'll be better off for it than we will if we don't take that first step. Thank you very much, Madam Chairman. I'll answer any questions. [LR350]

SENATOR DUBAS: Thank you, Mr. Schmit. Any questions? Seeing none, I guess, thank you very much. [LR350]

LORAN SCHMIT: Thank you, Senator, very much. Thank you. [LR350]

SENATOR DUBAS: Another testifier? I believe I was told that there was somebody here maybe that has a connection with Danny Kluthe, with his methane. Could you...would you mind coming forward sharing what Mr. Kluthe does? [LR350]

CHARLES MEYER: I'm Charles Meyer. I'm actually the zoning administrator for Colfax County, Nebraska. I came to that...the last four years before that I practiced law for 20-some years in Nebraska. So I have a legal background, too. But I took a retirement job of being a county zoning administrator. And in that capacity I became involved with Kluthe's Hog Confinement. It was a large issue in our county to reduce odor from hog confinement. And methane recovery is an excellent vehicle for doing that. And Danny was on my planning commission, and between the two of us we gutted it out and spent three years battling his project through. I wrote grants for him. Was out at his place a lot. I helped negotiate prices with NPPD for the electricity that he produced. So I've been pretty deeply involved the whole way. Our county participated too. I would be grateful to our county board for their assistance really in the process. But anyhow, the main point I would like to make, listening to the testimony that I've heard today, is the net metering is really important. And what Danny and I encountered really surprised me because the methane recovery has positive outcome just about every way you describe it or use it, not only odor reduction, but you get some electricity, some renewable energy from it.

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You get methane gas which has the possibility of replacing propane use on the farm, which is a pretty expensive proposition for the producers. You get better water quality. You get a very high quality fertilizer product after you're finished with the digestion process. And so there are lots of pluses for it. I guess I was, as a retired lawyer who worked with Nebraska statutes for years, I'm familiar with them too. I was expecting more state support, I was expecting more enthusiastic response from our state bureaucracy probably that, hey, you guys are doing something really good, how can we help you, sort of attitude, and everything. And what really happened was we encountered a rather sticky bureaucracy. It took us three years to fight our way through that. And I think what I've discerned about it is that one of the major outcomes we had that I'm really proud of as a retired lawyer is that NPPD had been taking the position, up to that point of Danny Kluthe's project, that they were not subject to the federal purple law, the utility regulation law, and that was passed in the seventies. And that law says basically, oversimplifying, but it says that electric utilities have to buy renewable energy. And that law also says that they only have to pay their avoided cost for that renewable energy. And so the avoided cost that NPPD uses to set their price is 2 cents a kilowatt hour. They say that they're producing power for something in the range of 2 cents a kilowatt hour. So when you build a renewable project, whether it's wind, or whether it's Kluthe's digester, whatever, and you want to cost the system out, and the price for one of these systems comes back at you at \$500,000 roughly to where they're going to fall for that type of operation, and you want to pay back the cost of the system at 2 cents per kilowatt hour that you're selling electricity to NPPD for, it comes out, the feasibility studies, the engineering feasibility studies come out...or it takes about 13 or 14 years to pay back that system at that 2 cents a kilowatt hour. So it's imperative...NPPD and the way that we distribute electricity you turn around and you...the cheapest retail price for anybody up in our region is probably 6 cents a kilowatt hour. There are some customers in the small towns that are paying 12 cents a kilowatt hour for their retail electricity. And we finally negotiated a price from NPPD of 3.5 cents a kilowatt hour. And they gave us that because Danny surrendered his green credits. So part of his agreement with NPPD was to give up his green credits, and they gave him another 1.5 cent then on his

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electricity. Even that is in the marginal range of financing the cost of the digester. Now we got grant money. I wrote one grant, I wrote several, but the one successful grant was with the USDA. And we got \$80,000 from the USDA. One of the engineers from NPPD participated in this process too, Frank Thompson, and very helpful, actually Frank has been. And he wrote the environmental trust grant. And the environmental trust kicked in \$200,000. So we rounded up \$280,000 for Danny's project. And then he got some equip funds, because he added barns, hog barns in that too. So he probably got about \$300,000 of assistance from the taxpayers for building this system, which enabled it. It wouldn't have been realistic to think you could do it even at 3.5 cents even a kilowatt hour. And so that's the barrier that we're running into. What Danny does is Danny is wired right into the grid. The wires go from his digester and his generator up into the grid. And he's cranking out 80 kilowatts constantly. That engine runs, he's got a Caterpillar engine that's got a generator on it. The Cat engine runs off of the methane gas that's put in there, and it ignites, it works like gas fuel for the engine. And the...he's turning out 80 kilowatts of electricity around the clock. It stays running and online over 90 percent of the time. The only time he ever shuts it down is to change oil in the engine or to do repairs on the engine. And that's fueled from hog manure. He's got 8,000 head of hogs. He's got deep pits and he's got a method of moving the manure from the pits into the digester, and then bacteria act on those on the manure when it gets in there, it's fuel now, you know you don't think of it as manure anymore. But...and the bacteria act on that, it's an anaerobic digester. There's a flexible rubberized-type lid that goes over the top of a large tank, and there's a stirring device down in the tank, and this material is in a slurry form is in there, and this stirring device goes around and stirs this. Then it's also essential when you're producing methane, using bacteria like that as your vehicle for doing it that you take care of the bacteria. You can kill the bacteria with antibiotics in the hog food, for example, that gets in there and the antibiotics will kill the bacteria too. So you have to be careful about those processes. The...anyhow, you maintain the temperature of the digester at 100 degrees is where I was going with that. those bacteria function best when you have the slurry temperature of 100 degrees. And so you use the coolant liquid from that Caterpillar engine is recycled through the digester,

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and that's how you maintain your 100 degree temperature. I guess, I'm trying to describe it briefly and easily because it's not really a very complicated process. The engineering is not complicated, but the engineering has to be done. You can't just slap it together. But going back to the point of the net metering is that because our state has not moved forward in the sense of facilitating renewable energy and selling renewable energy, whether it's wind or whether it's methane digesters, or however we do it, it's really retarded the development of these systems. I mean we have farmers out there who have several thousand hogs in confinement. They generate a lot of manure. They offend a lot of people. So you're already doing a public good, I think, by taking care of that process, plus you get some renewable energy. Danny is required, under our statutory scheme in Nebraska, to sell all of his output to NPPD. And he sells it to them for 3.5 cents a kilowatt hour. In order to run his own farm, he can't use that electricity on his own farm. He has to buy back electricity from NPPD at retail price. So he's cranking out his own electricity that he gets 3.5 cents for, and he has to buy it back at 6 or 7 cents, which like Danny says, and he says it like a hog farmer says, that's really...that's crazy. You know, that's what Danny says, that's crazy. And that's what net metering would do for Danny Kluthe and for the digester process. If these guys could take their own needs on their farm and use that electricity and sell the surplus to NPPD, then it would be much more cost-effective. They're replacing electricity that costs them 6 or 7 cents a kilowatt hour with what they're generating from their digester instead of having to sell all of their output, like they do, and then buy it back again. And I would image the same kind of calculations go with wind energy. If you had a farmer with a small wind...I'm talking about the big wind farms, but the small wind generator type system, he again has to sell his output to the local power district to some higher entity, and then he has to buy it back retail. I'm just trying to make a strong point that it seems to me net metering doesn't cost the taxpayers any money. It's a relatively simple system. I mean a couple paragraphs in a statute could create that and create a net metering type process. I've seen...we...Danny has formed a company now, and I'm a member of that company, Renewable Energy Technology Inc., and we're attempting to market digesters. We've got five guys put together. And so we've been going around and we've

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been...he's been making his PowerPoint presentation of his system, showing it to people all over; they're very interested. And he gets hog farmers especially, but it works with dairy and it works with chickens and whatever. And there was an article published in a trade journal somewhere, earlier in the year and that resulted in a guy flying in to Nebraska, going to Danny's farm, a chicken farmer from Kentucky with 370,000 chickens, I think, a boiler operation. He wants a digester. He sees Danny's digester, he says he wants one. We have to engineer that and figure out how we're going to do that on a chicken farm. We had a guy fly in from Michigan that's got a big dairy operation. He wants it for his dairy operation, he wants the gas. Had a guy fly in from Canada, Quebec area, I think, of Canada. And he wanted a digester. And so this process is unfolding, and like I said, I want to go back and reemphasize the net metering aspect of this is a way for our Legislature to facilitate what's going on out there for the small, smaller producers. I think at that point I should probably just cut it off, unless you had questions of me, you know, that...and you wanted further descriptions of a digester. That's why I'm here for Danny. Danny couldn't be here today, and he sent me down because he knew I could talk through some of these things. He's an outstanding representative of this process and I wish he were here instead of me. But the...I have been pretty heavily involved, so... [LR350]

SENATOR DUBAS: Do we have any questions for Mr. Meyer? Senator McDonald.
[LR350]

SENATOR McDONALD: I've seen his operation and it's phenomenal. Did he invent or put together this digester? Did he go somewhere else to get that information? [LR350]

CHARLES MEYER: One of the interesting things, I wrote out a business plan for this RET, Renewed Energy Technology corporation, and we figured we needed a business plan before we can go to banks and get any money. And I'm the lawyer of the retired lawyers. So when they need something written, they look at me and ask me to write it. When I was doing that I was researching things on the Internet. And one of the things I

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came across, back in probably the eighties there was a group formed at the national level, between the EPA and the USDA, and it's called AgSTAR, it's a working group, and they work together. And AgSTAR turned out a manual that is quite comprehensive actually on methane digesters. And they identified all of the methane digesters around the United States and, you know, some dairy and some hog, and some...I should point out again when you do the methane digesting type of process the manure has to be fairly clean, fairly pure, if that makes any sense. You can't contaminate manure with dirt and straw and all those things and expect a digester to work. It won't work. You have to...so you...that's why it doesn't work in a cattle feedlot. But it can work like in a dairy confinement operation. As an observer in my job that they're...I've watched a couple of these dairy farm things that are being run out like Kearney, and there was one up by Royal. And I feel like our policies, our state government policies have defeated, to a degree, our ability to hang onto a dairy industry in our state. Dairy farms cause...a lot of odor goes with a dairy farm, a lot of high quantity manure production comes out of a dairy farm. And so the people around them don't want them, and you get large angry crowds when you try to permit those. And so...but if we would have built digesters on those dairy farms we could have kept those. I mean they're almost...you almost don't know they're there if they have a digester. It gets rid of odor that well and it has these positive kind of outcomes. And I know in our country we lost the cheese factory that used to be in Dodge, Nebraska. They went out to California. California has been actively building a dairy industry. They've got huge numbers of dairy farms. I got off track on what I was saying about when I wrote the business plan, too, and I want to make this point to the committee, if you'll bear with me for a few seconds. EPA and the AgSTAR people did a 2006 analysis of digesters around the United States, methane digesters. They figure that it could be built, installed, and operate profitably. And I don't know how they did their research, but they set up some criteria and they said that with these kind of confinement farms--dairy farms, hog farms, there is sufficient manure output, and the conditions exist to do one of these reasonably profitably, you know, pay itself back. And I was delighted to stumble across that when I'm writing this business plan which was going to be used to persuade bankers to lend up money. But they

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identified in Nebraska they identified 190 hog farms in Nebraska could profitably use a methane digester. I don't know if the criteria will match up that well that you'd get exactly 190. But there are that many out there probably that would benefit from having a digester. We'd get the renewable electricity, energy from or the renewable propane. It also identified a little over 1,000 of them in Iowa. So Iowa has tremendous numbers of hog farms compared to Nebraska. It identified 450 of them in Minnesota. So just in this region, in that three state region there are 1,650 potential opportunities for these digesters. I did some research on one in South Dakota just in the past couple of weeks I've done some research. There's one up there that is a proposed confinement hog farm that has caused a big turmoil in South Dakota. And the Yankton, Sioux Tribe is right adjacent to their reservation. And they're really upset about it. And they filed lawsuits, and they're fighting it really hard up there. And the digester would solve all their problems up there. And I looked at some South Dakota statutes and there is a South Dakota statute that is new, it's a renewable energy type piece of legislation that they've enacted just recently. I don't know how recently, but it creates the possibility of creating an electric co-op that can market this electricity locally. And as long as you have ten megawatts or less of output from your renewable energy project now state law empowers you to possibly set up an electric co-op and get some customers and start selling electricity at those levels. We don't have anything like that. We all...we have all big power and sell it to NPPD, and we have the large power generators. I don't know how realistic it would be to even propose something like that in Nebraska. But it's interesting that South Dakota has taken that step up there. I'll be quiet. I could talk for a long time. [LR350]

SENATOR DUBAS: Other questions? Senator Preister [LR350]

SENATOR PREISTER: I'm glad to hear that Danny has some legal counsel that's working with him. I also appreciate your perspective on net metering. I distinguish between net metering and net burdening. And as somebody who has advocated true net metering which gives incentives rather than impediments to the producer, I hear

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what you're saying. But I think it would be wise for Danny to understand the distinction. And I'm not sure I have ever succeeded in doing that, because Danny has sometimes advocated for things that were not in his own best interest, and he's too nice a guy to sometimes see the distinction. I would suggest that you might talk to NPPD to renegotiate his contract because NPPD can do whatever they want. There's nothing in state statute and there's no requirements. It's up to the producer and the utility to negotiate currently. [LR350]

CHARLES MEYER: That's a terrific point, Senator Preister. And I had the thought that NPPD could be empowered to pay more for this kind of energy, not 2 cents and not 6 cents even, but 5 cents. And I don't know if that requires a statute, to have a statute that says that for developmental renewable energy projects our public power generators or large entities have authority to contract with producers. [LR350]

SENATOR PREISTER: They don't need any statutory change. [LR350]

CHARLES MEYER: They don't even need it you're saying to me? [LR350]

SENATOR PREISTER: They can... [LR350]

CHARLES MEYER: There is none there I know, but... [LR350]

SENATOR PREISTER: The negotiation is between the producer and the utility. [LR350]

CHARLES MEYER: Okay. And when we negotiated, I mean I went to a dozen meetings at least with engineers and rate makers from NPPD on Danny's project. And I kind of made a joke about it. After it was almost like going to one of those Indian pow wow's. And as soon as you bring up rates in a room full of those electric power people, utility people, they all start dancing and then chanting, and you can't understand anything they say anymore. They've got their own vocabulary and they've got their own way of doing

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rate making, you know. And we outsiders aren't allowed to even understand it. But...and that's what would happen when we'd bring up rates, we'd...this chant would rise and away it would go. They always were afraid... [LR350]

SENATOR PREISTER: I'm familiar with that. [LR350]

CHARLES MEYER: Pardon? [LR350]

SENATOR PREISTER: I'm familiar with that. [LR350]

CHARLES MEYER: (Laugh) Okay, and yeah, I don't know where they picked up that vocabulary. But they've developed one of their own. And they...but I...I'm.... [LR350]

SENATOR PREISTER: I would encourage you to work with him and visit with some folks at NPPD and see about negotiating, especially using the electricity that he is generating or some of his own. [LR350]

CHARLES MEYER: They always defended themselves from us in these negotiations, the people who were there, by saying we can't raise...we can't subsidize your project by our other ratepayer. [LR350]

SENATOR PREISTER: I have heard that too. [LR350]

CHARLES MEYER: And so that was a constant wall that we encountered, you know, our other ratepayers we got a basic cost at 2 cents a kilowatt hour. And if we pay you guys 5 cents a kilowatt hour then we're taking money from other ratepayers and paying you guys with it. And that was a barrier in all those negotiations. And I'm sure it's still there. They're scared to death of offending their ratepayers because we're so proud of our public power and our ability to sell for 20 percent less than the national average and all those things that are wrapped up in that. But...we could...and I would say and Danny

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would say, too, and he and I have these conversations, we feel like NPPD has moved a long way. [LR350]

SENATOR PREISTER: They have. [LR350]

CHARLES MEYER: When we first started, I started to tell the committee at the beginning when we started they took the position they were not subject to PURPA. [LR350]

SENATOR PREISTER: Right. [LR350]

CHARLES MEYER: I mean that was the official legal position of NPPD. And we had to go through the, I can't remember the name of it, but there's a state committee that the Legislature established that if you're going to sell power to the... [LR350]

SENATOR PREISTER: The Power Review Board. [LR350]

CHARLES MEYER: ...Power Review Board. We had to go through the Power Review Board, so I took off my short-sleeve shirt and put on my coat and tie again and I became Danny's lawyer to take his case through the Power Review Board. And there was the executive director of the Power Review Board is also an attorney. He actually submitted a request to the Attorney General for an Attorney General's Opinion on whether or not NPPD was subject to PURPA and whether they had to buy the power or not. And the state Attorney General ruled that yes...he asked them a question. And the question, speaking like a lawyer, is, are you engaged in interstate commerce? If you're engaged in interstate commerce you're subject to federal law. And so their position that they weren't subject to federal law because they're all instate power generation wasn't accurate, because they're on the grid; they're on that ten-state grid. So they're marketing power across a ten-state area which draws them in under the federal law then. Soon as the Attorney General came out with that opinion, NPPD changed their

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position. I've always felt from a lawyer standpoint that was my major accomplishment being involved with Danny's hog confinement, because we changed the position of NPPD with our case for renewable energy. And NPPD changed their mind just over that and is now saying, okay, we've got to do that, the federal law requires it. But there is still a very resistant bureaucracy, even DEQ. And I appreciate what DEQ does. I don't mean to be...I don't want to bad mouth them in that sense. But they were so nitpicking in permitting this, they wanted the diameter of every pipe, and the length of every nut and bolt. And we had an engineer from California, it was a company that was from California that was laying out this initial system. He actually quit in the middle of the job, he said I'm not doing anymore of these in Nebraska. He quit and walked off the job. And we had to talk him back on the job again because he was so frustrated dealing with our DEQ. They're so regulatory in their outlook that it's difficult to...like I said, I appreciate what they do. They protect our water and air and whatever. But...so the open arm welcome that I expected, saying, oh boy, you guys are doing something really good, (laugh) did not develop. And I was like pulling rope through something, or towing a barge or something. We finally...and if Danny weren't the determined, terrific guy that he is, I mean he's just an incredible man. You can't tell him no. He just keeps going, and keeps going, and just keeps his enthusiasm up and his optimism up. And you'd have setback after setback and he still keeps battling through until he completes the project. I'm kind of like that, too, but Danny just really outshines me on that. So... [LR350]

SENATOR PREISTER: Sure. Well, thank you, you answered my question. [LR350]

CHARLES MEYER: Okay. [LR350]

SENATOR DUBAS: Thank you, Mr. Meyer. I appreciate you bringing the livestock perspective into this discussion. It's important that we include that industry. And I'd also like to ask you to fill out a testifier sheet that you can turn in to Melissa here on the corner. Appreciate it. [LR350]

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CHARLES MEYER: Okay, I shall. Thank you very much. [LR350]

SENATOR DUBAS: Thank you for coming forward. [LR350]

KEN WINSTON: Well, I wasn't going to testify this afternoon, but that testimony spawned some thoughts. My name is Ken Winston. Last name is spelled W-i-n-s-t-o-n. And I will, hopefully, take two minutes or less. I'm appearing on behalf of the Nebraska Chapter of the Sierra Club. Briefly, the Nebraska Chapter of the Sierra Club does not and has not ever supported confined animal feeding operations. And I don't expect that we will in the future. However, if we can reduce methane emissions, if we can reduce odors, if we can reduce the likelihood of water pollution, if we can also while doing that produce renewable energy, if those operations are already in existence then we certainly ought to support those things. And then again I want to just reiterate, as Mr. Meyer did, and as I indicated this morning, we need to do more to encourage net metering. That would be the substance of my testimony. [LR350]

SENATOR DUBAS: Thank you, Ken. Any questions for Ken? Thank you. [LR350]

KEN WINSTON: Thank you. [LR350]

SENATOR DUBAS: Any other testifiers? I see that Todd Sneller is in the audience. Todd, would you like to come forward and maybe make a few comments and answer any questions, if there are. We talked a lot about ethanol in various forms today, so appreciate your expertise. [LR350]

TODD SNELLER: Thank you. I appreciate your perseverance today. Some cynical citizens will make the observation from time to time that legislative resolution hearings are only held on Friday afternoon's before home football games. And clearly, none of you are motivated by that today. So for a Friday afternoon all of us thanks for your perseverance here today. I, too, was motivated by a couple of comments, including the

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fact that Ken Winston and I sometimes have to look to find areas of agreement. And I precisely agree with what he's just said. In many of these alternative energy areas we are just limited by our imagination. The application, for example, of landfill methane gas to compliment the natural gas needs of an ethanol plant in Jackson, Nebraska are already being deployed there. And as I heard the description about the livestock wastes and all, whether we can do methane recapture, the idea of looking for outlets other than just electricity may be an option too. This may be a supplement to a variety of different industrial opportunities. So to the extent that you're contemplating crafting any laws I want to make sure that you fully understand that I am pleased to be serving in any way, shape, or form that I can as a representative of the Nebraska Ethanol Board as an informational resource to you. I have had the benefit of watching a lot of these different strategies tried at the state and federal level of observing what other states have done and what's worked and what hasn't, and I'm glad to share whatever experience I might be able to offer that could be useful as you go forward in developing a strategy or developing plans. And I just wanted to offer that to you. The other thing I wanted to make an observation about is something that one of the previous speakers spoke on. As a representative of state government I, too, sometimes get frustrated that the state doesn't do its business very efficiently, particularly at the agency level. And so I've tried to work very closely with agencies like NDEQ and State Fire Marshal's Office and the regulatory agencies. So if you understand that we have a state strategy here of trying to deploy opportunities, particularly in the renewable energy sector, let's try to make sure that the state agencies, particularly the regulatory agencies are working together so that we do this in a way that doesn't frustrate investment, doesn't stymie enthusiasm that we see here because that's a real asset. And corral the enthusiasm and the opportunity and the capital is no small challenge. So it seems to me that it would be a good strategy for us to be working at the state level to try to facilitate that to the extent possible without forsaking any environmental protections, but at the same time trying to do this in a more efficient, more proactive way, if we can do that, because we see a number of examples where it hasn't always been done that way. And it is frustrating to those communities and companies that are trying to move forward. Finally, I'd just like to point out that there

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are a number of terrific opportunities to avail ourselves collectively of a lot of new information that's available. The Nebraska Ethanol Board has been working with a number of different institutions, like the University of Nebraska, to make special presentations at our ethanol board meetings, which are public meetings where we try to create an awareness to the media and among policymakers of opportunities to get more information about emerging technologies and emerging processes. Loran Schmit had mentioned this new fractionation process which is something we will see deployed at a number of ethanol plants in the next couple of years. And one of the companies that's doing that and will be working in Nebraska, will be making a special presentation at the next Nebraska Ethanol Board meeting, on September 25, excuse me, September 12 in Lincoln. On September 25 we are working with NDEQ and other state agencies to present a day long summit on emerging technologies. Again, here the goal is to create some awareness, but also to make sure that state agencies who are participating get a peek at what the future holds in terms of emerging technologies, so we know what questions to ask, so we know what we need to do to prepare for that so that we can have a more efficient process, particularly is we regulate the development of these. So there's a number of opportunities here from an information standpoint, from a resource standpoint that I want to offer from the Ethanol Board's perspective. Most recent is one that we touched on earlier in a question on the impact of ethanol production and food, feed, fiber, and fuel. The next one of these ethanol across America pieces is that we take an active role in developing will be on the environmental footprint of ethanol production so that we better understand what those environmental footprints are. And we work very closely with the university and other technical professionals. These are not propaganda pieces. We really make an effort to have the best factual information available so that people can understand and get the facts and we don't have to guess in the media what's factual and what's fiction. So again, to the extent that we can be helpful in conveying any information that is useful to you, please feel free to call on the Ethanol Board. [LR350]

SENATOR DUBAS: Appreciate that, Todd. You know as we broaden our renewable

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energy portfolio, I think ethanol has already blazed a pretty big trail for us to follow. So what would you see...how could we build on the success of ethanol and use what ethanol...the ethanol industry has learned to move the rest of the renewable energy issues forward? [LR350]

TODD SNELLER: If we're good students of history, we can look at the Nebraska model of the past and realize that there were several things that allowed us to provide information, that the Legislature was able to act on and gave us this public policy framework that's been very successful by any standard, I believe. One is that we take a look at what's happening on the federal level and how can the state piggyback its public policy on that? We knew that in the 1985 move by the federal government to eliminate lead from gasoline that there would be a need for octane. And it was obvious to those in the technical community that ethanol was a great octane enhancer and could meet the need for lead in gasoline. And so it was a huge opportunity for us to start down that path and encouraging ethanol production in the state and providing some incentives to do that. We knew that those incentives needed to be absolutely bulletproof, so that there wouldn't be a fulfillment of the perception that the state government giveth and it taketh away. And so the contractual framework that was embodied in the incentives was critically important because it gave confidence to the investment community. That if the performance standards that were met, they would be rewarded in the way that was described under state law. So I think piggybacking on federal law and making sure that we have performance-based incentives that the financial community can count on are going to be very important. As we look down the road we're at again a juncture where much like the Clean Air Act amendments of 1990 offered a number of opportunities for using more ethanol, we now see this renewable fuel standard, which is a performance-based standard that requires significant carbon reduction in order to be qualified biofuels. Biofuels and ethanol under it, that standard. But we also know that it's painted a future opportunity for us that goes up to 36 billion gallons of ethanol. We're at about 9 billion gallons today. So we know there's room for more grain-based ethanol, we know there's room for more advanced biofuels. And so it's up to us to be smart

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enough, I think, to craft the incentives and the public policy that will encourage that investment to take place in Nebraska. It's going to take place somewhere in this country, and I guess the critical issue for the members of the Legislature is, do we want to try to avail ourselves of that opportunity in the future the way we have in the past? And if we do, there's a couple of things that we've learned from the past in terms of stability, the incentives, and making sure that we are being proactive in working with companies to let them know that we would like that investment to occur here, preparing our communities to make sure that they can host companies that will come in and evaluate opportunities in those communities. All are things that we've done well in the past. And if we're good students of history we ought to be able to replicate that model in the future, provided we have a good public policy framework that encourages that. [LR350]

SENATOR DUBAS: Thank you, Todd. Are there other questions for Todd? One last thing, could I ask you to spell your name for the record? [LR350]

TODD SNELLER: Yeah, Todd T-o-d-d, Sneller S-n-e-l-l-e-r. And I will fill out a sheet for you. Thank you. [LR350]

SENATOR DUBAS: Thank you, Todd. Is there anyone else that would like to come forward? If not, we will close the hearing on LR350. And again I appreciate your indulgence and support. And have a good afternoon. Thank you, committee members. [LR350]