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Business and Labor Committee
November 12, 2012

[LR601]

The Committee on Business and Labor met at 1:30 p.m. on Monday, November 12, 2012, at Creighton University in Omaha, Nebraska, for the purpose of conducting a public hearing on LR601. Senators present: Steve Lathrop, Chairperson; Tom Carlson; and Norm Wallman. Senators absent: Tanya Cook, Vice Chairperson; Brad Ashford; Burke Harr; and Jim Smith.

SENATOR LATHROP: (Recorder malfunction)...member of the committee to my far left is Senator Norm Wallman, and to my more immediate left is Tom Carlson, both senators and colleagues and members of the Business and Labor Committee. To my immediate right is Molly Burton, who is legal counsel, and Kate Wolfe is our committee clerk. We are going to...generally those of you that have been in hearings in front of the Business and Labor Committee know that we oftentimes use the light system. We're not going to do that today, but we will ask you to keep your remarks somewhere in the 15-minute range. That's more of a guideline than a hard rule since we're here to learn today and it's not...we're not here for or against anything, but really an opportunity to educate the committee on the subject matter of LR601. We are going to...I have a list of people to testify and I'm going to generally go off that list other than we're going to have Tarna Kidder go first for scheduling reasons, and thereafter we'll kind of go through the list as we have it here. And then if there's anybody that wants to testify that hasn't been called up, we'll afford you an opportunity to do that, so. Oh, yes, and the paperwork. There are testifier sheets which are located right over here by that pen, I guess. And if you would, before you testify, fill one of those out. That helps us keep a good record, make sure we spell your name correctly and that sort of thing. It helps our committee clerk. So if you would fill one of those out before you testify. And then you can drop it in that box there so that Kate has it for purposes of making a good record. And with that, we'll begin with Tarna Kidder. Okay, we've got to open, which means Molly is going to speak a little bit about LR601 first. [LR601]

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MOLLY BURTON: Do you want me to open real quick? We don't have to. [LR601]

SENATOR LATHROP: Oh, no, no. I'm sorry. Yes. Okay, we've got to open, which means Molly is going to speak a little bit about LR601 first. [LR601]

MOLLY BURTON: Just briefly. Senator Lathrop and members of the committee, my name is Molly Burton, legal counsel for the Business and Labor Committee, and this is LR601, the green jobs study. This hearing is designed to educate the committee on Nebraska's renewable energy industry and the current worker training sources, and future needs to promote, sustain, and create jobs in this industry. We have leaders in this field that are present to educate the committee. We have Todd Sneller from Nebraska's Ethanol Board. We also have John Killingsworth, who is a current UNL grad student working on his doctorate, who will speak on education and training-related barriers to green energy employment in Nebraska. We have John Pierce, who is the chair of the Southeast Community College Energy Generation Operations program, who will present the current status of five of the state's community colleges with regard to renewable energy curriculum that has been and is being developed. We have Daniel Lawse, who is the coordinator of Metro Community College's Sustainable Practices, and will present information on green job training from the community college perspective. We have Tarna Kidder from Kiewit, who will present information on green jobs from the engineering and construction community to include commissioning, energy auditing, and other consulting services. Gretchen Dolson, who is from HDR Engineering will present information on green jobs and sustainability from the private engineering and construction community. We have David Levy, who agreed to testify last minute--thank you--who is with Baird Holm law firm in town and will focus on wind energy. [LR601]

SENATOR LATHROP: Very good. Thanks, Molly. And with that, we will begin with Tarna Kidder from Kiewit. Good afternoon. Welcome to the Business and Labor Committee. [LR601]

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TARNA KIDDER: Thank you. Thank you for having me. Can everyone hear me all right? My name is Tarna Kidder and I'm with Kiewit Building Group based here in Omaha. Directly, I manage our services group which supports the construction side of our business with technical services specifically around energy efficiency in the built environment. So today I wanted to share with you...I've been asked to share with you some of the new job opportunities that we see in our business that are directly related to energy efficiency and promoting that business, that industry. So there's three primary drivers for what we've seen as green jobs. The first is green building certification programs. Those specifically have driven the need for third-party assessors, folks to come in and evaluate how green a building may or may not be. The second is just a focus on energy efficiency. We've seen a significant increase in the number of both private and public sector institutions looking at reducing their overall energy consumption, whether that be through homegrown efforts or systemwide performance contracting efforts. And the third is just an awareness of sustainable business practices. On the whole, I think whether you're in the construction engineering industry or any business, I think there's a wherewithal when it comes to sustainability that wasn't there ten years ago. So I'm just going to give you an overview of some of the jobs that we did not have in our business, just as many as five years ago. So directly related from the green building certification efforts, you have a whole list of independent third-party type of professionals that are required to help evaluate the sustainability of a facility and specifically their energy consumption. And from those jobs, there's a second tier set of careers that are out there for the continuing education and the training and development of those individuals. Again, something if this business is going to grow, that whole market also will need to grow. From an energy efficiency focus--I'll try and talk a little louder now that the air conditioning is on--there's a few technical services that are new that are specifically related to energy. Energy auditing evaluates how much energy a building uses today, and then also from a measurement and verification standpoint, how much the building uses after some new products may be installed, whether there be renewable products or other system upgrades. And then as you can see, not unlike the first slide, there is subsequent industry training, association training, and programs that

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need to support those career paths. Some of the primary drivers that we're seeing in the sustainable market is a huge focus towards paperless procedures. Everything from what we're doing on the construction side of the house to facility management on the back end when it comes to the built environment, going paperless is a big driver. That is driving secondary markets of cloud-based storage, as well as technological skill sets that traditional facility managers don't have. So we see...anticipate seeing an increase in the technical skills of those folks that are hired to take care of facilities moving forward. In the short term what we see as limitations is really a declining number of folks pursuing careers in the engineering field. That's across the board. But now you have the double pinch of an expanding market coupled with declining enrollment, so we see that as a challenge. Specifically we're...as a business, we're increasing our outreach to the lower primary school levels to help combat some of that, but I think that will continue to be a problem. The other thing that doesn't go hand in hand is many of the certification programs that are out there now are voluntary, they're optional. So without regulation that mandates a certain level of energy efficiency, I think we'll be hard-pressed as both a state and a country to really force the private and public sector to comply. So that's a little bit of what we're seeing on the construction engineering side. Any questions?

[LR601]

SENATOR LATHROP: Senator Carlson. [LR601]

SENATOR CARLSON: Thank you, Senator Lathrop. What's the last entry on the last slide that you...? [LR601]

TARNA KIDDER: I'm sorry, I don't remember. [LR601]

SENATOR CARLSON: Well, the last slide you had up. No, that isn't it. [LR601]

TARNA KIDDER: Oh, utility or tax rebates is another form of incentive. It could either be the carrot or the stick depending on how we want to motivate folks to reduce their

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energy consumption. [LR601]

SENATOR CARLSON: Okay. [LR601]

TARNA KIDDER: Somehow there has to be an incentive. [LR601]

SENATOR CARLSON: Okay. Thank you. [LR601]

TARNA KIDDER: You're welcome. [LR601]

SENATOR LATHROP: Is it the cost of energy now, though, that's driving people's interest in being certified? [LR601]

TARNA KIDDER: More so out of Nebraska. Our utility costs are pretty low here right now, so the motivation for somebody to spend a lot of money...a business to spend a lot of money to make energy efficiency upgrades is not very great. The payback is a long time compared to some of the, you know, the utilities that are paid on the coast. So there needs to be some other incentive other than cost. [LR601]

SENATOR LATHROP: Okay. And the jobs that you were describing there, from your point of view, are those all jobs that require a college degree or are some of them like two-year degrees from a community college? [LR601]

TARNA KIDDER: I think they run the gamut. Some can be two-year associate degrees up through four-year degrees. There are some on the facility side that could be, you know, on-the-job training derived, but I think the bar needs to be raised. So more than likely, that will include some sort of education, formal education. [LR601]

SENATOR LATHROP: Okay. Are you...is Kiewit having trouble filling those kind of positions or you're just waiting for the demand for these services to improve? [LR601]

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TARNA KIDDER: Speaking specifically on the energy-related jobs, there's not a lot of programs out there that are focused strictly on energy. So what we're having to do is find people that maybe have the mechanical or engineering background but have an interest in energy, so then...and then train them on the job to (inaudible). There's not a lot of direct "I know this is a program at this college that will support what I do every day." So we're having to adapt people to our business to fill the need. [LR601]

SENATOR LATHROP: Okay. But the shortage of qualified people is just an engineering issue which is happening across the country. [LR601]

TARNA KIDDER: Yeah, and exacerbating this because it's a narrower subset. [LR601]

SENATOR LATHROP: Okay. Very good. I don't see any other questions. Thanks for coming down. We appreciate you taking the time. [LR601]

TARNA KIDDER: Yeah, thank you. [LR601]

SENATOR LATHROP: Next we'll hear from Todd Sneller. Can you all hear well enough? Okay. Did you say "no," Loran? Yeah? All right, we'll try to talk up for you. I couldn't tell whether the sound is coming through there or not. [LR601]

TODD SNELLER: (Exhibit 1) Mr. Chairman and members of the committee, my name is Todd Sneller. I'm here today representing the Nebraska Ethanol Board to try to provide an overview of the biofuel sector, generally; and the ethanol industry, specifically, particularly opportunities that we're realizing in the state; and then to respond to any questions you may have. The one handout I wanted to share with you today is the 2011 version of what we see today in 2012. It's a bit of a moving target. But of note here is the geographic diversity of the ethanol plants located in the state. As you can see, while the perception may have been that this was just an agricultural-sector opportunity, what

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we see here is really geographic diversity of these facilities across the state. And beyond that, I think it's probably important to note that again while the perception may be that this is an industry that primarily benefits agriculture, what we see is a lot of Lincoln- and Omaha-based companies that provide services and products to this sector: financial institutions like First National Bank of Omaha, which has a position of about 60 percent of the ethanol plants in the country today--it has taken a very active role in that; many of the Omaha- and Lincoln-based engineering firms providing a variety of engineering services to these companies; the railroads, obviously; and trucking companies providing transportation services. So if we take a look at the gamut of opportunities, it goes well beyond agriculture. And that's one of the perceptions I think the ethanol industry struggled against that it's been primarily an industry that benefits agriculture, when, in fact, it goes well beyond that. And I think that's one of the key points I wanted to convey. That opportunity, obviously, geographically extends across the state then as we see where these facilities are located. I wanted to again point out the fact that the idea of ethanol is not a new idea. This photograph was taken about two and a half blocks from the Nebraska State Capitol. Governor Bryan at the time was doing a promotion that was taking place in 1933, one year after the Nebraska Legislature first passed an incentive to provide a 2 cent a gallon incentive for gasoline that contained 10 percent ethanol. So the state has got a pretty rich legacy in ethanol development, and again this was just an indication that this is not a new concept. Our ability to produce ethanol in a significant and meaningful way for the nation and the state is what's new about this. And I would like to go ahead and comment on a few of the specifics, if you'd advance one more, please. One of the things I think as we take a look at it, is the real success story in the state, is that when Senator Schmit and his colleagues in 1971 envisioned a state ethanol program, the real dreamers in that class thought that one day we might see two or three ethanol plants and if we really hit a grand slam, the capacity one day might equal about 50 million gallons was kind of the dream of the day. And we've done significantly better than that, in large part because of a public policy framework that the Nebraska Legislature established early on that allowed those of us who work in economic development and industry recruitment to

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have the tools to go out and attract companies to Nebraska. Historically, it's been difficult to seek capital to flow into agricultural states. Nebraska is no exception to that. But the construction of these plants required about \$5 billion in capital, and a lot of that money has flowed into the state from external sources, some of it, obviously, coming from internal sources including shareholders across the state. But it's a real success story just in terms of the scale of what has been accomplished since this concept of ethanol development was first embraced by the Nebraska Legislature. As you can see, the plants vary in size from quite large, 400 million gallons a year ethanol capacity of our largest; to the smallest which is about 25 million gallons a year with an average of about 84 million gallons a year, which is a fairly significant plant compared to industry standards. We have two plants that are not yet operating, one at Mead, Nebraska, which is an interesting collaboration of technologies that involves livestock feeding, ethanol production, and methane digesters being integrated into a single operating system. And we do have a plant at Aurora, Nebraska, that was expected to begin operation in June of this year, but because of current market conditions is not operating yet, but is fully constructed and ready to add about 113 million gallons a year capacity to the state's production capacity when it begins operating. Nebraska ranks second nationally behind Iowa in ethanol production. We produce about 2.1 billion gallons a year of ethanol. Most of that is fuel-grade ethanol, but we did see from time to time the capacity to produce types of alcohols that can be used in pharmaceuticals and beverages and for different industrial applications. Nebraska, last year, for the first time became a fairly major exporter of ethanol to Brazil, of all places. But we do have a significant demand in place today for processing ethanol for U.S. consumption. And as you can see from the amount of corn that was processed in these plants last year, about half the corn crop last year was processed through these plants with the by-products of that used in the livestock feed sector. So you can the growth has been pretty steady up until about 2007 when we hit a big spike. And with regard specifically to your interest in job training and all, John Pierce will be here to talk about the details of this. But it became very clear as we were hitting this spike in ethanol production, we needed to have more trained workers. And in response to your question earlier,

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Senator, for the prior speaker, this really spans the range of people who are learning basic production skills at the plants and can be trained on site. We found out that the training programs at the community colleges in the state have been immensely helpful and John will talk about that. And we have a number of companies that are actively recruiting what they call "green" engineers. They're very interested, particularly, in recruiting chemical engineers. John will allude to some of the internships that we see at the community college level. And certainly through the university system in Nebraska we've seen a really good, strong partnership between the private sector and the universities who are trying to recruit engineers who want to work in places like Nebraska where they have opportunities to use those skills, and that's been an ongoing program to make sure they get some experience before they make career decisions and leave the state. Those opportunities on site in many of these biological plants, including the ethanol plants, has been very important, hoping to retain some of that talent pool that we have at our colleges and universities. Just quickly again, this is really a subject for another day, but one of the things that we do a good job of is producing ethanol in the state. We don't do quite such a good job of using as much as we might. So at some point taking a look at what has been done by the Legislature in the past which was to, in fact, encourage, if not require, the state vehicles, in particular, to use ethanol fuels. We still have a practice of doing that with the lowest level blends. We have not seen the state embrace that policy with the higher level blends, particularly E15 and some of these other fuels that are available. So again a subject for another day. But one of the policies, it seems to me, that would be a strong policy in terms of leadership in the sector that the state is heavily invested in, is to see if we can patronize those products that we produce here in the state a little better than we have in recent years. We've got that opportunity in front of us today. One of the things that I think is most impressive about the number of jobs is the quality of these jobs, and particularly again when you take a look at where these are located. If you take a look at these average wage rates, in Lincoln and Omaha these would be attractive, modest rates. But when you take a look at Trenton, Nebraska, a town of about 500, or Ord or Albion, some of our smaller communities where these facilities are located, these are really good quality jobs,

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particularly out in those communities. One of the things that was most impressive was an assessment by the Nebraska Public Power District which took a look at the highest tier of wages paid in their annual wage and labor survey. The manufacturing sector in Nebraska pays the highest average wages across the state, and that wage rate in 2011 was \$41,800. Again, a good wage rate for a lot of communities in their highest wage rate strata. The ethanol sector average in 2011 was \$56,156, significantly higher than the highest average wage rate in all the tiers that are surveyed by the Nebraska Public Power District every year. So again in terms of quality jobs, that's one of the things I think has been very important about the ethanol sector. It's not just the number but the quality and the location of those jobs. Another factor, obviously, that gets a lot of attention: What sort of benefits comes from this? And in the 2011 survey, 99 percent of Nebraska ethanol sector employees had employer-provided health insurance; so obviously not only the wages but the benefits that come with these jobs. The plants directly employ nearly 1,400 employees, and if you take a look at the indirect jobs that are specifically supporting that activity, according to the Nebraska Public Power District, about 7,700 jobs produced in the state by the ethanol sector last year. We're going to continue to see these benefits. I think the Legislature embraced the idea early on that if we can get these plants to invest capital in the state and build these plants, ultimately they'll continue to get larger over time, they'll continue to generate more benefits over time. And again, the Nebraska Public Power District, University of Nebraska economic assessment done last year showed that the direct Nebraska household income of over \$85 million a year is a pretty significant contribution to the state's economy. We saw that the total economic impact was over \$250 million last year. We saw that the sector generated over \$51 million in taxes to the state, and the fact that we see this huge increase to the value of the state's corn crop last year, in large part because we're adding value to that crop before it leaves the state rather than simply exporting the raw material as has been done historically. One of the things that you'll hear, perhaps a little bit more about from John Pierce today, is a recent assessment that the university has been involved in. And this goes across all their campuses. This is a multidisciplinary approach by a number of the colleges at the university that are taking a look at what the

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impact is when we integrate ethanol with the corn and cattle sectors in the state. And that synergy generates an awful lot of activity beyond what one might guess taking a look at the individual components there. When this comes together, what Dr. Bruce Johnson told the Ethanol Board recently, and this is the basis of a study released about two weeks, is that this economic balance comes from this synergy. And so again, the ethanol sector plays an important role in bringing together the state's economic strengths in a way that adds significant value. Beyond that, what we've seen here is that the distillers feed has been an important component to the state's livestock industry, again adding value before those products leave the state. But we also see a robust demand internationally for these products; and so we're seeing China, for example, making inquiries on a regular basis to the Ethanol Board office, the Nebraska Corn Board office, to the Department of Economic Development as well, inquiring about large volumes of distillers grains for export. We think that we've got a good home for that product in the state. We think it's a perfect complement to the cattle industry; but the fact is, that's now an internationally recognized commodity that some years ago was not recognized as having very much value. And so again, to the extent that we're able to capture that value in the state's economy has been an important part of what we've seen the ethanol sector contribute. One of the things that we see as we're looking forward is an opportunity to do more and better in terms of the technology. And one recent example of this is the idea of extracting corn oil from the ethanol plants. There are two basic types of ethanol plants--corn wet milling plants like the big Cargill plant at Blair, the big ADM plant at Columbus--and those are, in effect, bio refineries which break up that corn kernel into maybe a dozen different components and then make products from those components. The other ethanol plants are dry mill plants which basically have made ethanol and distillers feeds and carbon dioxide. What we're seeing now is this trend toward corn oil extraction which allows them to still produce a high quality protein feed but to pull off corn oil for applications like biofuel, for feed products, for a variety of human food and feed products. And so as result of that, we've seen this trend which again adds additional value and provides additional opportunities in the state. This has become a real important opportunity again to add more value and to add

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opportunities for employment at these facilities. In addition to that, what we see is an even better opportunity to break down the protein and make human-grade proteins. There are a number of inquiries coming in from pharmaceutical companies, from healthcare companies that are interested in both the functional and the nutritional protein that's available that we feed the livestock today; and there is an opportunity in these plants to further refine that protein and make it available for food and feed applications around the world. We're also seeing an opportunity here with enzyme technology, and the most recent example of that is the announcement about two weeks ago by Novozymes. Novozymes is a very large international maker of enzymes. They specifically have made these enzymes for the biofuel sector and ethanol in particular. They did a worldwide search and decided they would serve the world's needs for conventional ethanol from a Nebraska-based plant. It was a huge recruiting coup. That plant is on the Cargill campus of Blair. The initial capital investment of that is \$200 million. The initial employment is over 100 with a total of 200 employees expected when they're in full operation. That plant would not have been there without the ethanol sector. Again this is an allied industry that came to serve the ethanol sector as it's continued to grow. And we're going to continue to see those type of companies that bring new products and new processes to the ethanol sector. And as a result of that, I think we have this terrific opportunity to build on the base that we have today, not only with those products and those services, but taking a look forward to the advanced biofuels, the next generation of biofuels that's starting to evolve, and using our 24 campuses where the ethanol plants are currently located. It's really the recruitment tool because of the complex infrastructure located on those sites today being a perfect fit for the requirements of the advanced biofuel facilities. And finally, just a play toward one of the strengths in the state in terms of transportation which is our rail sector. Again many of the plants are realizing to have very efficient rail transportation to the world's markets and to major U.S. markets, particularly on the west coast, they've got to have efficient rail transportation. We're seeing in many cases, rail refinements at these plants where they're adding rapid load-out unit-train capacity that in many cases is creating another \$3 million of investment in rail infrastructure on these sites. So again the employment

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that comes from that, and the business activity for the railroads that comes from that as well, is maybe not a quickly understood or a fully appreciated benefit of some of this economic activity. That would be the conclusion of the comments that I wanted to share with you. I appreciate the chance to talk with you and I'd be glad to respond to any questions. [LR601]

SENATOR LATHROP: Okay. Thanks, Todd. Senator Carlson. [LR601]

SENATOR CARLSON: Thanks, Senator Lathrop. Todd, I've got a couple of questions. First, you indicated on one of your slides that in 2011 there were 795 million bushels of corn that were used in ethanol. What percentage of that ends up in feed for cattle? [LR601]

TODD SNELLER: The majority...because many of the plants make the wet distillers feed, much of that feed stays here. That's unique in the United States. Many of the other states' plants dry that feed for export, but it's so perfectly suited for Nebraska's cattle industry that the bulk of that material stays here. So in effect, about one-third of that, in a bushel equivalent basis, would be distillers feed, and the bulk of that material is staying in Nebraska or surrounding states because of the demand for it. There's simply no need to export it while that's a robust market. Much of the ethanol is produced, much of the distillers feed is produced in wet form and there's a real value in feeding it wet form. And there are actually under some of the California Air Resources Board fuel requirements, benefits to not drying that, not using natural gas to dry it. So there are a whole host of reasons to continue to keep that product in the state and to feed it here. [LR601]

SENATOR CARLSON: So of 300 million bushels used in ethanol, then roughly 100 million ends up back in feed for the cattle? [LR601]

TODD SNELLER: It comes back about 40 percent replacement, in effect. [LR601]

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SENATOR CARLSON: About 40 percent? [LR601]

TODD SNELLER: Yeah. [LR601]

SENATOR CARLSON: Okay. The other question is...and I just picked these out because one of them is in my district and one of them is close. But Lexington, for example, estimated annual capacity, 50 million gallons; and the amount of corn consumed; and then permanent employees, 50. And then you look down at Minden. The annual capacity is 59 million gallons and the amount of corn used is similar, but at 34 employees. Just from that information it looks like the Minden plant is more profitable. [LR601]

TODD SNELLER: We have seen some of these plants operate with 24-28 employees, and part of this is how they're designing that in terms of what is the length of the shift, how many days a week they're working, what sort of profit-sharing programs they have; but clearly there's an opportunity here in many cases to employ more or less. And what we've seen is, in some cases, profit-sharing programs and scheduling make a difference in these cases. And so we do see this variance. In addition to that, in some of these cases there may be an additional product or two; for example, they may be capturing the carbon dioxide at the facility, and so there's some additional functions that might be occurring at those plants. But certainly employee overhead is one of the features, but it's a significantly smaller feature than the cost of energy going into the plant or the cost of the primary feedstock, like corn, going into the plant. [LR601]

SENATOR CARLSON: Well, of course, you like to see the larger number of employees, but Lexington that has 50 as compared to 34, then it could be they're extracting something else that brings added value to them to compensate for the additional employees. [LR601]

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TODD SNELLER: In addition to that, they may be managing the marketing of the distillers feeds themselves; and so that they're handling those products, they've got employees on site handling that as opposed to outsourcing that to some other subcontractor. [LR601]

SENATOR CARLSON: Okay. Good. Thank you. [LR601]

SENATOR LATHROP: I don't see any other questions. Thanks for coming in. [LR601]

TODD SNELLER: Okay. Thank you. [LR601]

SENATOR LATHROP: That was very helpful. And John Killingsworth, right? No? Oh, you're going to...you're a follow-up to...no, no, that's fine. Come on up. You're fine. [LR601]

JOHN PIERCE: Chairman; Senators; John Pierce, Southeast Community College. Thank you for the opportunity to testify today. Just as a follow-up to some of Todd's remarks before I forget, I did bring in a newspaper article here from the Lincoln Journal Star, October 31, and there's a story in here about the contribution of corn and cattle to the state's economics. Just to paraphrase a portion of this and to follow up on Senator Carlson's question about the livestock feed and some of the benefits of that, according to the article, Texas regularly leads the nation in numbers of cattle on feed, but the NU research, according to Bruce Johnson, indicates as much as \$10 per hundred-weight improvement in the Nebraska overall value, courtesy of the feeds that are coming out of the ethanol plants. So that's pretty significant. Also the ethanol economy adds about \$3.4 billion per year in direct receipts and \$4.54 billion when a multiplier effect on other businesses is taken into account, just courtesy of the ethanol industry. So it's a very significant economy benefit to the state. Also in the job sector, which is primarily what I'm here to talk to you about, the ethanol industry directly employs almost 3,000 workers; I think your slide showed almost 1,400. But when you add the semi-direct jobs,

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it's almost 3,000 workers; and the spin-off effect when you add in other jobs, is almost 11,000 jobs, courtesy of the ethanol industry. So I wanted to do that follow-up before I lose track of that. I did just go ahead and print off my remarks here for you. I won't read the whole thing to you; that would just insult your intelligence. But I wanted to highlight a few items on here. The first page of this handout just kind of gives you an overview of what we considered "green energy" or "green jobs" or "renewable energy" in general. And I'm sure that you're all very aware of what those definitions are. The Nebraska community colleges--if you flip over to the second page--all six community colleges participated in a grant opportunity a couple of years ago. That grant just ended this past April; it was courtesy of the Nebraska Energy Office. And we called the consortium the Nebraska Consortium of Renewable Energy Studies, and that grant helped fund curriculum development and the start up of several programs across the state for renewable energy studies. So that grant has ended but those courses are continuing and some programs are continuing in full force. The six community colleges have a variety of programs and I'll just kind of summarize some of those programs for you. Central Community College, first of all, has a very robust mechatronics program on the Columbus campus. And it's a wonderful lab they have up there and they are training people in all sorts of mechanical and fluid fundamentals that are certainly important in any energy generation business, whether it's renewable or traditional energies. The renewable energy option available on the Hastings campus at Central Community College is just in it's start-up phase. They're starting that this current session so I'm not really sure what the results are of that. I haven't really heard any reports back from Central Community College. Metropolitan Community College, Daniel is here to talk about that. I'll just kind of gloss over it. Most of what they're doing has to do with efficiency and solar energy systems, so I'll let Daniel address that when it's his turn. Mid-Plains Community College has extensive diesel, electrical, HVAC, and some other related mechanical programs that they've been running for a very long time, all of which are very applicable to energy generation in general, and there are some applications as well to energy efficiency. Mid-Plains really hasn't embraced a major program yet in terms of renewable energy, although they are the headquarters, I guess you might say,

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for hydroelectric energy since there is a North Platte hydroelectric plant right there by one of their campuses. Northeast Community College has a very robust wind program. I've been working with them quite a bit on their wind program. They have an associate degree and diplomas that are offered at Northeast Community College in Norfolk. They built this program partially with the grant funds that I mentioned earlier. They also have a wind energy diploma and certificates so they're...I believe their program is relatively full of students so they're pretty busy with that up there. They built some fairly good size wind turbines that they can actually use in their curriculum. So it's a really nice program. That brings us to Southeast Community College, my college. We kind of took a different approach when we designed our energy generation program. It really started with nuclear and Cooper Nuclear Station came to us and asked us to help them develop a program to keep their operator pipelines full so that they could continue to operate that nuclear plant. And it became clear as we developed the program that the skills and knowledge and competencies required to be an operator in a nuclear plant are virtually identical to the skills and the competencies needed to operate an ethanol plant or a wind turbine farm or a coal plant. There are all sorts of different processing operations. So we built the program based on this broad-based approach so that all of our students get a core curriculum that really prepares them for a wide range of industries, not just energy generation, not just green energy, but traditionally powered energy plants. As well as, now I'm getting calls from a whole host of processing plants from literally, border to border and coast to coast, things like pulp and paper mills and refineries and breweries and water and wastewater treatment plants and all sorts of things that have nothing to do really with energy generation, but our program seems to fill those needs very well. So we're very pleased to see how well that has gone. So far we've graduated one group of students last June, 13 students, and all of them were placed immediately and the average starting wage was just under \$51,000 for all 13 students. So we're very pleased with the results of that. The Western Nebraska Community College, the final community college, does have a wind certificate program. They and Northeast and we at Southeast all collaborated to develop some wind curriculum, that we're sharing that curriculum, so that we can provide this training for our graduates to embrace any kind of

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energy generation type of a job they might seek out. So I would just like to conclude by saying that I think the community colleges are in a pretty good place, and Daniel, I'm sure, will back me up on this, but to provide training for the green jobs when they do become available and we certainly hope that they continue to grow. We have been supplying workers for many decades for traditional energy generation and now we're moving into the green energy and I think the curriculum is in pretty good shape already. So when the jobs do continue to grow, we should be in a pretty good place to provide the workers for those jobs. That concludes my comments. If you have any questions, I'll be glad to entertain those. [LR601]

SENATOR LATHROP: Very good. Senator Carlson. [LR601]

SENATOR CARLSON: Thanks, Senator Lathrop. This is the second time I've said this today but certainly I'm one that believes that our university and state college system needs to be very, very strong. Having said that, I'm understanding better and better every year I'm in the Legislature about the value of the community college system and what it brings to the state. And I think this is a really good example of what you're trying to do that is so good for the people of the state in the long run. What do you wish the state did additionally that we don't do now that would help you? [LR601]

JOHN PIERCE: The state has been so helpful already I really can't think of anything in addition to what you're already doing. The state aid, of course, to community colleges is vital to keep the cost to the students reasonable. We like to say in the community colleges that we're in the business of training people for real jobs; and because we're so nimble, we can alter our curriculum very quickly as the need arises. And at Southeast, our energy generation program was designed specifically to do that. We have five quarters. The first five quarters are common curriculum that everybody takes and in the sixth and final quarter is a focus quarter and that's four or five courses. So it's very easy to write new courses if something new comes along. We have kind of reserved a blank focus, if you will, for emerging technologies. Whatever comes along, who knows what

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it's going to be. It's probably going to be something that hasn't been invented yet, but we know that pumps are pumps and valves are valves and pipes are pipes and flow is flow, and all of those things will continue to operate the same way they have for decades or hundreds of years for that matter. So in terms of state support, if there's any kind of tax incentives or carrot and the stick that can be provided to other industries to bring those jobs to the state, those are the kinds of things I think would help us the most. We're really in a pretty good spot to help those industries once they become reality in the state. [LR601]

SENATOR CARLSON: It would seem like the tags that you put on various areas of emphasis are neat if they seem to relate to whether it's wind or solar or ethanol or biodiesel or whatever, but really it would seem to me like the core courses in any of those areas will better serve somebody for some kind of profession regardless of what it might be even if it's not in that area. [LR601]

JOHN PIERCE: Absolutely. [LR601]

SENATOR CARLSON: But the tag that you put on it to begin with, I think is important to attract people. Is that what you're finding? [LR601]

JOHN PIERCE: Right. Well, yeah, in fact as I mentioned a few minutes ago, when these other industries started calling me looking for graduates, it provoked a thought that maybe we misnamed the program. We call it Energy Generation because that's what we designed it do originally, and now we're having all these other industries coming out of the woodwork, and I'm thinking this is more than just energy generation, it's an operation, it's the process operation kind of a program. But for the time being, we're going to continue that way because most of the jobs that our graduates are going into are related directly to energy generation or energy distribution. [LR601]

SENATOR CARLSON: Good. Thank you. [LR601]

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JOHN PIERCE: You're welcome. [LR601]

SENATOR LATHROP: Very good. Well, it's a good report when you tell us we're doing what we need to be doing. (Laughter) [LR601]

JOHN PIERCE: Yes. Keep up the good work. [LR601]

SENATOR LATHROP: Yeah, thanks. We appreciate that. [LR601]

SENATOR CARLSON: We may get some others cringing in the crowd. [LR601]

SENATOR LATHROP: Yeah, that may not be unanimous but we'll find that out as we go. I think I'll have Mr. Lawse come up next. [LR601]

DANIEL LAWSE: Good afternoon, Chairman, Senators. Thank you for this opportunity to talk about green jobs. My name is Daniel Lawse with Metropolitan Community College. I'm the assistant director of Campus Planning and Sustainability. I also think it's important to mention another hat that I wear as an entrepreneur and small business owner here in Omaha. I started up Verdis Group Sustainability Consulting three years ago to the attribute of green jobs, so I work both in the private sector and then my full-time job is with the college. And so I'll talk about what I know from both sectors kind of in this presentation because they are intertwined; and honestly, my position at the college didn't exist three and a half years ago, so I'm also an entrepreneur, and we're seeing chief sustainability officer type positions around, even locally, ConAgra, Kiewit, HDR, Creighton University, a lot of the colleges, College of St. Mary's, UNO, MCC. Central Community College just hired a sustainability coordinator, so there's varying levels of what these green jobs are. And so if my presentation jumps from the trades very specifically to even some of these other professions, that's where that's coming from. Are you familiar with the Brookings Report that came out in 2011 on green jobs? I

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would definitely recommend it. I'm not going to go over the details. I can leave these. They have "Sizing the Clean Economy" for Nebraska and then they focused on Omaha and the Iowa metropolitan area, just talking about some different numbers. It's a really good report that I'd recommend you look at in your... [LR601]

SENATOR LATHROP: Okay, good. Good. I appreciate that. [LR601]

DANIEL LAWSE: So the first thing I want to talk about specifically at the college is, much like John, we started into some of these pieces a few years back with a grant from the Nebraska Energy Office. In our piece we really focused on the solar energy. We realized in our four-county area we're not going to have 300-foot-tall wind turbines, so let's focus developing curriculum and then sharing it with the rest of the state. In that process we now have six specialist diplomas in solar energy. We have a solar air systems; solar technology where you can focus on construction, HVAC, electrical and plumbing, kind all of them; a solar heating system which is focused on HVAC; solar hot water which is focused on plumbing; solar electric which is focused on electrical; and then a solar hydronic specialist diploma which is HVAC and process operations. So what we realized as we were developing solar curriculum is that it's not in a sense a standalone program. It really weaves into existing programs and existing construction trades; like I said, HVAC, plumbing, electrical. You'll see over here a couple pictures of some of the classes we've run on solar electric. We actually have a partnership with Creighton and their solar energy program. That tracking poll is at our south campus. We use that for students to install and uninstall those panels, understand how the inverters work; and the inverter is actually in our electrical lab. And then the other pictures are with Creighton. And what Creighton realizes is they've got a greater array but they're not teaching the hands-on installation as much, so we have got a great partnership with them. In the past five quarters we've had 46 students take over 440 credit hours in the solar program. Twenty-two of those students could achieve one of those specialist diplomas that I mentioned. I say could achieve because they have to apply. We can't force them to apply for that award. If you want to click the next one. This is at our Fort

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campus. This is a solar hot water display and training tool. The sun heats the water, the water goes into the greenhouse which is actually a novel application of solar hot water heat. We have some different greenhouse operations across the state and we think it would be a great opportunity to integrate solar hot water heating into our food production, especially greenhouses across the state. It's a great opportunity. And inside the greenhouse, we talk about the different distribution systems, whether it's a radiant fin tube. We have radiant tubes underneath the grow tables so that they can start their seedlings more effectively with the heat right at their root source and soil source. Kind of to summarize solar energy, one of the things that we're struggling with is green jobs. There's the new technologies and new industries like solar, if you, you know, forget, 30 years ago when it was big; and then there's the existing technologies and trades like welding and electrical and plumbing and construction that all integrate green aspects into their programs. With solar, it's this chicken and the egg. What comes first, the training or the jobs? We aren't seeing a lot of jobs in the Omaha metro four-county area in solar right now, and part as has been alluded to is the low price of electricity in Nebraska which is both a benefit and it's a challenge when we are looking at what's the most sustainable thing we need to be doing for the future of our state and our children. So that's a piece where there might be opportunities to look at legislation for solar opportunities in the state. And we have to think about solar, not just in solar electricity like the arrays that you saw here at Creighton, but also in the solar hot water heating which really has a bunch of applications in heating buildings, in plants and manufacturing, and it's a much more efficient technology and much more cost-effective in Nebraska because you're not competing with the low electricity rates. So don't think of solar just as generating electricity. Think of it as also generating heat and water and distributing that heat for different processes. And there you can see the greenhouse with that solar array. And if you go back one more slide, just the up arrow should do it, that building off to the right with the slanting roof, that is not the most recent picture. We now have guard rails up on that roof and that's going to be a roof application where students can install and uninstall everything from solar electric to solar air and solar hot water panels up on that roof. And then inside the building are the solar electric side and

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the solar hot water side. That was with a grant from the Nebraska Energy Office, so we're really grateful for that. Also with the grant from the Nebraska Energy Office we've ventured into weatherization training. And previous to my work at the college, I was a home energy auditor and did some research for OPPD and UNO, so this is an area that I know really well. We have...this is our training center in partnership with the Laborers' Union up at 56th and Sorensen. If you'd click to the next slide and push it one more time. We've trained over 112 students and we got started in May of last year. And 86 of those have earned credentials: weatherization installer, weatherization crew chief, or energy auditor. Talking about our flexibility and adaptability to ramp up training quickly and meet the needs of the community, this is partially driven by the demand by the reEnergize Program in Omaha and Lincoln and the energy efficiency market there. It's partially driven in demand by homeowners wanting to make their homes more comfortable and energy efficient. It's also partially driven by the increasing energy prices that we have here in Nebraska. Even though they're low compared to the nation, they still are increasing; and I have a few slides later on those. With the weatherization training we are finding a lot more opportunities for work because of the reEnergize Program; and consumer demand is higher and the opportunity for consumers to see this as something they want in their homes is definitely there. In that realm of energy efficiency in homes, if you take the next umbrella above that, it's really lead safe and healthy homes, or green and healthy homes, that when you do the energy efficiency of a home, you're also improving indoor air quality if you do it correctly. You're improving the comfort level, you're reducing medical concerns when you have better indoor air quality in homes, and you look at moisture and mold and all these other things that are tied in together. And one of the things that we find with weatherization is they learn building science in a very real hands-on way, that when you do something over on this side of the house, it impacts this side of the house--something that hasn't been in the traditional trades for quite some time. So a plumber can come in and do a great job plumbing; you're not going to have leaks, you're going to have running water. But they just poked a bunch of holes all over your house to run pipes, and that compromises the energy efficiency of your home and can cause moisture problems with water vapor. So

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one of the benefits that we're finding here are people who are already in trades coming and getting an additional skill level of what building science means and how the home works as a system and not just in their particular trade. You can go to the next slide. Some other green training programs that I don't have as many fun pictures of, we have lead safe and healthy homes. The process operations and power plant technology that John talked about, MCC has that up at our Blair location where we have partnered with Cargill and Novozymes those designs and OPPD on their nuclear plant. A similar sort of thing where we're realizing that we don't necessarily need to train for one specific power generation but there's a lot of core skills in that process operations whether it's an ethanol plant or a nuclear plant. And even some of the solar specialist diplomas tie into that core process operations because pumps and valves work the same way. Alternative fuels, looking at both the facilities that charge or fuel alternative-fuel vehicles and the technicians needed to run those, but also the technicians that work on vehicles. We've begun integrating CNG and electric vehicle technology into our programs; and we're working on a Department of Labor grant, a TAA grant right now, to really ramp that up over the next two and a half years in the transportation sector. Rail is another one that MCC is not doing specifically but rail is a highly efficient form of transportation, and the more we begin to use that than we already are, with as you mentioned, with commodities, but also with people, that's going to be a more efficient means of getting people and things around as energy prices increase. I did want to just mention urban agriculture because I thought this was green jobs in general not just renewable energy. But it is important to note that there is a lot more food that is looking to be produced in smaller farms, smaller--right outside the city--truck farms, or even in the city on vacant lots; and that isn't renewable energy in the sense of direct production but it is a conservation measure. It is saving energy by having food produced more locally instead of shipping it from California, let's say. And then you've already talked about the Creighton Energy Technology Program. I'm actually on their advisory board and so help with the recruitment of their students and tying the program together overall; so there's a lot of great things happening in Omaha. I do want to flip to the next three slides about what's next. And one of the things that I look at are the fundamentals of our economy

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and our energy. And energy drives the economy and the price of energy affects all of us when it goes up or goes down and how we do our business. So one of the things I look at is both our local energy picture but also the global energy picture. And if you flip to the next slide, this is gasoline prices in the last 12-13 years. You'll see the drop there happened when the stock market went down in 2008 and we're back to the same level it was right before the stock market went down. If you look at the long-term history of gasoline prices over the course of the United States, every time there's a major spike in gasoline prices, there's a depression or a recession that follows it because it does drive up the price of almost everything we do. Sarpy County, they did a (inaudible) plan in Sarpy County, and realized that for every 50-cent increase in gasoline prices, regular or unleaded, they lose \$30 million a year going into their gas tanks instead of into economic activity. So sustainability and green jobs really comes down to, how do we look at our Achilles heel of energy in energy prices and are we set up for that? And what can we do to ensure that our residents and our businesses in the state of Nebraska don't get hit hard when energy prices do go up, because you'll see that the trend is upwards. So it's not just about new technologies but it's also about how we design and build our communities and how we move goods and people and services around. The next picture is natural gas and you'll see that we're now at a, you know, pretty much a 10-, 12-year low. That's never expected to last a real long time, and I will counter for a long time some of the big Pollyanna views that the mainstream media has and I can back that up with data. But my perspective is natural gas has always been volatile, it will continue to be volatile, and we're experiencing a great low so let's savor it, but it's not going to last that long for a variety of reasons. But that's one fuel in the future mix so we need to prepare our workers and our economy for that. And the next is electricity prices, and you'll see even though were below 10 cents on the residential scale here in the OPPD service area, it still has been steadily increasing. There's different challenges that utilities are facing, just the price of fuel as well as the regulations that are impacting it and the responsibility for clean air and clean water. All of these go into play. And if you look nationally, electricity prices are going up. So as we move forward with this idea that energy prices are going up fairly steadily for quite...in my view, quite a long time in the

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future when you look at the international markets of energy. What are we going to do and how are we going to prepare our economy and our jobs and our workers to (a) not be vulnerable to those price increases, and (b) seize the opportunity to have the new jobs, to create the new technologies, to develop the communities that we want and the businesses that we want. Like I said, both of the jobs that I have didn't exist three and a half years ago. Sustainability officers in higher education, there's...I'm not good at memorizing the statistics. It's been an exponential growth in the last five years of positions that have been created. And then Fortune 500 companies as well, there really is a significant piece of information in everybody's mind whether you're the job creator or the employee looking for that green job. I've got one last slide. One of the things that if we are to think about what's next, and I have my MCC hat on here, is how do we...the short-term job training that employers want, you can't condense it too short because then you get crappy skills at the end of it because you can't do a quality job of education; but the way that labor and work force skills are being trained is changing and they already are changing and it's going to look different. The two-year associate degree isn't always going to be the best fit. And I know at MCC and other community colleges, we do have some short-term trainings that we're adaptable with...but it's not as easy as it could be. And we're learning kind of as a community college how to adapt quickly to the industry credentials that more and more industries have these third-party certifications that they want their workers to have, not just an associate degree or not even an associate degree. Just give me somebody who has a BPI certification and a home energy professional. So retooling our curriculum, refocusing curriculum, these are all things that take resources. The stuff that I talked about with solar and with weatherization, we did with grants from the Nebraska Energy Office, which was phenomenal. That gave us the boost to do it quickly. But like in urban agriculture, we're doing that more organically, pun intended. It just takes a little bit longer so it depends how quickly we want to retool in terms of resources. And then we're also looking at a center for advanced and emerging technologies, and we're doing a fund-raising campaign at the college because we're going to build this place to work with industry partners where they can come in and have their businesses do research and work with

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our students there to really connect that student being trained into these new and emerging technologies. And something like the weatherization could have started in a building like that had we had it, but...and then if it's still around, it gets moved permanently; but this is a place where these emerging technologies can be tested out, because the truth is, we're in an uncharted territory, and it's exciting and the opportunities are fantastic. And I just want to make sure that our college and our state is poised to take advantage of those and yet protect ourselves from our vulnerabilities. I would just add the solar piece. There's a huge opportunity when you look at energy. Wind energy is solar energy. Hot air moves to cold air. Coal is solar energy. It's just, you know, a few hundred million years old. Natural gas is also solar energy. So if you think about economics and streamlining processes, the closer that we can get to capturing solar energy the better off we'll be. And the sooner that we do that, the better off we'll be to our competitors who still rely on a lot of these, if you will, ancient forms of sunlight in the fossil fuel industry. And one last piece to think about is, if you look at fossil fuels as an endowment that we have, we can draw down that endowment or we can live off of the interest, and the interest is the sunlight hitting our planet every single day. So there's a lot of technologies and inventions waiting to be uncovered in solar. And there's a lot already there that there may be opportunities for Nebraska to capture because we have almost as many sunny days as some parts of California. Thank you. [LR601]

SENATOR LATHROP: Good. Any questions? It doesn't look like it. Thanks for the report. [LR601]

DANIEL LAWSE: All right. Thank you. [LR601]

SENATOR LATHROP: Appreciate it. John Killingsworth, UNL grad student. Good to have you here. [LR601]

JOHN KILLINGSWORTH: Thank you. John Killingsworth. Appreciate the opportunity to be here from the University of Nebraska. Chairman, Senators. Are we able to connect

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to...can we go to unl.edu/synergycurriculum. All one word. This is the Web site where we're housing the curriculum that's been developed. Now as part of this syNErgy grant, our role was to develop curriculum that the purpose was to train our economically displaced workers, both unemployed, underemployed, from current job opportunities into green and new emerging green jobs, just what we're talking about today. So initially what we did is we performed a gap analysis or a needs assessment in the state to determine what those curriculum needs were, those training needs were. And so there was a survey of businesses as well as a series of panels and regional discussions as well as a blue ribbon panel where industry was brought together with educators and training partners and so forth. And so those areas began to be identified. In fact, working with John and Daniel both, and other community colleges, we identified two main areas of need. One was a pre-vocational area where we identified many of our economically displaced workers were individuals, adults that lacked basic skills, education; those soft skills, you know, that we talked about in communication, basic math, basic reading and writing, and communication skills; and even employability skills, how to go about getting a job and maintaining that job. And so a curriculum was designed to help them. So, in fact, if you want to click on that first tab right there for us, so you can see we have...yeah, there you go. That's perfect. We created a teacher manual, a student manual, and then even a manual in Spanish as well. So, in fact, those are being delivered in community colleges and actually at many of our trade union organizations as well. And what they're finding is, and this was kind of a neat, fascinating thing that just emerged in the process of the research, was that the trade organizations began to use it as a prequalification for entrance into their apprenticeship, formal apprenticeship program, which is really nice. And then actually Boys Town started using it as well as part of their process to get the youth interested into construction-related industry jobs and green jobs and so forth. So that was one pathway that helps those workers just reenter into the work force and with some introduction into green jobs. The other areas that we identified were short-term programs that helped retool that worker specifically into greener jobs. So we took programs, typically 80-hour programs that can be delivered in the evenings or short-term venues, and developed a

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series of analyst curriculum. So we have our building analyst programs. The first one is the residential analyst which is--actually Daniel spoke a little bit about that--where a worker, for instance, that has some experience in the building industry, whether it's trade or specifically electrical or mechanical experience, or even plumbing, can get some training specifically in how to audit a residence for building efficiency and so forth. And the building analyst II, which is geared towards the commercial builder, specifically to take an electrician who has his basic, you know, understanding of electrical, maybe even be a journeyman electrician, and it creates a new niche for this electrician or even the company he works for, and going in and doing an analysis of a commercial building, about its use and efficiency and where they can make some changes and make that building more efficient. And the building analyst III was the same thing but for mechanical systems. Additionally, a farm auditor program was developed as part of this which is exciting, and so we started reaching into the more rural communities and looking to see how we can serve those communities. So this one looks specifically at the irrigation systems and efficiencies and water use on farms. And then there was a number of special programs. One that I want to emphasize, and I think was probably the most interesting for me specifically, was the work that we did with ESU 4 based in Auburn. And we developed for them as part of their career academy that they have established, we developed a semester course for their juniors and seniors that specifically is geared towards introducing them to renewable energies; and so they have a lot of industry involvement and opportunities to get out into the field. The nice thing about Auburn is they're close to the nuclear power plant, a coal plant, and the windfarm, and an ethanol plant right there. And so these students actually get an opportunity to visit all of these facilities and interact with industry. And we're finding that these are the things that have the greatest impact in their decision-making process as they prepare to decide, you know, their career paths and, you know, what they're going to pursue in postsecondary education. And so it's exciting to have that opportunity to bring in industry into the classroom and then bring that classroom out into the field. And so looking forward, that's one area that we'd like to really begin to spread statewide. This program is being offered in ESU 4, and again that's based out of Auburn, so we're

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talking about the southeasternmost counties of our state. And as I surveyed the state to try and find other schools that are offering something similar, it was very limited. There's a couple things going on here in Omaha and some different programs here and there, but nothing really at this level. And so it would be exciting to see if we can't move that forward and encourage schools to begin to incorporate these kind of educational science programs. And that will help motivate our kids to pursue STEM education and so forth. Oh, you know, I skipped right over the wind analyst. (Laugh) Let's not leave that one out. I'd get in trouble over here. The wind analyst actually focused on the small rural wind use. You know, we found that in the community colleges there were wonderful programs already in place, and with IBEW as well, for training individuals, electricians, and the maintenance and even the construction process of, you know, the large windfarms and so forth. So we identified that the small wind area was a niche that needed to be pursued. And so a curriculum was designed where an electrician, or even somebody that is familiar with the process at whatever level, can go into rural communities and do an analysis maybe at a farm or even a small community where people can use the small turbines to generate electricity. That about wraps it up. So are there any questions that you have for me? [LR601]

SENATOR LATHROP: Senator Carlson. [LR601]

SENATOR CARLSON: Thank you, Senator Lathrop. You just kind of pointed at the farm analyst, and I think you referred to it as...to use another term, farm...well, what does that entail? [LR601]

JOHN KILLINGSWORTH: The farm analyst was the irrigation one where somebody that's trained in the auditing process can go to a farmer and actually audit his entire operation for his energy consumption and specifically his water consumption. So they're looking at efficiencies in the irrigation process. [LR601]

SENATOR CARLSON: Would you say if somebody went to a farmer in the area of

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irrigation and wanted to analyze what was happening, that that farmer needs to know how much water he's using? [LR601]

JOHN KILLINGSWORTH: Yeah, absolutely, and this is what that does. [LR601]

SENATOR CARLSON: So it's a good idea to know how much water you're using?
(Laughter) [LR601]

JOHN KILLINGSWORTH: Yeah, I would say, yeah. (Laugh) [LR601]

SENATOR CARLSON: I think it is. Thank you. The other question, has anybody told you, you look somewhat like our new basketball coach at UNL? (Laughter) [LR601]

JOHN KILLINGSWORTH: Oh, no. (Laughter) No, but he probably gets paid quite a bit more than me. [LR601]

SENATOR CARLSON: Well, you'd better look in the mirror when you get home tonight. Thank you. [LR601]

JOHN KILLINGSWORTH: Thank you. [LR601]

SENATOR LATHROP: That might get you somewhere with the student body too. [LR601]

JOHN KILLINGSWORTH: Yeah, it might. Might help. [LR601]

SENATOR LATHROP: You said you were developing curriculum, so is that going...where is the curriculum headed? Into the community colleges, or is that going to be at the university, or what's the goal with the curriculum you're setting up? [LR601]

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JOHN KILLINGSWORTH: Yes. The curriculum that was developed through part of this is being delivered in the community college levels; through the trade organizations; the high school level, an ESU; Boys Town. Those are our training providers. You know, the university student is a little bit different makeup from the target of this research. And the nice thing that really came out of this research was the relationship that was built with the community colleges. And, in fact, we're participating with both of these community colleges represented here, and the TAA grant, furthering these same principles, and to manufacturing industries as well. [LR601]

SENATOR LATHROP: Are you involved at all in trying to get students into those community college programs? We went through Distefano today and they talked about how they need...for manufacturing they need students that have been through a two-year technical program, but they're having trouble getting kids to go into that field. [LR601]

JOHN KILLINGSWORTH: Yeah, I agree. And we're seeing that same process all across STEM education, not just manufacturing, but all levels of STEM. We're just shorthanded. And I think what we need to do, one of the things that will help that, is begin to motivate our students at the secondary level and get them interested, and offering programs that spark that interest. And we're hoping that ESU program will serve there. And we want to continue to see, you know, where those students go from there. But I agree that the community colleges play an important role in that. So anything we can do to get students interested in pursuing those programs, I think is helpful. [LR601]

SENATOR LATHROP: Okay. It sure seems to be the theme of the day. We need more engineers, right? [LR601]

JOHN KILLINGSWORTH: Yes. [LR601]

SENATOR LATHROP: But we also need more people willing to go to the two-year

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colleges and get the technical training to do the jobs that are maybe not the engineer but the next level of jobs in the industry. [LR601]

JOHN KILLINGSWORTH: I agree. I agree, the technician level, you know, even the two-year engineering degrees are very good. And then there are short programs that are...in fact, Daniel spoke a little bit about this, and this was the focus of this grant was short-term programs that credential individuals to move into that. And that may be an alternative for, you know, a lot of our students that don't necessarily identify, you know, themselves in a four-year engineering program; and that's fine, because the reality is, we need more technicians in the industry. [LR601]

SENATOR LATHROP: Okay. Any other questions? I see none. Maybe before we move on, I want to see if I can ask Mr. Lawse to come back because I want to ask a question while we're on that subject, and that is, I do not serve...I'm going to make this disclosure. I don't serve on the Education Committee so I'm not involved in education policy, but it seems like we spend a lot of our resources giving scholarships and grants and that sort of thing to the student that will go to UNL or Kearney or Creighton or go get an engineering degree, but what are we doing for the student to attract the students into those technical programs and get them into the community colleges to study that? [LR601]

DANIEL LAWSE: I'm not the best person to answer that but I can tell you what I know of it. [LR601]

SENATOR LATHROP: Okay. I know I'm putting you on the spot, but it's... [LR601]

DANIEL LAWSE: Yeah. The ways that I've been marketing the programs I'm most familiar with are by going to industry partners. We have an industry advisory committee meeting for the weatherization training center. That's one piece. Working with the city of Omaha and that is grant-funded that reEnergize Program that is driving consumer

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demand and employer demand. And then we've had job fairs to connect our students to the workers. And so right now, I field a lot of calls, hey, I want to get in the green job industry. And I say, well, you know...and I kind of direct them to weatherization because there's more jobs in that than solar right now. But, you know, it is tough other than students just approaching us and our general marketing of, hey, we have over 100 programs and our marketing office has to market the whole college, it's not just the technical programs. And so the technical programs, what I'm familiar with, and John you might have a different experience, is it's marketed by that area. And it's a lot of word of mouth. At least with our marketing office they're able to generate some collateral materials for specific areas but their main focus is the college as a whole. And so it's kind of this juxtaposition of how do we get people on the ground to go out. I know that we have recruiters that go out to high schools but that's the marketing area and I'm not sure how all they market and when they're going... [LR601]

SENATOR LATHROP: But they're just setting up a booth and they might be trying to get people to go into a nursing program. [LR601]

DANIEL LAWSE: Yeah, it could be any number of programs. It's not necessarily just the technical programs. And I do know that there are certain events that we try to have a presence at that are more technically focused; you know, STEM events at high schools and things like that. But I don't know the extent of that. I just know what I've done to recruit students. And most of the students that are in the weatherization and solar programs are nontraditional students; they're not right out of high school. They're people who are unemployed, underemployed, or looking for more job skills to advance their employment in their current trade. We don't have a lot of high-schoolers just coming into the weatherization or solar, the ones that I'm most familiar with. [LR601]

SENATOR LATHROP: Are they provided the same kind of opportunities like the scholarships and student loans and that sort of thing? [LR601]

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DANIEL LAWSE: Yes. Because of the way we set it up as a specialist diploma, they're eligible for student loans; and with the syNErgy funding beyond the curriculum development, a lot of students went through a weatherization training at no cost to them. Because they qualified for syNErgy, which was through Department of Labor, it paid tuition and books for that program. And solar, same thing. A lot of those students were syNErgy-funded. Now syNErgy had some pretty tight parameters and maybe that's why we got the type of students that we did. [LR601]

SENATOR LATHROP: Going back to the Senator Carlson question, what can we do as policymakers to encourage people to go into the technical...go into the community colleges to get the technical training to be available for these industries that we're hearing about today? [LR601]

DANIEL LAWSE: I'll speak from my personal side that when I was graduating high school, I was told I'm going to a four-year college. And the four-year college in the world view that I come from was better than the community college. And I think in the past few years that frame has shifted. I've seen it shift in Omaha with MCC, that we are now looked at as good as four-year institutions. In some circles there's still a dichotomy there. And so I think there is a...what's the term I'm looking for? The way people perceive, there's a perception issue that the community college isn't the best first choice for a lot of people graduating high school. And so just recognizing that there are good paying jobs that you can get work where you can use your hands and your brain, and you can do it in two years. I think there's...really it could be as simple as a marketing thing. It's probably more complicated than that, but... [LR601]

SENATOR LATHROP: I was just going to say, it sounds like it's not us; it's marketing from the community colleges. [LR601]

DANIEL LAWSE: Well, I think societally too. You hear about all the fancy jobs that four-year graduates get. You hear about the engineers; you don't hear about the

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engineering technicians. You hear about the architects and you don't hear about the drafters; and you can get two-year drafting degrees. And so just the way we talk about it as a state, in our society, in our social circles, I think, and with the community colleges doing their marketing, and it's this fine balance; and our marketing director could talk more about, you know, how much can we and should we spend on marketing versus serving the students. So it's that double-edged sword of being a tax-funded entity, how much do you want to spend on marketing? Then you start looking at these private colleges and you probably heard about that nationwide where they spend 60 percent of their budget on marketing because they reap in all these student loan dollars for really high tuition. So it's...I don't know what the right answer is, but I know there's a perception thing. And I think working in the high schools as was mentioned by a couple people, getting kids excited to go into these careers, and recognizing, like I said, the opportunities. I'm excited to be alive, and all the opportunities and changes occurring because, you know, I think of a new business every week; I just don't have time to implement them. You know, just...there's so much going on with sustainability and green jobs and green technology in our culture right now. [LR601]

SENATOR CARLSON: I have a question. [LR601]

SENATOR LATHROP: Okay. Oh, I'm sorry. Senator Carlson has a question for you. [LR601]

SENATOR CARLSON: Thank you. John, I'm going to give you an opportunity here to correct me, but when you first got up here and spoke, one of your last comments I think I heard you say, you don't like fossil fuels. And if that's the truth and we cut back on the use of coal and oil, our energy costs are going to go up. Are you okay with that? [LR601]

DANIEL LAWSE: I think that fossil fuels are a great energy resource but they should be used very wisely. And so you could interpret that as, no, I don't like fossil fuels. I don't

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think we should be using fossil fuels to go pick up a coffee from a coffee shop. I think we should be using fossil fuels to expand our infrastructure much as you think of it as the endowment analogy that I said. If we cut back on fossil fuels, will our energy prices go up? Yes. If we keep using fossil fuels, will our energy prices go up? Yes. I'll give you a specific example. OPPD, they're doing some phenomenal things with renewables and they're primarily fossil fuel-based and they have their new plant. I've asked them directly and had plenty of good conversations with them. If we keep using fossil fuel energy, they're going to have to raise the prices because demand keeps increasing. They're going to have to build more fossil fuel plants. The demand internationally for fossil fuels, coal, oil--and natural gas is the one anomaly right now and I believe that's short-term--demand is increasing. You know, when demand increases and the supply is not increasing to meet it, the price is going to go up. If we move away from fossil fuels to...if we get the infrastructure built for renewables, the fuel doesn't cost us anything and we still have the electricity or the energy generated from that infrastructure. We can build a coal-fired power plant and we're going to always have to buy coal to fuel that. If you build solar...and it's going to have its operations and maintenance just like the solar windfarm is going to have, but the fuel source for those is going to be zero. I'm not saying it's not without its challenges but I believe that if we want to be forward thinking, the sooner we become independent of fossil fuels the better off we will be as a state and as a local economy because internationally the price of fossil fuels is going up. And I could go into a whole other information about why that is and what the supply and demand is internationally. So I think energy prices is going up either way, and I think it would behoove us to become independent of fossil fuels and use them much like you would think of the endowment. [LR601]

SENATOR CARLSON: Okay. I appreciate that answer and I think the counter to that is that, in my mind anyway, if we continue to use our good supply of coal and fossil fuels while--let's take wind for an example--that continues to improve its technology, the price is narrowing between the two. If we go too headlong into, whether it's wind or whether it's solar, until that technology is there, then obviously the prices are going to go up; and

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we're saving something for what? I'm not too sure. I think as we exhaust a source that we have, as a nation we have the brains and the ability to figure out something else that's going to replace that. So you and I are probably somewhere...I agree with some of what you said and think it's sound. It's just a little bit different way of looking at it, I guess. Thank you. [LR601]

DANIEL LAWSE: May I make one more comment? [LR601]

SENATOR LATHROP: Sure. [LR601]

DANIEL LAWSE: I would also add that I don't think that we're accounting to the true cost of fossil fuels, and this brings into the environmental impact of burning fossil fuels. And when you look at the...even the Nebraska state's mandate to require public power to sell electricity at the most affordable and reliable, their two mandates, the true cost of fossil fuels, they're a lot--and we get into economics. There are a lot of externalities that some can be accounted for and some can't. There's always going to be some externalities. But the health impacts of burning fossil fuels, the asthma, the health costs that we as a public bear. And then I will mention climate change. There are some very smart professors at UNL who are saying that the drought that we had this last year, we're looking at five to six...or 50 to 60 percent of the months of the year in Nebraska to be in severe drought by 2050-2075 at the current emissions that we have in the atmosphere and the way the climate is changing. So if we look at the long-term impacts of burning fossil fuels, there's more than just the economic benefit of today and the price of the global supply and demand. I'm hopeful because, unfortunately, climate change has become a politicized item instead of looking at the science. I'm hopeful that the supply and demand will drive the economics that coal and oil will become so expensive that we'll get off of it sooner rather than later. But I believe, and the people who are my age and younger believe, that if we don't do something now and do something well, we're going to have an entirely different world than what you grew up in. And I want to leave a world good for my children and grandchildren. [LR601]

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SENATOR CARLSON: Good. That's fine. I think Ken Winston is just smiling over here as he's listening to you. (Laughter) But, you know, one of the things as we have as...I won't argue with you on drought. If we face another year this coming year like we did the last year and some years into the future, it also brings about the importance of managing our water in a good way so that we've got that for future generations. [LR601]

DANIEL LAWSE: Yeah. And there's a risk management piece of it too that you look at. And what's the risk of this possibility happening? Look at New York City right now and what are the costs of managing that risk now so that we avoid the risk in the future, if you look at the environmental impact of some of our activities today. That's another way to look at it. And I look at sustainability as that triple bottom line. It's people, it's planet, and it's profits, prosperity, economics. And when you put all three of those together, each one of them, there's a solution in there that tweaks each one. It's not just about the environment. It's not just about the economics and the profit and the cost. It's not just about the people. You put all three of those together and you can come up with wonderful solutions. And I'm seeing that with Verdis Group. We're consulting the Omaha Public School District, the Nebraska Medical Center, and Henry Doorly Zoo, Sarpy County, the city of Papillion, and they're finding good things for their people, but it's also good for their budget. And, oh, by the way, it's really good for the environment too. So all of those factors would be good to consider. [LR601]

SENATOR CARLSON: Thank you. [LR601]

SENATOR LATHROP: Very good. Appreciate those remarks. Glad we called you back up. (Laughter) [LR601]

DANIEL LAWSE: Thank you. [LR601]

SENATOR LATHROP: Next we're going to have Gretchen Dolson from HDR, here from

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the engineers. [LR601]

GRETCHEN DOLSON: I am. Don't hold it against me. [LR601]

SENATOR LATHROP: Hey, you're in strong demand, apparently. (Laughter) [LR601]

GRETCHEN DOLSON: (Exhibit 4) We are, we absolutely are. I have more prepared remarks. Like I said, I'm an engineer, a lack of social skills. It's easier for me to read than to just speak off the cuff, so I apologize in advance for that. Mr. Chairman, and members of the committee, good afternoon. My name is Gretchen Dolson. I'm a professional engineer with HDR Engineering. I have the pleasure to tell you a little bit about HDR and the opportunities that we currently see for bringing jobs here in Nebraska and to compare it with what we see nationally. I'm going to talk a little bit about the work we do in the green or sustainability market. We call it sustainability. And then I'm going to wrap up with some keys that we see as additional growth and some issues we see as impacting the pace at which the state's sustainable development occurs in Nebraska. So who is HDR? If you don't know, HDR is an Omaha-based company. We're about 8,000 folks, primarily engineering and architecture; we do have some construction. Located in over 185 offices throughout the United States. We do work primarily in north America, although we also do work in Asia, Europe, and in the Middle East. Now before I say too much about green jobs, if you'll hit a slide for me, please. I wanted to give you our definition of sustainability. And the reason I wanted to give this to you is we don't use the term "green" per se, but we use "sustainability." And I've got that definition up on the screen. We use sustainability since...the way that we use green initiatives isn't as an end goal. The way that we approach sustainability is as a part of the thought process. Within the engineering, these guys have talked about process and what we do today, that's a cognitive process and a thought process in the steps that we take our design. If we use it as an end goal we only focus on green. When we just roll it into a part of what we naturally do, we're looking out for our clients' best interest, our employees' best interest, and truthfully, the general public's best interest all

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at the same time. This is a general listing of the service markets that we have here at HDR. Each of these has important sustainability components to them as a part of our overall practice. In many of these areas we have a great deal of crossover between our market sectors and within sustainability. An example is, I'm actually the national director for solar energy here at HDR, in HDR engineering. I work with folks in the water group on incorporating solar facilities into existing biogas plant operations. I work with our solid waste folks on post-closure liners, and that's the picture on the far right, post-closure liners at landfill facilities so that they can meet federal regulations and have a second use of their facilities. I work with our fossil generation designers, those fossil guys, on their AQCS retrofits and the opportunities to bring renewable energy into their facilities. And then I work with the architects on some of the more traditional building solar incorporation on those projects. So come across in a lot of those different areas. I'm going to talk a little bit about the sustainability focus here at HDR. With each of these service markets, we have individuals that specifically focus on sustainability practices within those markets. I've listed some of the specialty services on here, and you'll notice that I've got two colors of text on the screen. All of these are filled by staff at HDR and are across the country that we do this work. Some of these practices are focused on the coasts where most of the national work is occurring within the sustainable realm, or the renewable realm. HDR staff living and working in Nebraska are actively working in the areas that I have highlighted in yellow. And I mention this to illustrate that even though I live and work here in Nebraska, I work all over the country. So it may be a development of skills here, but I'm actually an (inaudible) for the rest of the country with the expertise that we have right here in Nebraska. So we've got some skill sets that are here already. As I noted earlier, most of the HDR employees don't consider what they do a green job. They consider that incorporation of sustainability into the existing services as the next step to providing our clients with exceptional service that is appropriate for the changing regulatory and the economic environment. Since this study is specifically focused on renewable job creation, I wanted to show...oh, I didn't put that in there, did I. Oh, okay, never mind. Real briefly, we do...I missed a slide in one of these. I talk about renewable in general...you guys have it, a list of some of the renewable areas we work in. It is

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everything from ethanol to biofuels to biomass, solar, practice, offshore wind, ocean energy, river energy, hydropower, waste energy. You name it, I probably got somebody who can answer questions about it. Now there are a few areas within HDR where we've developed some additional revenues for the company; so truly new growth as a result of sustainability or green. And we primarily use these on the coast where they have needed to justify economically reasons for doing some sustainability items where capital costs are higher. These could also be used in Nebraska to deal with the perceptions, discussions that we're having right now, and to shift toward a greater acceptance of investing dollars to reduce carbon emissions or increasing sustainable construction. The item I would point here is HDR's approach to economic modeling of sustainable investments and that's that sustainable return on investment. He mentioned the triple bottom line and it's actually monetizing those social costs and some of those other issues. So let's focus on Nebraska specifically. When HDR, as a private company, looks at the green sector and we evaluate it for potential to make a positive difference, and more importantly for us, we're a private company, to generate profit, we look at several things: What is the actual market? Is there potential for that work to be with existing clients, OPPD, LES, NPPD, or new ones? Is there potential for additional profit? What are the risks? Are we competitive against other firms? Is the market going to be stable and justify our investment in our staff? All of those are big questions that impact how the private sector plays in the green market, as well as how many staff we hire to get engaged both here in Nebraska and nationally. We have developed expertise in areas such as wind, solar, biomass, waste energy. I'm going to use that solar example again. And I spend most of my time working in the southwest part of the U.S. The solar irradiance is a little better. And between the renewable portfolio standards, the tax credits, and the higher costs of electricity that they already have, it's where the action is and so that's where I am. It doesn't mean that we don't have the expertise here. There just is...it's just not developing as fast as what it is in some other areas. And so fortunately we have the flexibility of the company to go many places. There's four general themes that we seem to run into when I'm working with Rich and the Nebraska Wind Coalition, or AWEA, or some of the other renewable energy ACORE organizations

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that break down those barriers for green here in Nebraska; and they're policy, perception, population and economics. That policy piece, I tread real lightly on this, but the public power districts, you know, they are required to provide that least cost of power. And to do that, the renewable sector effectively competes against the traditional cost of generation. That's a reality that they're dealing with. The federal regulations, and with the latest election we may be seeing some impacts on some of the change of that. But I still don't think you'll see as much of an impact on what we'll see so much in the southeast part of the U.S. They're so heavily dependent upon coal and they use East Coast coal that's higher sulfur that we still will see some of that. The trade-off, keep in mind, is all of the coal that is going through the UP yard in North Platte. If all of that goes away, what's that economic impact to North Platte? So there's always a balance with all of that. Another area is that city code enforcement. You know, electric rural building codes, those are updated on a regular basis and you have the transition between...at the national level, those codes are bringing in the development of renewable energy on a small scale so that the electricians can be trained to install those systems. Cities then have the ability to accept or not incorporate that into what they require for their inspectors to follow. You have a lot of home builders in the area that they have to keep a price down on those homes. And so they don't necessarily want those things incorporated, because at the end of the day, it's that initial capital cost that they lose deals on. So again, there's a balance there with everything. There are those two ways to look at cost: there is that initial capital cost or there is a life-cycle cost. And I'll tell you, there's a third: the sustainable return on investment cost, but that's probably another discussion. Green may be more expensive initially, but there's probably some lower life-cycle costs to that. And then as the general public and builders and institutions become more comfortable with green and incorporating those naturally into the systems, I think we will see fewer folks worrying about the purchase price or capital construction costs, and looking more at that ultimate life-cycle cost. In the end it comes down to economics. And the current reality in Nebraska is we are continuing to grow; we're continuing to expand our markets. It's growing at a slower pace, but we're also not seeing the big swings that I see my coworkers dealing with in California, in New York,

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with solar in New Jersey. I've seen that in other places and I see that impact. Sometimes I kind of like the nice slow steady growth, but I also, like, grew up here, so this is what I'm used to at the same time. Let's stay there one more minute. The last thing I want to bring up is population. And that's the fact that we are an exporter...already an exporter of energy out of the state. So that additional power generation, it's one thing to generate it. We've got to get it to where they can use it, which means we need to get it to Chicago, we need to get it to Memphis, we need to get it places; and we need to be able to produce it and ship it cheaper than what they can produce it there themselves. The same as if we're manufacturing widgets here in the state, that means our transmission system and all those things need to (inaudible). Okay, sorry, I'm going off script a little. So let's tackle that public power piece. It's big, but it can also yield some of those greatest returns for both the public utilities and the general public. Three things that I see as barriers to expanding that renewable energy and reducing that future demand in the fossil-based load. One is that expansion of the transmission that I mentioned in Nebraska. Since we've joined with Southwest Power Pool, our utilities now do have a way to recover some of those costs, and so that is moving forward and that transmission expansion is moving forward. It is going to take some time, but there is progress there. The second one is a little bit tougher. It is a little tougher because it does require those local code entities, the electrical inspectors, the utilities like MUD to work with the contractors to install those systems. Currently, folks like LES and OPPD really have great incentive programs and rebate programs to try to get some folks to use higher energy-efficient equipment, put in renewable systems on a small scale. That does create jobs for those local businesses. We do see the expansion for some of the HVAC and the electrical firms who are using some of the guys coming out of the community college system. But I also had someone from LES mention to me the other day that they still have money left in their 2012 account. They still have money in their account. And I think they're starting to wonder: Have we hit all the people that wanted to make change and wanted to do things because it is the right thing to do and because it is sustainable; and now are we only catching the folks who only deal with it when, you know, they're after a rebate when they have to replace their furnace. It's

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something we'll have to think about and they could probably give you more insight on that than what I certainly could. Then finally that technology piece. Globally we need to solve that disconnect. There just is an issue between the intermittent generation of power with wind and solar and some of the others versus a steady power state that you have with traditional fossil. The utilities are required to provide power when you want to flip on the light, no matter what time of day it is. And they have to balance that. Utilities in the northwest are struggling with that right now trying to do the minute-by-minute command on that. So the ability to deal with storage, it's a global issue and we're dealing with it everywhere. Unfortunately, I'm not seeing much progress on the battery side. I think it's a huge R&D opportunity, if someone can figure that out. I do really like NPPD's compressed storage that they're looking at out in Big Springs. There's a huge opportunity there for us to kind of bypass that, and again, use a different natural resource that we have; and I hope that they have good luck with that. But that's going to have to work in order for some of that utility skill to become economical I think. [LR601]

SENATOR LATHROP: Can you tell us what that is? I'm not familiar with it. [LR601]

GRETCHEN DOLSON: Absolutely. Hopefully I won't screw it up. John O'Connor can fix me later. But basically they have out in western Nebraska there is a natural formation, and it effectively creates a bubble underground between two solid layers. And they know it will hold pressure. I say hold pressure; what they'll do, the wind blows, they'll pump air, compressed air into the cavern, this cavern that will hold pressure; and then when the wind isn't blowing they can pump it back out and run it and heat it and basically run it through a traditional power generation. So it will take an intermittent power like wind and then create a holding capacity of that compressed air, and then they can pull that compressed air out and actually produce power at a rate that they can use it. A lot of times in Nebraska the wind blows at night. We don't use as much power at night. And until everybody is driving electric cars, there's an imbalance there of how we use it and get rid of it. This is a way to deal with that, where traditionally we would have batteries...you know, we'd have to have batteries to deal with that; and we just

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don't have battery capacity to handle 80 megawatt farms on a regular basis. Does that help? [LR601]

SENATOR LATHROP: Yeah, it does. [LR601]

GRETCHEN DOLSON: Okay. John O'Connor and...I'm having a complete mind blank, Matheson, are the guys at NPPD to talk to. They're great. They really are great. It's a cool, cool thing. Still in very early stages, but I think they're looking at trying to do the next step and actually do a test, to test it out to make sure it works. But the reality is, a gas company has been using that as a natural gas holding facility for quite a while. So, it looks pretty good. I think it's got a lot of cool potential. As an engineer I'm excited about it. Then in the private sector, I see development markets where there's an opportunity to generate profit. It doesn't matter if it's an engineering firm like me, a manufacturing firm like Balon who are doing the solar trackers, or the residential installers that want to bring a new service line in, into their residential electrical or HVAC system. If there is a stable opportunity, we're going to take advantage of it. The best way to drive that is to show that stable market. So, again I'm going back to power; sorry, that's what I do. The home and business owners, they need to see cost savings greater than the money they're going to put in to put it in. The installers need to see profit potential to train their staff to do that work. The engineers and the architects, I need to see a lower life-cycle cost for my large-scale clients for me to recommend it to them. And the utilities need to see a benefit of avoided future capital costs or future reduced costs in operations for them to want to deal with all of these power purchase agreements. So all of those things are happening. They are progressing. They are occurring now. But it is going to take more time for that sustainability to be normally accepted, versus additionally required. Those are probably words I'd put in quotes if I wanted to be political. And then with policy, I'm probably not going to hit on that much more than to say what I already have. Truthfully, I would just encourage you to talk with the utilities. I've had great luck, and whenever I've talked to them, they really have been interested in green and bringing up the renewable portfolio and less dependence on the

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fossil. The reality is they're a business that are owned by the citizens of the state and they've got a responsibility to bring us that lowest cost of power, not to mention the economic impact that that low cost of power has when we try to bring jobs into rural Nebraska too. [LR601]

SENATOR LATHROP: Could I ask you a question while you're on that? [LR601]

GRETCHEN DOLSON: Absolutely. [LR601]

SENATOR LATHROP: To this point in time, are the utilities like OPPD, NPPD, are they getting into wind because they're afraid they'll get a mandate to have 25 percent of their energy, or is it because it allows them to bring the lowest cost of electricity? Because it isn't the lowest cost at this point is it? [LR601]

GRETCHEN DOLSON: It's somewhere in between, honestly. When I talk with like Christine at OPPD and Dave Rich at NPPD, they're actually doing it because they think it's the right thing to do. Just like we diversify our financial portfolios, they're diversifying their generation portfolio. We see such big threats and swings in the federal sector with what regulations are going to do, and we are a coal-heavy state. But if you're those guys, and the wrong person comes in and all they want to do is shut down coal plants, it could really impact us economically in the state of Nebraska because of the need to switch over. So I think there is much looking forward and hedging their generation bets, as anything. [LR601]

SENATOR LATHROP: Okay. [LR601]

GRETCHEN DOLSON: Honestly. I think they have a genuine interest in doing it. I think, my personal opinion, when I've talked to these guys, is there's a real interest in seeing more of the smaller-scale generation, because what that does is instead of having base load, that amount they have to produce all the time, instead of having that rise to this

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level in 20 years, if they can get some of that distributed to occur, it only rises to this. Well that's a huge capital and operations and maintenance cost that they save which then in turn keeps their power costs lower. So it's probably not either end, it's somewhere in the middle, honestly. I just want you to remember, companies like HDR, we're currently investing our staff very heavily into sustainability, but we're not taking that approach from a "this is our end goal." It is going to be a "this is just how we do it." We will come to our clients when we're working on a wastewater treatment plant: Here are some ideas to be more energy efficient; are you interested? Well, what's the cost payback? Well, let's talk about that; and we can work them through that. That's how we work, and I think the industry is trending that way too. We need to look at green sustainable jobs for what really drives the economy--and that's money. We need to drive those forward within the context of the current economy, the current requirements that the public power districts work in, and real frankly, what the general citizens are willing to pay for their power. We need to understand the indirect impacts of renewables on our economy; it's that compressed storage. It is the storage piece, it's the additional transmission piece. There are absolute solutions for doing all this stuff, there's technical solutions. But we're not quite there in getting there economically, so. With that, I...you know, I work all over the U.S. I live here in Nebraska. I really do think generally we've got a good plan of attack. The community colleges are doing a great job. The university is doing fabulous with the architectural engineering program and the electrical program. So I think we really are moving along pretty well. Are there any questions I can answer for you guys? [LR601]

SENATOR LATHROP: Senator Wallman. [LR601]

SENATOR WALLMAN: Thank you, Senator Lathrop. Yes, and with regard to transmission, we know we have to have transmission in order to get electricity. What is the loss per...you know, long distance? Is there a tremendous loss from the generator to the end user? [LR601]

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GRETCHEN DOLSON: There...the question...I don't know if you guys could that, the question is, what are the losses? I'll start off by saying my registration is in civil engineering and not electrical, so I don't know that answer; I'll have to find the answer for you. Yes, there are real issues with it. They're not insurmountable. I probably will just get myself in trouble if I say any more than that. [LR601]

SENATOR WALLMAN: But the new technology, is it better for the transmission lines? You know, they're putting up new lines. Is it better than the old ones? [LR601]

GRETCHEN DOLSON: The materials are getting better. It still is generally physics. I wish I could be Wile E. Coyote and say we don't have losses--but we do. There are some of the private sector that are doing dedicated DC lines, trying to get those in. And there are some...there are pros and cons to both AC or DC on some of those lines. But I think the Southwest Power Pool, they've got a pretty good plan for everything. But if you want more detailed information, I will be happy to get it for you. You just got to tell me and I'll... [LR601]

SENATOR WALLMAN: Sure, okay. Thank you. [LR601]

GRETCHEN DOLSON: You bet, okay. [LR601]

SENATOR LATHROP: Senator Carlson. [LR601]

SENATOR CARLSON: Thank you, Senator Lathrop. And Gretchen, thanks for your report. So I'm going to take issue with one part of it: this page. [LR601]

GRETCHEN DOLSON: You bet. [LR601]

SENATOR CARLSON: When I talked to NPPD, and I'm constantly after them to get the cost back down, because at one point in time we were fifth in the nation in energy costs;

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now we've slipped to tenth. Now we know we've made some heavy investments, and sometimes I wonder if they were necessary, but that's the reason for our slip; and maybe as others make their investments that will pull us back up. We're still more expensive than what we used to be. But on this page you say that public power is required to provide the least cost. And when I tell them that, they correct me and say, but not sacrificing reliability and dependability. We want low cost of electricity, but we want it dependable, because when we turn that switch, we want it to come on. And I think that is pretty important. [LR601]

GRETCHEN DOLSON: I agree with you a hundred percent. And yeah, this slide would be wrong with that. [LR601]

SENATOR CARLSON: Okay, good. [LR601]

GRETCHEN DOLSON: You bet, you're absolutely right. [LR601]

SENATOR CARLSON: Thank you. [LR601]

GRETCHEN DOLSON: Yeah. [LR601]

SENATOR LATHROP: Low cost, dependable. [LR601]

GRETCHEN DOLSON: Yeah. If the light does not turn on when people flip the switch, it's a whole different level of hurt for those guys at NPPD than the cost. [LR601]

SENATOR CARLSON: In the northeast right now. [LR601]

SENATOR LATHROP: Exactly. [LR601]

GRETCHEN DOLSON: Yeah, exactly. Yeah, I wanted to have some financial numbers

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for you, and I apologize, our person who actually keeps track of that is in our Manhattan office, and she's been working from home lately, so. [LR601]

SENATOR LATHROP: Has no electricity probably. [LR601]

GRETCHEN DOLSON: Yeah, yeah. Exactly. [LR601]

SENATOR LATHROP: All right. Great. Thank you very much for your presentation. [LR601]

GRETCHEN DOLSON: Thank you. [LR601]

SENATOR LATHROP: That brings us to Dan (sick--David) Levy, our resident wind lawyer expert person. [LR601]

DAVID LEVY: Senator Lathrop and members of the committee, good afternoon. David Levy, Baird Holm law firm, and registered lobbyist for Bluestem Energy Solutions. Thank you for the opportunity today. If Gretchen lacks social skills, which I know her and I know she does not, but she read from prepared remarks; I'm going to do the same and I don't even have a PowerPoint so I...I don't know what that says, but I will do that and be happy to answer any questions you have. As I mentioned, I'm here today wearing my hat primarily as lobbyist for Bluestem Energy Solutions. Bluestem is the only private Nebraska company to develop a renewable energy project, a wind energy project for sale to Nebraska utilities. Bluestem worked with Nebraska Public Power District to develop the Springview II wind energy project in north-central Nebraska. Bluestem has also developed solar projects with Creighton University and the University of Nebraska-Lincoln, including the solar project here on the Creighton campus that you all toured today. While still relatively small, Bluestem is a great example of the potential of renewable energy to foster not just new jobs, but entire new industries and new employment sectors in Nebraska. Unfortunately, we lag behind our neighbors in this

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regard and we have work to do to take advantage of the opportunities that our great natural resource and our great work force provide to us. For example, in Iowa over 7,000 jobs are attributable just to the wind industry. Approximately half of all companies serving the wind industry in the United States have some operations in Iowa. Those enterprises result in between \$200 million and \$500 million annually in taxable income within the state of Iowa. To the west, in Colorado, the clean energy industry employed over 19,000 people at over 1,600 companies in 2010. In 2010, Vestas, a leading wind turbine manufacturer, announced plans to invest over a billion dollars in four manufacturing plants in Colorado which ultimately would employ approximately 2,500 people. And showing how the multiplier effect of this works, following that announcement by Vestas, one of their main suppliers announced it was moving operations to Colorado. Not to say that Nebraska certainly has not made gains in this regard. According to the Nebraska Green Jobs Report, as of 2010, over 3 percent of all Nebraska jobs are green jobs, but many of those are in more traditional sectors such as ethanol, environmental remediation--all good things; but when it comes to emerging sectors like wind and solar, we have great opportunities. A specific example of that on the generation side, another of our clients, Edison Mission, along with Midwest Wind Energy, has invested over \$500 million in Nebraska since 2008. That has resulted directly in the creation of approximately 30 skilled, high-paying jobs at those windfarms; and indirectly over 100 jobs--100 permanent jobs; \$2 million in payments to local service providers, which in turn result in further spin-off economic development and job creation. Each 80 megawatt windfarm results in over a million dollars annually in payments to local communities through taxes and lease payments. I know we're here today to talk about job creation and industry growth. Those payments to those local communities result in jobs. Those people buy shoes, they go out to dinner, they buy property, they improve property, and so forth. And so all of these benefits, of course, flow throughout the economy. While we've made some gains in the installation of wind energy, really we have yet to attract in any real measure those support industries that grow up around the energy generation facilities and provide significant permanent job opportunities. As I mentioned, Iowa and Colorado, for example, and other states,

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Kansas as well, have done a great job of leveraging their natural resource which results in them having an opportunity for these generation industries to then attract the manufacturing and the other support industries that result in hundreds, and as you heard, thousands of permanent jobs supporting not only those generation facilities located in those states, but if you're making ball bearings, you're making towers, you're making blades, you're selling them to windfarms in Kansas and Illinois and Wisconsin and Wyoming and so forth. A report released last month found that just the wind energy industry has the potential to create over 14,000 jobs in Nebraska by 2030. As to solar energy, this might not make a lot of sense when you're walking out there in the cold today, but Nebraska is in the top ten in potential generation for solar. Again, the generation facilities, really we've seen in neighboring states beget the manufacturing facilities. The manufacturers like to be where the action is, where the generation is happening. So really, I want to commend the Legislature and thank all of you for the work you've done to help remove some of the barriers to wind generation, in particular. What we haven't yet fostered though is the other side of the equation, that manufacturing, that support industry that really creates the large numbers of jobs. Those industries are highly competitive and somewhat mobile. And unless we take specific strategic steps, they will go elsewhere. These industries do follow the generation facilities. So one way to attract the manufacturing side of the equation is to continue fostering the generation side; continue removing the barriers to wind generation, and making Nebraska more competitive and as competitive as we can be. For better or for worse, our neighbors also have very good wind. We have a little bit better wind, but unless we remove some of the barriers and make ourselves very competitive, those projects will continue to go elsewhere. And also I would urge you as we remove those barriers to competitiveness on the generation side, tie that to removing the barriers on the manufacturing side. If we're going to give...if the Legislature is going to give a sales tax incentive, it's going to remove the barrier of charging sales tax on the equipment that goes into a windfarm, which we do now. Kansas does not, Iowa does not, many states do not. I would say tie those two together. If you're going to get that benefit, if that barrier is going to be removed, do it in a way

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that also encourages those companies who are developing those resources here to use our Nebraska resources and to encourage those companies to help foster the growth of those manufacturing facilities that then will support not only those wind energy generation facilities, solar facilities, whatever it might be that are actually located in Nebraska, but then again, they're selling those products to other states and bringing money from those other states and from those projects developed in those other states into Nebraska. So when we encourage one side of that equation, I would really encourage you to encourage and foster the other side of that equation. I'll just close and say more generally, we must consider lots of ways in any way we can to remove barriers to competitiveness, because that's really what this is. We are competing against our neighbors both for the generation side of this and for the manufacturing and support and services side of this. Support the educational and outreach programs that we've heard about today. Those are great. And they really do; they generate a buzz. They make companies want to come here. They show that Nebraska is interested in this; Nebraska wants this. We want them to be here; they will want to be here. I'm happy to answer any questions you may have. I have a few notes that I made while listening to some of the other questions and answers. That's a great opportunity coming at the end, it's also very dangerous, of course. So, I'll stop there and first start with any questions that members of the committee may have. [LR601]

SENATOR LATHROP: I should begin by saying, I called you Dan, and I know better. I apologize for that, Dave. [LR601]

DAVID LEVY: Oh, that's okay, thank you. [LR601]

SENATOR LATHROP: Any questions? One of the points you made, and when I was considering this interim study I didn't want it to turn into a tax, because I'm not on the...this isn't the Revenue Committee. [LR601]

DAVID LEVY: Right. [LR601]

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SENATOR LATHROP: And a lot of the incentives come from the revenue side and a decision the Revenue Committee would have to make. But in the end we've chosen a course where we essentially require that because we are a public power state, that if somebody wants to do one of these projects, they're going to have to partner with a public power utility like OPPD or NPPD. And I don't know of another way unless you have another thought. I think it's important that we have that relationship though, or maintain that relationship, so that we maintain Nebraska as a public power state. And I don't...we can't just turn them loose to develop the wind like they do in Iowa. [LR601]

DAVID LEVY: Senator Lathrop, that is a good point and a fair question. The Legislature, a couple of years ago, it's almost three years ago now, with LB1048, removed a barrier, a regulatory barrier really, to exporting electricity generated by wind. With the resource we have in this state, we can generate between five and ten times as much electricity using wind as we can ever use. And this gets to some of the questions Senator Carlson that you had asked some of the other testifiers as well. LB1048 requires the developers of those export facilities to offer to the public power entities the opportunity to purchase a certain amount of power from those facilities. But the utilities, the public power entities, are not required to purchase that. So on the export side, there really is that opportunity to turn those projects loose; to turn the development of that resource loose, if you will. And they are selling that resource, that electricity that is generated, to utilities out of state, where those power prices are often higher. It doesn't really have a great effect on our Nebraska electric rates unless the utilities see it as a good opportunity to either diversify their portfolio or to...maybe the rate is as good as they're finding with coal or some other resource. But it's another way to bring economic development and bring money from other states, other utilities. Other people in Alabama are paying their electric bill and that utility has a renewable portfolio or a standard, or for some other reason wants to buy wind, we can generate that wind more cheaply in Nebraska. There are the issues and the real issues about getting it there, but we're working on that. If we wait until wind-generated electricity costs the same as coal, for example, somebody

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else is going to have met that need. This is a huge opportunity, but it's like anything, a finite opportunity. If we wait, Kansas or Iowa or Missouri or some other state is going to have that windfarm, it's already happening. There are companies that we represent that have sites in Nebraska; they're wanting to develop that. But we're not competitive, and so they'll develop it in Kansas where they don't have to pay sales tax, they don't have to pay property tax. And again, I'm mindful, it's not the Revenue Committee. Those projects are meeting that demand in those other states. And I think it's a fair point that we don't want to force our utilities, certainly, to buy a higher cost power. Very important to diversify the portfolio. Anybody who ever tells you that wind energy is the silver bullet to our energy needs is not giving you accurate information. But up to 20 percent or so of that energy need, absolutely, it's a viable alternative; it hedges against spikes in all of the various fuel costs. But if other states are taking actions that are forcing their utilities to buy wind-generated electricity, we are in a great position to develop our resource and benefit our economy and benefit our rural economy by building those facilities here and shipping that electricity to those utilities. Again, that doesn't really cost our utilities anything. To the extent our utilities are helping get that electricity across their transmission systems and out of the state, that's another opportunity, that's a revenue opportunity for NPPD, for example. If they're getting more revenue for doing that, they have to charge all of us less on our electric bill, in theory. [LR601]

SENATOR LATHROP: But isn't that what's going to drive it, or am I missing something? As soon as OPPD realizes that they can lower my rate by selling wind-generated electricity to somebody out of state, they're going to do it. [LR601]

DAVID LEVY: Either they're going to do it or they're going to work with a private developer to help the private developer do that, because... [LR601]

SENATOR LATHROP: Right. [LR601]

DAVID LEVY: ...these facilities have a huge up-front cost. [LR601]

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SENATOR LATHROP: Sure. [LR601]

DAVID LEVY: That's a big risk for a utility to take on the financing of that. They can let a private developer do it and take very little risk, have relatively little up-front investment, and benefit from being in the position they are, and in some way sort of being a facilitator of that. [LR601]

SENATOR LATHROP: Okay. Senator Wallman. [LR601]

SENATOR WALLMAN: Thank you, Senator. Doesn't the public power though...what do they charge for the transmission? You have to put that on a transmission line. The private developer, do they put their own transmission line in? [LR601]

DAVID LEVY: Typically what happens, and what LB1048 says, is that the developer will work with the public power entity to have the public power entity develop that transmission line. If my windfarm requires the upgrade of a transmission line, whatever that upgrade cost is that's required to serve my windfarm, LB1048 requires me to work out a deal with the public power entity so that I pay that cost. Now if they want to build it bigger for their own use, then we work that out and figure that out. But, no, the public power entities don't bear the added cost of the wind development in terms of transmission, unless for some reason that is the deal that they cut with the developer. [LR601]

SENATOR WALLMAN: Thank you. [LR601]

DAVID LEVY: Um-hum. [LR601]

SENATOR LATHROP: Do you have any questions? Okay. I think that's all the questions we have. [LR601]

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DAVID LEVY: Okay. [LR601]

SENATOR LATHROP: Thanks again for coming down. [LR601]

DAVID LEVY: Thank you. [LR601]

KEN WINSTON: I'm just going to jump up and say a couple things. [LR601]

SENATOR LATHROP: All right. We're now to what we would call the "open mike" period. So, if you've not had an opportunity to speak, I've gone through my list of witnesses, and we'll begin with Ken Winston. [LR601]

SENATOR WALLMAN: Is the wind going to pick up now, Ken? (Laughter) [LR601]

KEN WINSTON: Thank you. My name is Ken Winston. And I didn't hear what you said, Senator Wallman. [LR601]

SENATOR WALLMAN: No, nothing. (Laugh) [LR601]

SENATOR LATHROP: Welcome to the Business and Labor Committee. [LR601]

KEN WINSTON: (Exhibit 5) Thank you. Well, and I understand it's...you've heard a lot from a lot of different people this afternoon. And if you need more....I have more copies if you need more copies. This may be the report that David Levy just referred to that indicated that there could be 14,000 jobs created by 2030 through investments in wind and energy efficiency. But I just wanted to touch on several things that other people talked about and, basically, support some of the things that some other folks talked about this afternoon. One of the things that...I know that the least cost or the lowest reasonable cost, I believe, is the phrase that is in the public power statutes. But one of

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the reasons that the costs are going up is because of the fact that we do generate so much of our electricity by coal. The cost of coal has gone up more than 50 percent in the last five years, and so that's a significant reason for the increase in our energy costs. And at the same time the costs of generating electricity by wind have declined markedly; it's competitive with coal in many situations. Twenty-five cents per kilowatt hours is now being quoted for wind development which is competitive with coal development. I guess as was previously indicated, this is a way to make good use of Nebraska resources. I mean, the sun shines a lot here. We have the ninth best solar resource, the fourth best wind resource. We're twenty-fifth in national wind development and so we're not making very good use of the resources we have. And in April of 2012, Nebraska had 337 megawatts of wind that was developed which is a rather significant increase from where we were several years ago, but Iowa had 4,300 megawatts, so almost 14 times as much wind developed in Iowa as in Nebraska. And the other thing that is significant about that is that several years in a row Iowa had more than 1,000 megawatts a year developed. So we can certainly develop a lot more wind in the state of Nebraska. There's a lot of questions about reliability and everybody knows that wind is variable, and so...and I will certainly concede that point. But in terms of reliability, utilities are good at integrating all sorts of different resources. And MidAmerican Energy, right across the river, has approximately 30 percent of their resource is wind. And to my knowledge they do not have significant issues with reliability. And there are several areas of Texas that has heavy reliance on wind, and they found that actually putting more wind increases their reliability, because of the fact that as the wind moves across the area, the wind will pick up and they can...where it isn't windy in one place it will be windy in another place and it increases their reliability as a result. And then in terms of low rates, and I understand that is a very significant aspect of the charge of public power. But as I indicated, MidAmerican has 2,200 megawatts of wind that they're generating right now. As of 2010, their residential rates were lower than NPPD's residential rates. So you can integrated lots of wind and maintain low rates. And as a matter of fact, I think the evidence would indicate that their relying on coal has caused our rates to go up. Now there's also thousands of jobs opportunities from energy

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efficiency, a lot of these are just basic jobs, and they were discussed in detail by the folks from the community colleges. And frankly, I think it's a great idea. I'm glad they're emphasizing those kinds of things, because these are good jobs, they involve off-the-shelf technology, and sometimes I wish that I had a job like that instead of being a lawyer (laugh) so that I could just do something with my hands and not worry about trying to represent other people's points of view. But nonetheless, so...but one of the other things about energy efficiency is that it also creates secondary jobs. If you save somebody's...reduce their electric bill, that puts more money in their hands and they can use that money to spend on something else. If it's a business, they can invest...they can expand their business, they can do more to increase their...and they can hire more people. So one of the things...there's always the question of how do we fund this? And the up-front funding, particularly for energy efficiency, is always a challenge. And one of the things that I've always thought was a good idea was if the utility provided a funding source, or operated a system where you would just pay for it through your electric bill--and that's done in several jurisdictions--that's a way that you can recover the costs of the efficiency costs for the consumer...I should have written this out instead of just trying to wing it, but...as the other people did. But in any event, the on-bill payment system works very well in several other jurisdictions. And actually it's being done some, there's a business in central Nebraska, Energy Pioneer, that's working with several utilities. Hastings and Broken Bow, I believe, they're using on-bill pay systems there and it works fairly well. Now what are the benefits to the utility? Well, they can retire old facilities; they don't have to upgrade them. They can save on fuel costs. And there's lower costs for ratepayers. And the question: If the utility is helping to pay for this, is it going to increase the rates? It probably will. I'll concede that. But generally, what they've seen is that rate increases have been in the 2 percent to 5 percent increase. Well, if you increase somebody's rate by 2 percent but you lower their bill by 20 percent or 30 percent or 40 percent, that's a good deal. And I think that our utilities, since they're public utilities, should be in the business of reducing costs, the overall costs of energy to their consumers. Okay, just a couple of quick things on solar. There's been a huge decline in the price of solar and the cost of installed solar. And I don't have the study

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with me, but the Nebraska Wildlife Federation just did a solar study for Lincoln; and the cost of solar in Lincoln is competitive with utility costs at about 8-11 cents per kilowatt hour. So we think that there's really some opportunities in the solar area. And then I guess just the other thing is, in terms of investments, we really think that there's some opportunities to diversify; that there's way too much investment in coal right now, and as the coal costs continue to go up, it's going to cause our energy costs to go up; and that there's opportunities to reduce energy costs by diversifying the portfolio with more renewables and more efficiency. [LR601]

SENATOR LATHROP: Okay. I see no questions. [LR601]

KEN WINSTON: Thank you. [LR601]

SENATOR LATHROP: Thanks, Ken. [LR601]

LORAN SCHMIT: (Exhibit 6) Chairman Lathrop, members of the committee, it's always a good opportunity to be in the last spot, I guess, because I can throw away my script and just comment on what has been spoken and addressed here earlier. And I would have to say that I would agree with most if not all that has been said. However, I want to add one admonition, and that is that there is a tendency among the renewable energy proponents to fight among ourselves and to take pops at each other when we really have a common adversary which goes back to the fossil fuel industry. And I'm not in any position nor have I ever advocated the abolition of the fossil fuel industry. I don't think we're going to put a windmill on top of an automobile, or a solar panel, or even use a complete source of ethanol to power our automobile. But there are so many of those issues that have been addressed here, and I was glad to hear Mr. Levy from Baird Holm and the young lady from HDR. I have to kind of think, when we talk about the jobs that have been created by the ethanol industry, we have not really counted those jobs that we created in the legal profession and in the engineering profession. If we were to add those, I think we could double or triple those jobs. And I might add to the roll,

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high-priced jobs, and very well deserving I might add. But if there is ever any recognition of the jobs created, as has been indicated here before, no matter whether it is ethanol, solar, or wind, or whatever it is, the increase in jobs goes across a (inaudible). The trucks that haul the fuel, the trucks that move the windmills into place, all of those things create a tremendous amount of jobs that are never counted among the total amount of jobs that were created. And so I would just like to maybe diverge once in awhile as I give my prepared testimony and make comments as I go along. But my name is Loran Schmit, L-o-r-a-n S-c-h-m-i-t. I'm the executive director of the Association of Nebraska Ethanol Producers. Kind of interesting, I've listened to a lot of comments here this afternoon, I was in the Legislature for a while and then I began my lobbying career several years after I got out of the Legislature. My first lobbying client was a labor union. Local 464 hired me because they appreciated the jobs created by the ethanol industry and hired me to protect that industry. And it was much later that I was hired by the ethanol industry. But there would not be an ethanol industry in Nebraska today if it were not for the support we received from urban legislators. Omaha and Lincoln senators were always strong supporters of renewable energy, and in my case the ethanol industry. I appreciate that. I believe in giving credit where credit is due. And we continue to do that with a great deal of support or a great deal of gratitude to that sector of the Legislature. In 1971, the Legislature passed LB776 which created the Nebraska Ethanol Board which is the first recognition by the Nebraska Legislature that the United States would one day face a shortage of fossil fuels. This was several years before the OPEC embargo which was the beginning of the escalation of energy costs which today have become a major economic factor which must be accepted by individuals, businesses, and all levels of government. I might add that I view the cost of maintaining our government buildings and facilities as (inaudible) today because of the increased costs of energy. You have to give a great big mark to the increased costs of energy towards the cost of our operations. In the more than 40 years since Nebraska recognized the desirability of developing alternative sources of energy, many obstacles had to be overcome. One of those obstacles was that when the first ethanol plants were placed in production there did not exist a manual on the construction and operation of an ethanol

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refinery. It was mostly an on-job training and learning experience by procedure. As the ethanol industry grew, community colleges in the areas where the plants were located recognized both the opportunity and the responsibility to provide the training that would equip local residents to better fill the needs of ethanol plant operators. As a result, many of the employees of the ethanol industry today have received both original instruction and continuing education from the community colleges. The ethanol industry today recognized that a well-trained local work force can be more productive and make Nebraska more competitive as an ethanol producer. As the state of Nebraska expands its efforts in alternative energy to other areas such as wind, solar, geothermal, and possibly other areas unknown to us today, the state educational system will face a new responsibility to train competent individuals to work in all those areas. I was pleased to listen to John's explanation of the activity at the university level. I might add that at the time that we started the ethanol industry, we had one gentleman from the university, Mr. Bill Scheller, head of the chemical engineering department, who gave us credibility. And at that time, he was the only individual among the university professors who thought there was a future in alternative energy. And I want to thank him publicly, because without his support we were considered to be heretics, I might add. And so that has not all gone away yet; Senator, we still have that criticism. But the Nebraska Legislature needs to recognize that it has the responsibility to assist the educational system to fulfill those needs. The Nebraska Legislature must also recognize that the alternative energy industry which had its rocky beginning more than 40 years ago has achieved far greater success than was ever anticipated. One of the hazards of being in the Legislature, as you all know, is that everything you say on the floor is transcribed for posterity. One day I made the very (inaudible) prediction that one day we would grind 50 million bushels of corn to produce ethanol in Nebraska. As you can tell, we've exceeded that by about 15 or 20 times. And so we have to be very careful what we say because someone always comes back and reads those predictions to us. But I'm glad to have been wrong in that prediction. The ethanol industry today provides approximately 10 percent of the liquid petroleum used in our internal combustion engines. Critics of the industry which includes 175 members of Congress and at least six of our nation's governors who would

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like to terminate the ethanol industry could not explain what they would use as an octane enhancer for gasoline if the ethanol industry were to go away. They either do not know or do not remember that the petroleum industry's efforts to develop a replacement additive for lead in gasoline, called MTBE, turned out to be a dangerous carcinogen which polluted our underground water and was dangerous to human health. Eventually the Congress outlawed MTBE, a fact which is always ignored by ethanol opponents. Just as our educational institutions teach our citizens about the value of Nebraska agriculture, manufacturing, and labor, they should also teach the facts about the contributions of alternative energy to the state. The Nebraska Legislature should accept our ongoing commitment to support the development and utilization of alternative sources of locally developed energy as a major contributor to our economic development. There have been many people here this afternoon that have commented about the value of the jobs that have been created by other alternative energy. They are far more experienced in that area than I am. But I think we should enlighten our people because this Legislature has the responsibility to continue the work that has been started. I commend Senator Carlson for the work he has done; Senator Wallman, and commend you for holding this hearing. Because there's a tendency to say, well, the ethanol industry is a mature industry, we don't need it anymore; and if wind is any good, it will stand on its own two feet; and we all know solar is not going to work because we've had all kinds of bad experiences with solar. All sources of energy at one time were in the developmental stage. And so we're going to have some false starts. We had false starts in the ethanol industry. We had several individuals who had Todd's job who didn't make much progress. And it wasn't until Todd came on board and then stayed there for 30 years that we made some continual progress. And we need to continue that progress and we need to continue to place emphasis and resources at that disposal. There's no low-cost way to do this, but the returns have been substantial. The state of Nebraska invested about \$300 million in developing the ethanol industry. More than about 60 percent of that came as a direct contribution from farmers; the balance was from the state of Nebraska. The value of our corn crop this year exceeds \$7 billion. That is contrasted with about, at the most, \$2 billion which would have been in the days prior

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to the ethanol industry. That money turned over has made a major contribution to the economy in the state of Nebraska. It has helped us buy \$600,000 combines, filled up \$200,000 machine sheds, buy \$40,000 automobiles and pickups. You don't buy those with \$2 corn. And so we have to remember that our elected leaders today face the same challenges and overcame those obstacles that you have to do today. The Nebraska public power industry is an outstanding example of success in an area where there was little or no previous experience. Today our low cost of electricity is a major attraction to new industry. The development of the public power in Nebraska was not a painless experience. It required dedication, vision, and perseverance over many years before public power became a reality in this state. I just want to comment a little bit about the reference to power and the cost of coal generation. Several years ago it became necessary to (inaudible) the relicensing process for Gentleman Station. It was estimated at that time that it would cost about a half-billion dollars to relicense that entity. Then the cost went up to \$1 billion, then to \$1.5 billion, now it's \$2 billion. It will cost about a 35 percent increase in our power costs in Nebraska. Those are general numbers. You might have seen Senator Rupp's comments in the World-Herald, last week, I believe, about the Loup Power Station's power canal at Columbus. That was the beginning of the public power in Nebraska. It was built at a cost of \$5 million in three years' time. They're going back for a new license now. They've been trying to get the license now for five years, and they have spent \$7 million to get the license--and (laugh) it cost \$5 million to build it when they built it. And so we have to understand the regulatory costs are an extremely burdensome part of our energy costs. As I said earlier, we cannot accept passive low-key supporters. Just as the opposition has enlisted the strong support of elected officials, the alternative energy interests must do the same. We hope that our congressional delegation will continue the outspoken support of alternative energy that has been demonstrated by earlier representatives. It is at the state level, however, where this committee can have the most impact. Just as you have taken the lead to discuss training opportunities, you should also demonstrate leadership in other areas. The first of these, as I've said, is the regulatory area. Today, the Nebraska ethanol industry has the capacity to produce approximately 2 billion

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gallons of ethanol annually. The vast majority of that production is marketed out of state. We should encourage the use of as much of that product as possible within the state. An easy, no-cost method of doing this would be to install ethanol blending pumps at all state fueling sites, and the state employees should use the maximum amount of ethanol that the vehicle can use efficiently. The state should also purchase only flex-fuel vehicles so that it would eliminate any possibility in the future of misuse of fuel. Thirty years ago, Governor Thone put the state on E10, no (inaudible). He experimented first with it in the patrol cars. When there was no noticeable change in the wear and tear on those engines, he put the entire state fleet on it. A few years later, Governor Kerrey followed the same procedure and that gave the public the confidence that you could use E10 in our engines and do so safely. This brings up the earlier problem of overregulation by state agencies. Over the last two years, most persons who were candidates for office condemned overregulation of business and industry. We can provide this committee with evidence that overregulation has cost the ethanol industry millions of dollars and is now a major impediment to the expansion of the market for ethanol. Since this activity has curtailed the expansion of the ethanol industry which has developed over the past 40 years, experience dictates that other forms of alternative energy will face the same obstacles. The committee and the 2013 Legislature should address these problems. The ethanol industry will assist you in every way. The Nebraska Legislature has made a major investment in the ethanol industry. We should join our neighboring states, Iowa, Minnesota, North and South Dakota, to make sure that the industry continues to exist. I want to thank you for the opportunity to testify. I'd answer any questions. And again, I promise to assist you in any way and in any kind of development of alternative energy that the Legislature decides to pursue. Thank you.

[LR601]

SENATOR LATHROP: Very good. I don't see any questions. Thanks, Loran. It's always a pleasure to have you in front of the committee. [LR601]

LORAN SCHMIT: Thank you, Senator. [LR601]

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DANIEL LAWSE: Could I make a couple more short comments? [LR601]

SENATOR LATHROP: Let me just see if there is anybody else that wants to testify, and then I don't have a problem with that. Anyone else here to testify? All right, we'll give you a couple more minutes. [LR601]

DANIEL LAWSE: Thank you. As I was thinking about the question that you asked about what can we do and how do we think about energy prices, a term that I forget to mention is called the "negawatt" and the fact that it actually costs less to save energy than it does to generate energy. Right now, most residential homes built before 1985 can save 20 to 40 percent on their utilities with technology that exists today. It just hasn't been integrated into their home--simple things like insulation, air sealing, and duct sealing, things that don't cost the homeowner that much or a utility that much. So the reason I bring that up is if we're talking about the least cost, and we do...I do want to keep our rates as low as they can be, but I recognize that they're going up one way or the other. Utility companies are in an interesting position right now where they actually...they make money based on how much energy they sell. The trend is how do we save energy. So they have a conflict of interest in saving energy unless that business case can be made for them. And there are some utilities across the country, I think all but one are private, so I understand there are some complications there, where they have actually decoupled their revenue stream from the sale of energy. And what might that look like on your personal bill at home is instead of here is what your bill is based on the number of kilowatts and then there is usually a small monthly service charge, that monthly service charge would probably increase to cover the fixed costs. I mean, OPPD has told me that right now they can't cover their fixed costs based on the current rates. They actually like growth is what they expect; they want to sell more electricity to help subsidize the low rates for us. So there will come a point when I'll be paying the actual costs of that energy, or the fixed costs, and then the fuel will be what that variable cost would be. But as it stands right now, OPPD, NPPD, our public power

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is, you know, their revenue stream is tied to the sale of energy. And so if there's a way, and I don't have the solution and I haven't done the research on these other utilities across the country who have done this, to decouple their revenue from the sale of energy, then it's in their best interest to actually reduce...in their best interest to actually reduce how much energy they produce and become efficient. It's that offset of the capital investment of the new power plant that we talk about. And so there are opportunities for utilities to provide instead of...say, if it's going to cost \$50 million to build a new coal plant, to invest that \$50 million or \$20 million into efficiency measures for businesses, organizations, and homeowners to become more efficient in their buildings. I'm always going to use electricity; I'm always going to be buying it from OPPD if I live in Omaha. But I've made my house 60 percent more efficient with relatively low-cost measures over the course of three years. A lot of other people can do the same thing. And now I'm just...I know what my bill is. And if it goes up a little bit, I know it's because the rates increase. But I reduce as much as I can to live a quality lifestyle. A lot of businesses and homes waste energy just because it's been cheap. So how do we find that point? I'm not sure, but one thing to think about is that decoupling. And I just want to reiterate, somebody said the money that I spend on utilities doesn't get spent going to restaurants, it doesn't get spent going to school, it doesn't get spent on sales tax and going and buying things. So there's really a revenue opportunity when we reduce our energy costs. Energy costs are really kind of a necessary cost of doing business or a cost of being alive. If I can keep those as low as possible, I have a lot more expendable income. And I reference that Sarpy County thing. Thirty million dollars a year goes into their gas tanks every time gas goes up 50 cents. That's \$30 million not going into the rest of the economy and that's also the tax rate on that \$30 million is not going into the state to turn around and provide good services for us. So, I think we're at a point where we can think about energy in a new way and we have a lot of opportunities. So, thank you. [LR601]

SENATOR LATHROP: (Exhibit 7) Very good. Thanks. We appreciate that. Okay, we have a submission from Jill Becker at Black Hills Energy which will be made part of the

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record. And seeing no other testifiers, I think that will close our hearing. Thank you all for your participation. I know, speaking for the committee, I've learned a great deal today, and we'll see what we do with it next year. So thanks for coming. [LR601]