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Natural Resources Committee
February 22, 2017

[LB87 LB429 LB610]

The Committee on Natural Resources met at 1:30 p.m. on Wednesday, February 22, 2017, in Room 1525 of the State Capitol, Lincoln, Nebraska, for the purpose of conducting a public hearing on LB429, LB87, and LB610. Senators present: Dan Hughes, Chairperson; Bruce Bostelman, Vice Chairperson; Joni Albrecht; Suzanne Geist; Rick Kolowski; John McCollister; Dan Quick; and Lynne Walz. Senators absent: None.

SENATOR BOSTELMAN: Could I have your attention. Welcome everybody to the Natural Resources Committee. Can I have your attention please. We'll get started here today. Welcome to the Natural Resources Committee. I am Senator Bruce Bostelman and I am from the Brainard area, District 23. I serve as a co-chair...or Vice Chair, I should say, of this committee. Senator Hughes will be joining us in a little bit; he's testifying in another hearing. The committee will take up the bills in order posted. Our hearing today is your public part of the legislative process. This is your opportunity to express your position on the proposed legislation before us today. The committee members might come and go during the hearing. This is just part of the process; we have bills to introduce in other committees. I ask that you abide by the following procedures to better facilitate today's proceedings. Please silence or turn off your cell phones. Please move to the reserved chairs when you are ready to testify. These are the first two chairs in the front of each side of the aisle labeled "the queue." Introducers will make initial statements followed by proponents, opponents, and neutral testimony. Closing remarks are reserved for the introducing senator only. If you are planning to testify, please pick up a green sign-in sheet that is on the tables at the back of the room. Please fill out the green sign-in sheet before you testify. Please print, and it is important to complete the form in its entirety. When it is your turn to testify, give the sign-in sheet to the committee clerk or to the page. This will help us make a more accurate public record. If you do not wish to testify, but would like your name entered into the official record as being present at the hearing, there is a separate white sheet on the tables that you can sign for that purpose. This will be a part of the official record of the hearing. Written materials may be distributed to committee members as exhibits only while testimony is being offered. If you have handouts, please make sure you have 12 copies and give them to the page to distribute to the committee. When you come up to testify, please speak clearly into the microphone. Tell us your name and, please, spell your first and last name to ensure we get an accurate record. We will be using the light system for all testifiers. You will have five minutes to make your initial remarks to the committee. When you see the yellow light come on, that means you have one minute remaining, and the red light indicates your time has ended. Questions from the committee may follow. There will be no displays of support or opposition to a bill vocal or otherwise is allowed at the public hearing. The committee members with us today will introduce themselves and we'll start to my far left.

SENATOR KOLOWSKI: I'm Rick Kolowski, District 31 in southwest Omaha.

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SENATOR GEIST: I'm Susanne Geist. I represent District 25 which is the east side of Lincoln and north to Waverly.

SENATOR QUICK: Dan Quick, Grand Island, District 35.

SENATOR WALZ: Lynne Walz, District 15 which is all of Dodge County.

SENATOR BOSTELMAN: And to my right.

SENATOR ALBRECHT: Hi, I'm Joni Albrecht. I'm with District 17 which is Wayne, Thurston, and Dakota Counties in northeast Nebraska. Welcome.

SENATOR McCOLLISTER: My name is John McCollister. I represent District 20 in central Omaha.

SENATOR BOSTELMAN: And to my left is the committee legal clerk, Laurie Lage. And to my far right is the committee clerk, Mandy Mizerski. Our pages for the committee are Heather Bentley from Miller, Nebraska; she is a freshman at UNL studying agriculture and economics. And Lee-Ann Sims from Lincoln; she is a sophomore at UNL studying political science and global studies. And with that now we'll open the hearing on LB429. Senator Wishart.

SENATOR WISHART: Well, good afternoon, Vice Chair Bostelman and members of the Natural Resources Committee. My name is Anna Wishart, A-n-n-a W-i-s-h-a-r-t, and I represent the great 27th Legislative District in west Lincoln. And I have to say it's pretty amazing to be sitting here in front of my former boss, now getting to testify as a senator. So I am here today to introduce LB429. It is a bill that defines virtual net metering. Currently, Nebraska state statute defines net metering, but does not specifically allow for virtual net metering. Net metering in Nebraska allows a customer to offset their energy usage in kilowatt-hours at a 1 to 1 ratio up to 25 kilowatts. When a customer creates extra energy above and beyond what they're using, at their residence or business, the excess energy is sold back into the grid. Net metering is a great way for Nebraskans to generate their own energy and see the savings on their monthly utility bill. Unfortunately, not all Nebraskans have the ability to install an energy generation system such as solar panels, wind turbines, geothermal systems, or methane digesters on their property. They might live in an apartment building. Their home or business may not be physically situated to capture energy. Or they may not be able to afford the cost of installing an energy generation system on their property. This is where virtual net metering comes in. Virtual net metering allows for customers to buy into an energy project that is not physically located on their property. Currently, some utilities in Nebraska allow for virtual net metering on a community project

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scale, but under the current net metering statute, a utility could deny a customer's request to virtual net metering. For example, Lincoln Electric System currently runs a virtual net metering program where customers can buy shares of the solar project called Sun Shares and receive a credit on their monthly bill. Virtual net metering has applications on a smaller scale as well. A business or several locations could install a solar project that would pass down the savings to all of those...excuse me, a business with several locations could install a solar project that would pass down the savings to all of their locations. A neighborhood association or a condominium would be able to install a solar project that all of their residents could benefit from. And actually, this idea came to me, I was knocking on doors and solar energy came up quite a bit from people in my district who were interested in investing in kind of a neighborhood-scale size solar project. And so that's some of the reasons I'm bringing this bill today. While virtual net metering is currently taking place in some instances around the state, LB429 would define virtual net metering in statute and provide more predictability for individuals and organizations who would like to invest and engage in virtual net metering. Adding virtual net metering into our state statutes is vital to the integrity to our state's public power system by increasing customer options and expanding the potential of renewable energy in our state in other forms of energy generation. I am aware of some technical concerns that others have regarding the current net metering statute, 70-2002, and the conflicting language in LB429. And I look forward to working with all the interested parties on an amendment that addresses the technical concerns while expanding the definition of net metering to include virtual net metering. Thank you. And I would be happy to answer any questions. [LB429]

SENATOR BOSTELMAN: Thank you, Senator Wishart. Does the committee have any questions? Senator Albrecht. [LB429]

SENATOR ALBRECHT: Hi. Thanks for coming and introducing this. Can you tell me, where would I find the information on the interim study? [LB429]

SENATOR WISHART: On the interim study... [LB429]

SENATOR ALBRECHT: That we did on solar. It said that this is based on a...this bill was introduced as a follow-up to an interim study on solar energy last year. [LB429]

SENATOR WISHART: So I did not introduce this bill specifically myself based on an interim study. [LB429]

SENATOR ALBRECHT: Oh, okay. [LB429]

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SENATOR WISHART: This was a piece of legislation...I mean, I worked at the state Legislature for a number of years, but solar energy, especially, in my district came up a lot at doors. [LB429]

SENATOR ALBRECHT: Okay. [LB429]

SENATOR WISHART: And one of the issues that constituents in my district run into...well, several issues. For example, in Capital Beach, their neighborhood association is interested in putting in...I talked to a gentleman who serves on the association, interested in putting in sort of a community solar system. And then also there's a lot of people who live in apartments, they just...or they have homes where they don't get the kind of sun that would really be worthwhile for them to put up a solar installation. So this is where this came about. [LB429]

SENATOR ALBRECHT: So it would be interesting to me to find out what that study actually said, because we seem to be hearing so much about solar and wind... [LB429]

SENATOR WISHART: Yeah. [LB429]

SENATOR ALBRECHT: And I would imagine that both were. So do you know who...was anyone here working on that at the time? Do you know? No. [LB429]

SENATOR WISHART: And there be... [LB429]

SENATOR ALBRECHT: I'm just trying to find out if somebody had surveys out there. I mean, I heard the same thing when I went door to door, but I would like to know more about...is it really a high demand with the electric companies? Are they hearing the same consensus that we are? Or is it more that it's just certain individuals that think it would be a good resource? [LB429]

SENATOR WISHART: Well, I definitely have some businesses and some other constituents following that will testify to the importance for them. And they will be representing different communities across the state. When you're thinking about just efficiency, too, in terms of solar energy; while it's wonderful every person to put a solar panel on their home, that's not feasible. I mean, when you look at Lincoln, for example, we are a city filled with trees. I love that. But that means that a lot of homes are just not going to be capable of generating enough energy to make it worthwhile putting a solar panel on their roofs. [LB429]

SENATOR ALBRECHT: Right. [LB429]

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SENATOR WISHART: So what was great about Lincoln Electric System is that they created this community solar installation and they went ahead and did what we're looking to put into statute here. [LB429]

SENATOR ALBRECHT: Okay. Very good. Thank you. [LB429]

SENATOR BOSTELMAN: Senator McCollister. [LB429]

SENATOR McCOLLISTER: Thank you, Vice Chair Bostelman. Is net metering currently outlawed by Nebraska Statutes? [LB429]

SENATOR WISHART: No. Up to 25 kilowatts you can net meter. [LB429]

SENATOR McCOLLISTER: Are there a great many facilities that currently do this? [LB429]

SENATOR WISHART: I wouldn't...a great many would probably be a little bit more than there are in Nebraska. But there is a variety of people across the state that are using net metering. For example, there's a gentleman named Danny Kluthe up in Dodge County who has got a pig...hog farm. He generates energy from pig manure; turns it into gas that...turns it into energy that fuels his hog farm and also fuels his truck. I went up and took a tour. It's fantastic. It also eliminates the smell completely when he captures the methane. It's just amazing. So there's a potential, especially for businesses with this kind of virtual style of net metering to really be able to generate significant amounts of energy and have communities be able to share in that. [LB429]

SENATOR McCOLLISTER: Yeah, thank you, Senator. Thanks for bringing this bill. [LB429]

SENATOR WISHART: Thank you. [LB429]

SENATOR BOSTELMAN: Senator Kolowski. [LB429]

SENATOR KOLOWSKI: Thank you, Mr. Chairman. Perhaps Senator Ken Haar might be a resource to ask...to answer those earlier questions as we look back on his files and bank of things that he has. That might be very helpful. Senator Wishart, thank you for bringing this forward. A number of us have solar bills. And are you of the discussion that we might be able to do some combining as we look ahead, your concepts and other concepts that are out there with these bills? [LB429]

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SENATOR WISHART: Oh, absolutely. And I do want to just clarify, again, that while solar energy is the reason that I brought this bill from the communications I had with people in the district, this expands far beyond that. I mean, we have huge livestock operations in the state and some of them are being very innovative about being able to capture methane and turn it into energy. So that would be another source where people who might live in apartment complexes in that community would be able to buy in and see reduced rates. [LB429]

SENATOR KOLOWSKI: What do we...may I? [LB429]

SENATOR BOSTELMAN: Go ahead. [LB429]

SENATOR KOLOWSKI: Thank you. What do we do with covenants in certain neighborhoods when they say you can't do this, you can't do that, you can't have this on your roof and...how do you approach the possibility of change and upping the potential for creating energy out of many neighborhoods that are untouched at this time? [LB429]

SENATOR WISHART: Well, I think everybody would, maybe, have different philosophies. Personally, I think with covenants and with any issues regarding developments as locally as you can stay in terms of the discussions the better. So there may be some neighborhoods that decide this is just not what I want in the neighborhood, not what we want and there's enough people with voices to say no, that it doesn't happen. But at least from my experience, I heard pretty overwhelming excitement about the idea of being able to invest in solar energy especially in my district. [LB429]

SENATOR KOLOWSKI: Thank you. [LB429]

SENATOR BOSTELMAN: Any other questions from committee members? Senator McCollister. [LB429]

SENATOR McCOLLISTER: Thank you, Vice Chair. But there's a, currently, a 25 megawatt limit... [LB429]

SENATOR WISHART: Kilowatt. [LB429]

SENATOR McCOLLISTER: Kilowatt. Is that likely to change? [LB429]

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SENATOR WISHART: Well, I know that Senator Carol Blood has a bill coming up that would expand it, I believe, to 100 kilowatts. Personally, I am in support of that. I think when you're looking at the business opportunities for businesses in this state, in terms of generation and collaboration of generation, that that would be more worthwhile, because 25 kilowatts, it's not a lot. It's not a lot. [LB429]

SENATOR McCOLLISTER: It's pretty small. [LB429]

SENATOR WISHART: Yeah. [LB429]

SENATOR McCOLLISTER: Yeah. Thank you, Senator Wishart. [LB429]

SENATOR WISHART: Thank you. [LB429]

SENATOR BOSTELMAN: Other questions from the committee? The question I'd have would be you mentioned there's other projects across the...in town across the state. How would this affect those, if at all? Do we not have the...is that not already happening? So I'm just kind of curious how that might affect those. [LB429]

SENATOR WISHART: Yeah. So it is already happening. This is one of those kind of pieces of legislation where the people have...and the private sector and public sector with public power have kind of moved forward anyway. But what this does is, I mean, when you're making an investment as a business or as a person, you want to make sure that there's predictability with that investment. And so that's where I see this is helpful by putting it into statute is that businesses and people who are going to be looking at this as an investment for themselves see it in statute there's that level of predictability and reliability. [LB429]

SENATOR BOSTELMAN: Okay. Thank you. Any other questions? Senator Quick. [LB429]

SENATOR QUICK: Yeah, thank you. I was just going ask if...have you talked to, like, public power and some of those to see if this...how these systems could work together? Or is it... [LB429]

SENATOR WISHART: Yes. So I met with NPPD; I met with the Rural Electric Association, and talked briefly with Shelley with Lincoln Electric System. I do believe they'll be here today. They do have some technical concerns, which I am...if the issue is just technical, I'm happy to work on that, as long as it doesn't hurt the integrity of the policy which is that we want to have...to be able to provide access to people who aren't able on their property to generate energy to still be able to

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invest in net metering. So I'm sure they'll be here today to talk about some of those concerns. [LB429]

SENATOR QUICK: Thank you. [LB429]

SENATOR WISHART: Yeah. [LB429]

SENATOR BOSTELMAN: Other questions? Seeing none, thank you, Senator Wishart. [LB429]

SENATOR WISHART: Thank you. [LB429]

SENATOR BOSTELMAN: Will you remain for closing? [LB429]

SENATOR WISHART: Absolutely. [LB429]

SENATOR BOSTELMAN: Thank you. We'll move now to proponents of LB429; proponents for LB429. Welcome. [LB429]

KEN WINSTON: (Exhibit 1) Thank you. Good afternoon, Chairperson Bostelman, and members of the Natural Resources Committee. For the record my name is Ken Winston, K-e-n W-i-n-s-t-o-n. I'm appearing on behalf of the Bold Alliance in support of LB429. Basically, the main reasons that we're supporting LB429 are the things that Senator Wishart was talking about at the end of her testimony in response to some questions. First of all, the idea is that this would be something that would standardize some procedures that are already starting to happen, rather than just having it be kind of one community does it one way and another community does it another way or maybe another community says, well, you can't do it at all. This would say that...this would authorize that and say that you can...that say...put the state's stamp of approval on it and say, this is something that's happening and create a process for doing that. Then, as she also indicated, it provides some opportunities for people to invest who wouldn't, necessarily, have the money to come up with their own system. Right now, say if I wanted to put an array of solar panels on my own home, that might cost me \$10,000. Well, that's a little harder to come by than the amount that would be required to invest in an array that's owned by the community. And the other thing is there's benefits that can come back from having virtual net metering, it can help reduce your own electric bill which provides you with an incentive for investing in it. It also, as she indicated, it can be provided...it can be located in a place that's a good location. And for example, the neighborhood that the person lives in, and in response to Senator Kolowski's question, if that neighborhood has covenants that say you can't put solar panels on your house, then maybe the person in that neighborhood can invest in a solar array in a parking lot or

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something like that. So it would provide an opportunity for a better location. It would also, if there were just...as she indicated, as Senator Wishart indicated, if there were just objections in the neighborhood, people didn't like it, didn't want to see solar panels, it would also allow the location someplace where people probably wouldn't even see it, where it might be, like I said, a parking lot or on a warehouse roof or something like that. Then, with the virtual net metering, it means that you can have several people come together. And sometimes it's a hassle to figure out, well, which contractor do I hire and which one is the best one, and how do I put it on my roof, and will that cause my roof to leak, and all those kinds of things? Now I know there's some really good contractors out there and I'm not demeaning any of them, but it just...this could make it a little bit easier if you've got a virtual net metering concept, this allows somebody to just invest in a project without having to deal with all of that. And then finally, I've heard from...I was on the staff of a committee last summer and fall and one of the things that we heard from some utilities about this subject was the idea that if there was a community solar project where they've got virtual net metering, they know more about the amount of electricity they're going to get and when they're going to get it as opposed to a net metering when it's on individuals' homes where they don't know...I mean, maybe the person is going to be using the electricity during that time. So they have more control over the electricity and have a better idea of when they'll be receiving the power and they can plan better accordingly. So for those reason we support LB429. And I would be glad to answer questions if I can. [LB429]

SENATOR BOSTELMAN: Thank you, Mr. Winston. Any members have any questions? Senator Quick. [LB429]

SENATOR QUICK: Thank you. I just had a question on...do you know how that...so you have a central location and it's going out to different customers, how does it...will they have to pay for the use of a line then in between or how does that...is there a fee in there, how does that work? [LB429]

KEN WINSTON: Well, here's...I believe that there's going to be a gentleman who is working with Central City and he can describe how their program works; and I know LES also has a program. So if I misstate something, I'm sure I'll be corrected (inaudible). But it's my understanding that the way that it works is I...like LES has a fee of \$685. I pay that \$685 and it's not that the electricity comes back to my home, it's just gets generated and put out on the line. But I get a credit for...related to the amount of output from that particular panel or set of panels that I've invested in, I get a credit on my bill related to the output of those panels. And so...and that gets credited on my electric bill, but I don't get...it doesn't...I mean, the amount...it doesn't change what comes into my house or anything like that. [LB429]

SENATOR QUICK: Okay, thank you. [LB429]

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KEN WINSTON: Did I answer your question? [LB429]

SENATOR QUICK: I think so. Well, if somebody can... [LB429]

KEN WINSTON: Okay. [LB429]

SENATOR QUICK: Yeah, thank you. [LB429]

KEN WINSTON: Yeah, you bet. [LB429]

SENATOR BOSTELMAN: Any other questions? Seeing none, thank you, Mr. Winston.
[LB429]

KEN WINSTON: Thank you. [LB429]

SENATOR BOSTELMAN: Next proponent for LB429. Next proponent. [LB429]

PAUL ECKERSON: My name is Paul Eckerson, I'm an independent. I was a Nebraska Chamber of Commerce Committee on the Environment when I worked at Molex for 25 years, I was the environmental officer. [LB429]

SENATOR BOSTELMAN: Excuse me, sir, could you spell your name, please. [LB429]

PAUL ECKERSON: E-c-k-e-r-s-o-n. What people don't realize with the cost of electricity is, it's a two aspects of it. You, basically, have an infrastructure that you have to distribute the electricity on. We're always going to have that and it's always going to be a cost. Nebraska is in a unique situation where we have a public monopoly, we don't have it...we have it sold out to big business on that regard and we have very good rates and we have very good service. What we need to do is figure out what the cost for maintaining the infrastructure is and everybody needs to be billed to be hooked up to the infrastructure to cover that cost. Then we have the issue of what are the costs to actually generate electricity. What they do in Switzerland is, basically, everybody...they have what's called an average amount for an average situation. And that first amount is billed at a lower rate. And the people that are wasteful pay at a higher rate. Eventually everybody at the higher rate has an incentive to invest. And with this system, not only do you just limit...100k that you guys proposed, I use 650 at my house, that is not enough to do it. But by doing this, people will be able to invest in generating, because generators that generate still have to plug it into the grid system and the consumer public power still has to maintain that cost. We need to figure that

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cost for everybody, everybody that's generating. And if you do that, you're going to have a situation where there's going to be an enormous investment in the outside by public people, won't cost the state a dime, will eventually get to be...where we're generating all our own power by investment. Iowa is at 40 percent right now. They don't have as good of wind as we do and they're doing it. Minnesota is doing it; they're ahead of us. They don't have as good of wind. Nebraska is in a great situation. And if we set up this thing right and figure out what the distribution costs are and what the cost for actually generating electricity with coal or nuclear or whatever we're doing, we can bill...we can give people the credit...we can pay people the same amount for that electricity. We actually purchase electricity from outside of the state and bring it in here. We can pay the same prices as we're doing for that to these people that invest here in Nebraska. And this is not only...it sounds good and it's great because the further you transmit electricity, the greater the line loss you have. So it's even better yet because the closer to home you generate the cheaper it is for everybody. And that's what we need to look at. What you guys are doing here is like one peg in the first ten holes that we have to dig. If you pass legislation that's comprehensive and set this up right, you can get everybody to invest. I'd go out and invest because you have the economy of scale when you build a big solar plant. The largest solar-generating electric facility in the world is at a Third World country. And the reason they can do it is because it pays for itself. It's in Morocco; it's not in the U.S., it's not anywhere else, it's in Morocco. And it's because it pays for itself and that's what will happen here. Solar is so cheap now. It's not even a contest with any other form of electricity now. People are going to build these huge solar arrays, but we need to structure it so it's cost effective for consumer public power so they get their infrastructure maintained, and everybody get's theirs maintained. When you get a bill, you should get a bill for being hooked up to the electricity and then a bill for how much you use. That's what everybody should get billed. And the more power you're hooked up for, the more you pay for your base charge. There's a lot of things that are structured that way. Public utilities need to be a monopoly, because you can only have one sewer system, only water system, only one electrical system; only one gas line to your home. And we've kept that public and that's just great. You know when they sold...when they sold the natural gas company to Aquilla, remember when that happened? They did it because of budget problems. They sold it. And the price of natural gas was twice what it was then. Today we pay twice as much for natural gas and it only costs half as much. And Aquilla sold it to the current people and they sold it again, Aquilla made 100 percent profit on theirs when they sold it. So anyway, that's all I have to say. [LB429]

SENATOR HUGHES: Thank you for your testimony. Are there any question? Seeing none, next proponent. Welcome. [LB429]

ANDREW BROWN: Thank you. Good afternoon. My name is Andrew Brown, A-n-d-r-e-w B-r-o-w-n. Thank you for the opportunity to share my thoughts on LB429 regarding virtual net metering. I moved to Nebraska almost two years ago to work for Central City-based Mesner

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Solar Development. Since my arrival, we have implemented two successful virtual net metering programs on two very different platforms. It's important to note that a successful virtual net metering program requires the cooperation of the local utility. Our two projects to date have been in Central City and Holdrege, both of which have city-owned utilities. Working with the cities, in both instances, we were able to find open locations unobstructed by shade away from residential areas where solar arrays could be easily tied into the grid. Virtual net metering allows for participants to own a portion of a larger project and take advantage of decreased system costs through economies of scale. Just as it's more cost-effective to build ten houses on the same street at the same time, solar array pricing gets better when everyone can share the costs of a larger project in the same location. When I arrived in Central City in April of 2015, our existing 50kW community solar array was quickly expanded to 200kW. The ground-mounted system was built in an old crushed gravel parking lot on the north side of town, out of sight unless you know where to look driving past it on the highway. The expansion allowed the city, several local businesses, and individuals around town the opportunity to purchase a portion of the array, all without tracking down bids, managing construction, or punching holes in a single rooftop. Some got on board for purely economic reasons; some expressed a genuine interesting in doing their part to provide a cleaner environment for their children and grandchildren. All participants have lowered their monthly utility bills, hedged against increased future utility costs, and a few have expressed interest in expanding their solar capacity. Our second successful virtual net metering project was built in conjunction with a 16 unit low-income housing tax credit project in Holdrege, Nebraska. The 56kW array will credit each of the units with their 3.5kW portion of production every month, making their already energy-efficient units even more affordable. Again, this was accomplished working alongside and with the blessing of the city of Holdrege's utility department. The solar array was erected over a mile and a half away from the housing units. It's out of the way and ties conveniently into a utility substation immediately adjacent. The feedback we've received from participants at both the individual and commercial levels has been overwhelmingly positive thus far. As developers, we've enjoyed working with the cities and learning about building solar arrays, and look forward to larger, more challenging projects in the future. I encourage you all to support LB429 for virtual net metering in Nebraska. It is cost-effective measure that minimizes barriers to entry and encourages participation from those interested in lowering their carbon footprint. I'm happy to answer any questions to the best of my ability. Thank you. [LB429]

SENATOR HUGHES: Thank you, Mr. Brown. Are there questions? Senator Albrecht. [LB429]

SENATOR ALBRECHT: Thank you. Thank you for your testimony. 2015, Central City, so you've experienced some storms or any damage to any of your solar panels? [LB429]

ANDREW BROWN: Umm... [LB429]

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SENATOR ALBRECHT: And if you have, who takes care of those costs? Is it just anybody who has bought into it that has a piece of the action to maintain it or who...how does that work? [LB429]

ANDREW BROWN: Umm...so we haven't had any damage yet to any of the modules, the panels, which there are 800 of them out there. They're tested...I don't know what the exact specs are for what they're designed to withstand, but we haven't had any hail damage, no wind, no storms have knocked out any power. [LB429]

SENATOR ALBRECHT: So do you have people that actually go out and inspect them? [LB429]

ANDREW BROWN: Yes. So the...so in town our utilities foreman, like the utilities superintendent, he goes out to read the meters once a month and he'll check to see if the inverters are working properly. [LB429]

SENATOR ALBRECHT: The the utility man works for the power company? [LB429]

ANDREW BROWN: For the city. [LB429]

SENATOR ALBRECHT: For the city. Okay. [LB429]

ANDREW BROWN: Right. And he'll go out and when he reads the meter he'll walk around and make sure that there's no loose wires or that the inverters aren't down. We did have a problem with the inverters at one point, it was actually a manufacturing defect. But the manufacturer, they sent us all new inverters. We replaced all 24 of them. We had one of the installers that we're working with, they sent a couple of their guys down from South Dakota to swap out half of them. And then when we got the other half from the manufacturer, actually my boss, Cliff Mesner, myself, and one other guy in town, we just went and changed out the inverters. [LB429]

SENATOR ALBRECHT: So was this contract with the city since there's a city person that goes out and checks the meter? [LB429]

ANDREW BROWN: Umm... [LB429]

SENATOR ALBRECHT: Did you have a contract with the city? [LB429]

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ANDREW BROWN: We don't have any kind of maintenance contract with the city or anything like that, just...if there's a problem, it's kind of on us to find somebody who can go out and take care of it. [LB429]

SENATOR ALBRECHT: But then...so Central City would have had to have contracted with someone because they have the power, they have a contract with a public power, probably, correct? [LB429]

ANDREW BROWN: Umm...I believe...they're... [LB429]

SENATOR ALBRECHT: So how did you marry that together? [LB429]

ANDREW BROWN: Well, the city of Central City is the utility. And the...we have a very progressive city administrator who is...he was as eager to learn about how solar works as we were. So, again, this...we started it two and a half years ago, just before my time here. And we're just kind of learning as we go. So we haven't...certainly haven't hit all the hurdles that we will, but... [LB429]

SENATOR ALBRECHT: Thank you for your information (inaudible). [LB429]

SENATOR HUGHES: Senator McCollister. [LB429]

SENATOR McCOLLISTER: Thank you, Mr. Chairman. And thank you for your testimony. So following up on Senator Albrecht's question, Central City is the utility. [LB429]

ANDREW BROWN: Yes, sir. [LB429]

SENATOR McCOLLISTER: And do you know, do you have other forms of generation? [LB429]

ANDREW BROWN: The utility in Central City? [LB429]

SENATOR McCOLLISTER: Yeah, Central City utility, how else do you receive power? [LB429]

ANDREW BROWN: I think they buy it wholesale from NPPD and then sell it retail to the customers, I believe. [LB429]

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SENATOR McCOLLISTER: And so when your solar array is generating power, where does the surplus go? [LB429]

ANDREW BROWN: Well, so all the power generated, it gets fed into the grid. And like the city utility is essentially used as like...as a battery to store it. And so the, I mean, the 200 kilowatt, whatever they produce per month, that gets used somewhere. You know, whether it's...it may...sorry, lost my train of thought. [LB429]

SENATOR McCOLLISTER: Do you export it into the NPPD system? [LB429]

ANDREW BROWN: I believe it all stays within the city, but I'm not sure. [LB429]

SENATOR McCOLLISTER: I see. I see. I guess we have a correction coming. But we'll get to that later. And you get around the 25 kilowatt limitation by being utility yourself? [LB429]

ANDREW BROWN: Right. That's up to the utility's decision. So the state law states that...you know, they only have to allow you to consumer 25 kilowatts. But with the utility's permission, obviously, they've been on board with both projects and they said it's okay to go to 200 in Central City and in the case of Holdrege, 56. [LB429]

SENATOR McCOLLISTER: Thank you for your testimony. [LB429]

ANDREW BROWN: Um-hum. [LB429]

SENATOR HUGHES: Okay, additional questions? Senator Bostelman. [LB429]

SENATOR BOSTELMAN: Thank you, Mr. Chairman. Mr. Brown, thank you for being here and testifying today. Two questions: one question is how does those who do not belong or have not bought into the virtual net metering, what costs do they share, and do they have an increased cost as far as their utilities? [LB429]

ANDREW BROWN: I'm not positive, but I think...200 kilowatts is still a very relatively small system, and we're only talking about a handful of businesses and the city that have bought into it and few individuals, so it's...we're talking about a handful of maybe ten people and businesses in a town of 3,000. So it's not...yes, the utility still has the same fixed costs for being able to distribute power to everybody in town, but I think we would probably run into problems if we

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started putting in much larger systems, you know, a megawatt, 2 megawatts, then it might start to affect the fixed costs of the people that have not bought into it. [LB429]

SENATOR BOSTELMAN: Sure, thank you. The following question would be--it sounds like you're, as you said, you're already doing net metering in different places, what obstacles are there that keeps you from continuing to do it with the utilities across the state? Kind of get into what...how this bill will help you out if you're already doing it. [LB429]

ANDREW BROWN: Well, I think what we're hearing is that a lot of communities throughout the state are wanting to put up solar. And the challenge is just finding them and certainly getting city administrators and city councils on board with it. Actually, just last week the Central City city council they approved another 500 kilowatts of solar. So we'll hopefully be starting on that late spring. And last week, also, Gothenburg approved 500 kilowatts as well. So it's just a matter of, you know, getting all our ducks in a row and getting everybody on board that needs to be on board. [LB429]

SENATOR BOSTELMAN: Okay. Thank you. [LB429]

SENATOR HUGHES: Additional questions? Senator Quick. [LB429]

SENATOR QUICK: Just...thank you, Chairman; and thank you, for testifying. Kind of following up what Senator Albrecht kind of asked about, so does the utility actually own the solar panels or do the individuals own the solar panels? [LB429]

ANDREW BROWN: The individuals. So like in the case of Central City, it's 200 kilowatts, and 25 kilowatts of that is owned by the city. So they own 100 of the 800 panels. And one of the local banks owns 25 kilowatts; the vet clinic; Central City scale; and a few other individuals, but, yes, they are individually owned. [LB429]

SENATOR QUICK: Okay, because that's what I was trying to figure out when she was asking about who maintains it. So maybe since Central City utilities has bought into it somehow that they actually supply, maybe, some of the maintenance for it. [LB429]

ANDREW BROWN: Yeah, again, ultimately, it falls on us. Like if the vet clinic calls us and says, hey, you know, I'm not getting nearly the production that I had last month, we'll be the ones to call the manufacturers and figure out what's going on. [LB429]

SENATOR QUICK: Okay. [LB429]

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ANDREW BROWN: So, I mean we're...yeah, the panels are owned by several different individuals and businesses, but we want to do everything we can to make sure that's functioning as (inaudible). [LB429]

SENATOR QUICK: So you guys still maintain it...or replace panels? [LB429]

ANDREW BROWN: Yeah. [LB429]

SENATOR QUICK: Okay. Thank you. [LB429]

SENATOR HUGHES: Senator McCollister. [LB429]

SENATOR McCOLLISTER: Thank you, Mr. Chairman. Do you have fiduciary responsibility to citizens of Central City do you not? [LB429]

ANDREW BROWN: I would agree. [LB429]

SENATOR McCOLLISTER: Yeah. Do you put out a report or any kind of internal rate of return on the investments you've made in that that citizens could look at? [LB429]

ANDREW BROWN: We don't. What they're...not anything as far as, you know, open to the public. We haven't done any marketing at all for it. People have just been...the people that have bought in to it are the people that contacted us and said, you know, hey, I hear you're putting up solar panels, okay, can we put some out there too? But, no, as far as like formal internal rate of return or getting into formulas, nothing like that. But everybody that owns a portion of it, they basically...they get two utility bills every month. One is, what their utility bill...what their total usage was; what their bill would have been without solar. And then the second bill is what their bill is after the credit has been applied. So they get two utility bills. They pay the lower of the two because the credit has been applied on that one. And that way, every month they can keep track of the exact dollar amount that...of energy produced. [LB429]

SENATOR McCOLLISTER: Good. Thank you very much. [LB429]

SENATOR HUGHES: Okay. Additional questions? Seeing none, thank you, Mr. Brown. [LB429]

ANDREW BROWN: Thank you all. [LB429]

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SENATOR HUGHES: Appreciate it. Welcome. [LB429]

GRAHAM CHRISTENSEN: Thank you, Senator Hughes and members of the Natural Resources Committee. Thank you, Senator Wishart for bringing up this bill; I think it's a good discussion at this time. My name is Graham Christensen. I support LB429. About a year and a half ago, I started a general contracting business developing solar projects across the state in order to help farmers, ranchers, Nebraska businesses, and residents be able to participate in solar production. [LB429]

SENATOR HUGHES: Mr. Christensen, could you spell your name for us, please. [LB429]

GRAHAM CHRISTENSEN: Yes, my apologies. G-r-a-h-a-m C-h-r-i-s-t-e-n-s-e-n. Thank you. And I'm also part of a family farm...proud family farm tradition for 150 years in northeast Nebraska that also has a solar panel array that helps bring energy to offset some of the energy that we produce on our farm. Back in 2006, the climate change conversation had some concern to me and inspired me to set up this business years down the road. But I looked at it as an opportunity for farmers to be able to lead the way in the battle against climate change and, of course, be able to drive revenues into the state through a new business sector that we could get out in front of. I also felt that our urban areas, they could be a conduit for moving these kinds of...the equipment and the resources we needed, maybe even some financing into our areas to help develop this kind of stuff. Today is an exciting day because we're actually having these conversations. And even recently, we're seeing more signs that there is more momentum in Nebraska as Van Meter, a wholesale solar company, just moved into the city of Omaha where they had initially been based out of Iowa. So very exciting times. I like the bill because it's a business-friendly bill. And then I think one of the key parts is trying to get out of the habit of, you know, trying to find a meter here and a meter there or a meter here that is feasible to be able to develop solar projects. This gives folks that are trying to do the right thing or trying to cut down on some of the dollars on their bills the opportunity to participate. And I just wanted to share a couple of examples that I've come across in the short year and a half time where virtual net metering would have been a helpful tool. Number one, there was a family from the Martell, Nebraska, area. Of course, the old man, the dad, he lived a few miles away from the son and they both wanted to go in on solar project together. The son really didn't have enough money to do his own, so he...the concept would have been that we'd be able to develop on the larger farm where the dad lived and his mom lived so that he would be able to be part of kind of the family energy generation. They'd be able to be their own independent producer per se but together. So that was one situation. And then another situation happened in North Bend. This was, actually, one of the first folks that I talked to. Once again, big oak trees shaded the location here. This certain resident also had a...owned a location down the street that had a south-facing roof that was not blocked off by trees and was a much more feasible place to be able to put it, so about one block away he would have been able, you know...with this law in place, been able to put solar panels

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on that site and been able to utilize the energy for his place. So I think...I'm starting to see more and more of these kinds of examples as I go forward. I want to share more examples for the need of these kind of opportunities as we move forward with the LB87 testimony, but I also wanted to point out that this might be something that might be a good fit for that LB87 discussion as well as your committee moves forward and tries to decide the best way to go. And with that, thank you very much for your time. And if you have questions, of course, I'd field... [LB429]

SENATOR HUGHES: Thank you, Mr. Christensen. Are there questions? Senator Albrecht. [LB429]

SENATOR ALBRECHT: Thank you, Chairman. Thank you for being here. I know that we visited in my office a bit about this. And you mentioned the rural areas. So father/son decide they want to do this. What type of cost...just say 100 kilowatts. What kind of cost would they incur to just get it set up at their place? [LB429]

GRAHAM CHRISTENSEN: It would be approximately...for a 100 kilowatt project, it could be in the range of \$250,000, \$300,000. [LB429]

SENATOR ALBRECHT: So help me understand, how long would it take to recoup those dollars? [LB429]

GRAHAM CHRISTENSEN: Absolutely. Under just a straight residential scenario, of course, incorporating the federal tax credit with a 30 percent discount, but I'm not going to count the USDA REAP Grants that also fund farms and rural businesses, so just put the grant aside, let's think of that just a complete bonus, nobody is guaranteed that. But if you're able to use what we already currently have in place, it should be about a 8- to 10-year payback on most residential situations. Now there's a little difference from utility to utility. [LB429]

SENATOR ALBRECHT: Okay. [LB429]

GRAHAM CHRISTENSEN: If you add the USDA REAP Grant for some of these rural applications and farms and ranches, we can bring that number, sometimes, under five years. [LB429]

SENATOR ALBRECHT: Okay. And after you install it, who takes care of that farm? I'm not talking about city, but a farm operation, who would maintain the system? [LB429]

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GRAHAM CHRISTENSEN: So the way that my company is set up is I'm a contractor and I work with various subcontractors. And so the subcontractors who are actually electrical contractors have the pertinent certifications and skills that I lack, will go out and do the construction and the electrical install. The folks that I'm working with will also be back out to the place should there be issues into the future. [LB429]

SENATOR ALBRECHT: Okay. I guess my concern is sustainability. Because I think this is all well and good--solar and wind and whatever you want to try, but we really have to think it all the way through to make sure it's going to be something that's going to be viable for our state. [LB429]

GRAHAM CHRISTENSEN: That's a great point. I will note that there is 25-year warranties on the production of the panels. That is pretty standard. When we finance, the Nebraska Energy Office offers a 2.5 percent financing program, most folks use that. And USDA, as well, are requiring us to meet some of these standards. And that includes STC ratings which require testing with hail and wind as well. We have to have a certain standard or we can't even put those panels up in most cases. And that is something that I think a good company that's working to install solar panels should be having conversations with the residential or business customers that are interested. This is all part of the conversation that this is done properly. [LB429]

SENATOR ALBRECHT: Correct. Thank you. [LB429]

SENATOR HUGHES: Additional questions? Senator Bostelman. [LB429]

SENATOR BOSTELMAN: Thank you, Mr. Chairman. Mr. Christensen, question, something you just brought up that's kind of brought a question to mind. Is there a standardized, and how do you connect up to the utility, to the power lines? Seems like there should be...is there any requirements, any statutes, any regulations out there, any certifications out there that an installer must have so that we know...or an individual knows that that installation is being done appropriately and that the utility is aware of it as well. [LB429]

GRAHAM CHRISTENSEN: Yes, there is. So first of all, when installing any solar project behind the grid, we work with the utility to fill out an interconnection application agreement that answers a bunch of the technical and electrical questions that they need to know before this stuff is commingled onto the electrical grid. And then after the project is actually developed, we have to have one of the state electrical inspectors, and they're broken down into regions, come out to the site and actually sign off on it. And if they don't like it, then they don't approve your project and you got to go back, you know, get back out there and get to work to fix it to make it adequate by a state standards and electrical codes. [LB429]

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SENATOR BOSTELMAN: All right, glad to hear that. Question...one follow-up with that would be--can the utility tell you not to connect? [LB429]

GRAHAM CHRISTENSEN: Currently, under the net metering law, up to 25 kilowatts they cannot. At that point, it's optional, but, of course, you lose that 1 to 1 offset up to 25 kilowatt and everything goes way down to this avoided cost rate. And then it really doesn't cash flow at the time, so that's why you don't see more development. [LB429]

SENATOR BOSTELMAN: Sure. And does a house...I'm sorry...does a house...what's average use, how many kilowatts is average use? [LB429]

GRAHAM CHRISTENSEN: Let's say a thousand kilowatt-hours a month. Could be in the range of a lot of residential. A lot of the farms I do are 2,500, 300 kilowatt-hours a month that they'd be generating. [LB429]

SENATOR BOSTELMAN: Okay, thank you. [LB429]

SENATOR HUGHES: Okay. Senator Kolowski. [LB429]

SENATOR KOLOWSKI: Thank you, Mr. Chairman. Graham, welcome back. You've been here, I think, every year that I've been here, so five years in a row here, it's good to see your progress. [LB429]

GRAHAM CHRISTENSEN: I get to missing you guys. [LB429]

SENATOR KOLOWSKI: Yeah. What would you say would be your biggest take away? The learning that you had in the years that you've been doing this and you've been very active and very forward in your production, what have you learned? [LB429]

GRAHAM CHRISTENSEN: Well, this first year and a half was a giant learning experience because a lot of...before when I have come and talked to you, it's not really been from a contracting format. I have worked more in the education and policy fields in the past, but what I learned is that that is great, we need to continue on with the education and the good policy work, but until we actually have more applications installed on the ground so we have real-world experiences we will not have enough good data to be able to provide the policy that's needed to expand. So that is one of the things that I've learned and that is big part of the reason that I got into the business is to be able to get my hands a little bit more dirty and try to push more of these installations and applications so that we can push the boundaries where it is appropriate and

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where it is feasible, of course, in partnership with you and the utilities as well. I've also learned a lot about the financing and the USDA agreements; the price of solar...real price of solar projects; what the market is in Nebraska compared to other areas. So it's been a pretty aggressive years of educating myself. But it's one of the reasons I look forward to 2017 with us moving forward and more interest. And getting back to Senator McCollister's earlier question, 320 installations according to the Power Review Board report that the Legislature asked them to put together. Tim Texel can provide that for you if you'd like a copy. But 2016, I think they had the numbers up to there, not, of course, yet 2017 and so far there's 320 of these net metered application existing. [LB429]

SENATOR KOLOWSKI: Thank you for your work. I look forward to three more years of having you come in and you're a real dynamo, that's a joke, for us and keep up the good work. Thank you. [LB429]

GRAHAM CHRISTENSEN: Thank you, Senator. [LB429]

SENATOR HUGHES: Okay. Additional questions? Thank you, Mr. Christensen; we appreciate it. [LB429]

GRAHAM CHRISTENSEN: Thank you, Chairman. [LB429]

SENATOR HUGHES: Welcome. [LB429]

JAMES CAVANAUGH: Thank you, Senator Hughes. Members of the Natural Resources Committee, my name is James Cavanaugh; I'm counsel and registered lobbyist for the Nebraska Chapter of the Sierra Club, the oldest and largest environmental advocacy organization in the United States. Appear here today on behalf of the Sierra Club... [LB429]

SENATOR HUGHES: Mr. Cavanaugh, Mr. Cavanaugh, would you please spell your name for the record, please. [LB429]

JAMES CAVANAUGH: Oh yes, James, J-a-m-e-s, Cavanaugh, C-a-v-a-n-a-u-g-h. [LB429]

SENATOR HUGHES: Thank you. [LB429]

JAMES CAVANAUGH: Appear here today in support of LB429. We commend Senator Wishart for her forward-looking advocacy of this important issue. You've heard most of the previous

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testifiers outline to you the technical aspects of net metering and what LB429 would do to encourage the development of an important renewable source of energy in Nebraska. So I won't recap those for you, but I will point out a few simple facts. This is happening. This is going to happen. It can happen sooner or it can happen later. But I have a 13-year-old son who is a STEM student at a magnet school in Omaha and he makes solar powered toys. There wasn't any kid around 75 years ago who was making nuclear powered toys in their middle school. And yet, the nuclear industry exploded and has now kind of reached its terminus. This is simple energy production that a 13-year old can master and it's going to happen regardless of what we do here today. I think that what we have an opportunity to do here today is show real leadership. You've heard from the previous testifiers that the major advantages of this bill is it lowers the barrier of entry; lowers the carbon footprint. But there are two others that will happen as well, sooner rather than later, and I think that the Legislature should be very interested in those. First of all, jobs. I drive down from Omaha almost every day of the Legislature and in that hundred-mile commute to work, I have never in the last five years, seen less than a half dozen windmill blades going from east to west, always from east to west. They are made someplace east of Omaha and they are established someplace west of Ogallala. They don't stay in Nebraska. All of that energy and production and fabrication and installation, all of the taxes paid on those, all the jobs created by that are made someplace else. There's no reason that we can't have those jobs here in Nebraska other than we haven't lowered the barriers of entry for renewable energy enough to make it economically viable. That will happen. That will happen here. And all I'm urging you to do today is accelerate that as quickly as possible. I had a neighbor who, a couple of years ago, looked at putting in a new furnace and he looked at a gas furnace and he had the local gas utility come in and they said, yeah, we can give you a brand new gas furnace and you'll pay the gas bill every month or we can put a thermal unit in your front yard and you're not going to pay too many gas bills for the rest of your life. And there are tax credits and grants available that made it very competitive with a brand new gas furnace. And so he went that route. And my gas bill is about 20 times what his gas bill is every month. There's all kinds of applications for renewable energy here that will bring us jobs, bring us taxes, lower our carbon footprint; all we have to do is encourage them. And this bill does that. So I ask you to take into account that you have an opportunity here to lead. And it's going to happen regardless of whether we lead today or tomorrow or the next day because as you saw young Mr. Christensen come up here, that's the future. And my 13-year-old son who is making these in the basement, that's the future, and that's going to happen. So let's embrace it and make the future now. Thank you very much. I'd be happy to answer any questions you might have. [LB429]

SENATOR HUGHES: Thank you, Mr. Cavanaugh. Are there questions? Senator Bostelman.
[LB429]

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SENATOR BOSTELMAN: Thank you, Mr. Chairman. Mr. Cavanaugh, I'll ask the same question I asked others. What obstacle currently exists in law right now that keeps anyone from putting any solar panels in anywhere? [LB429]

JAMES CAVANAUGH: Well, I think that you're talking about a couple of different things. I think I, with the zoning requirements of Omaha taken into account, can put up solar panels to power my own home. It's the virtual net metering there. So I'm going to put up solar panels that are going to power my own home and produce more electricity than I can use. So what happens to that? And I think that if you read this bill and the next couple of bills that you'll see, there are specific areas of the law that establish limits on what you can do and how you can do it and the permissions that you need from the local utilities to do it. So it's not impossible; it's just that there are needless government regulations and barriers to doing this kind of very basic small-scale free enterprise activity. And we need to remove those barriers, or at least alleviate them as much as possible. You'll see in one of the other bills, I think, reference to generation of 25 kilowatt-hours going to 100 kilowatt-hours. That's an example. You'll see reference to...with the permission of the local utilities...that can be a barrier as well. I think you're probably going to hear some testimony here today from some utilities who may not be entirely supportive of these efforts. That's a barrier. And what we need to do is eliminate all the barriers and make it like you say, as simple as--I want to put one of these up. Well, as long as I comply with my local zoning variances, if I'm in a city or I don't bother my neighbors if I'm in the country, I should be able to do it. [LB429]

SENATOR BOSTELMAN: Thank you. Correct me if I'm wrong though, net metering requires that you gauge or you...the...do net meter and you put in your system, it is to what your consumption will be and not in excess and that's what net metering is about. And so if we do...if we do a...I'll call it a group which we do across the state, which Mr. Christensen said he's doing already, virtual net metering, I'm on the point of not creating more barriers for things to happen and that's why...that's where I'm getting my point...what I'm trying to understand is, how has...what those barriers are if they're...if it's a utility-driven one, that's going to remain. The utilities will still have it unless we do away with something within the utilities. Would you agree? [LB429]

JAMES CAVANAUGH: Well, yes and no. I mean, the utilities...and I'm all for public power, I think it's one of the great legacies of George Norris, along with the Unicameral, that Nebraskans have enjoyed for generations. I think the utilities are in the process of coming around on renewable sources of energy that heretofore maybe they haven't been so supportive of simply because it's going to happen and it's inevitable. So the idea of net metering is, as I understand Senator Wishart's bill, to allow people who don't have the capacity, like I do, to put solar panels on their own property whether they're in a condo or an apartment or something like that and still buy into a system that generates and have that buy-in offset their utility bill. So you can do this a

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couple of different ways. Right? I can go off the grid and cut all the wires and generate enough energy for my home. I could probably do that. Or I could buy into...I think LES just had a substantial solar array established here outside the city, I could buy into a community array or a condo array or an apartment array or a neighborhood association array at some remote location and offset my consumption of what I would buy from the utilities otherwise. I mean, there are different ways to go. I understand what you're saying. But there are different ways to get to the same goal. The goal is that we transfer from what we have in terms of carbon-based generated energy to renewable generated energy. And this does that. This speeds up that process. [LB429]

SENATOR BOSTELMAN: Okay, thank you. [LB429]

SENATOR HUGHES: Any additional questions? Seeing none, thank you, Mr. Cavanaugh. [LB429]

JAMES CAVANAUGH: Thank you. [LB429]

SENATOR HUGHES: Additional proponents? [LB429]

JASON OLBERDING: Hello. [LB429]

SENATOR HUGHES: Welcome. [LB429]

JASON OLBERDING: My name is Jason Olberding, J-a-s-o-n O-l-b-e-r-d-i-n-g. I'd like to thank all of you from the Natural Resources Committee for letting me speak today. I'm the owner of J-Tech Solar, J-Tech Construction here in Lincoln. We've also branched out to Grand Island in the last six to eight months, certainly due to the exposure that solar has gotten me so far since we've launched an independent business from J-Tech Construction. I currently employ roughly 50 people. We do solar installations ourselves. We work with NABSEP certifications. Everybody working for me that's involved in solar is working towards their degree...or their certification in this field, including my sales personnel. We believe in employee applications, as well as Wi-Fi monitoring for our systems with using top manufacturers, as well, so we don't have these hail issues. We know if something is going wrong with the system so we're told right away, we're notified as well they're notified. We're working on a very large 300kW project as we speak here in the Lincoln area, along with SWT. We work with very capable electric contractors to do the electrical end as far as grid ties and things like that go. In this bill, LB429, is definitely going to help our business grow and expand because without us being a roofing company it would be hard to be just standing on one leg as a solar company. I'm able to maintain these employees and keep them with me and acquire these certifications by as well as employing them in other fields right

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now. If this passed, this would allow me to get them full time as solar installers, as well as hire more people from out of state like I've already done. We brought in...recently brought in a solar designer to help us with the demand for residential installation. There's just not a lot of people in our area currently trained in this that we could just pick up and bring on staff. We're also working with SCC on educational program. What this is going to do is it's going to allow us to take the opportunities that we're missing out right now as far as roofing circumstances, shading, community issues, and be able to get them a feasible solar application outside of the community or within their distance or wherever the application might be and benefit from solar. So there's lots of high-end roofs, trees and stuff that prevent us from doing this. I mean, nobody wants to drill holes into their brand new terracotta roof or their brand new, you know...we've got a lot of storms lately and people have done a lot of upgrading to their roofs. So this is more exposure that we limit, as well as appearance, a lot of people are against certain appearances. So with that being said, I believe that this...the bill, LB429, is going to definitely help us expand our businesses, all the solar installers, and everyone who wants to employ local employees for the future. So it's going to allow us to sustain ourselves in the work that we're doing. I'm open to any questions. And I appreciate you once again the time. [LB429]

SENATOR HUGHES: Thank you, Mr. Olberding. Questions? Senator McCollister. [LB429]

SENATOR McCOLLISTER: Yeah, thank you, Mr. Chairman. How many installations have you put in this year? [LB429]

JASON OLBERDING: 2017 or do you want to talk... [LB429]

SENATOR McCOLLISTER: 2017. [LB429]

JASON OLBERDING: '17, we're working...like I said, we're working on the one that's a roughly 940 panel modular job so it's taking...consumed a large portion of our time. It's down in the Haymarket here. But I think we've done two or three so far this season. Obviously, we're doing roof mounts and ground installation; when the ground is frozen and when the roofs are slick we can't get up and do those forms of work. [LB429]

SENATOR McCOLLISTER: We've been talking about rate of return or payback period; when you go out and talk to a perspective customer what do you tell them? [LB429]

JASON OLBERDING: I almost don't see a rate of return less than 8.4 in the LES area. Now when we get outside the area from LES's area we give more like a 7.2 or less depending on what the power rates are. So it's more of a return on investment. [LB429]

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SENATOR McCOLLISTER: You're aware that the public utilities aren't obligated to take more than 1 percent of their peak demand. Have you seen any push back from the utilities with regard to what you're doing? [LB429]

JASON OLBERDING: Not a lot yet. They're more willing to work with us than anything once we come in with some and we have some customers that are willing to do such things. They more or less negotiate so I don't feel there's going to be...we want to work with these people. You have to understand that we might be opposed with them, but at the same time these are all the people that we work with every day, so we just want to work together to form a standard so that when we go out to Grand Island or we go out somewhere we know that we've got a concept of what we can and can't do every time we have to recreate the wheel to go in and do it and renegotiate all these contracts. And earlier I heard something about Central City and public utilities. I do know I was in contact with Beatrice on a project they're working on and a study they were doing. And they actually negotiated with NPPD on what amount of renewables they can and can't do with their contract when it comes up. So that's something these communities are actually granted to do as they've got a space in there where they're allowed to go out and chase their own renewable energies when they have their own utility and they're purchasing from NPPD. So it's important. [LB429]

SENATOR McCOLLISTER: Okay, thank you. Yes, sir, thank you for your testimony. [LB429]

JASON OLBERDING: Thank you. [LB429]

SENATOR HUGHES: Okay. Senator Geist. [LB429]

SENATOR GEIST: Can you just give me a rough idea about the education that it takes to...for you to hire someone? [LB429]

JASON OLBERDING: Well, yes, actually we work with K Electric and a lot of other people that actually help write code for the electrical part so we keep the electrical part kind of out of our hands. But it does take several years of education to learn the, what we call, the DC side of solar. It's how to create and design an array that's going to be applicable to the building or the land. It's not only checking on currently pricing because the solar market is very variable in equipment, just make sure you're staying with the top tier plan. So it does take several years of schooling to become a NABSEP-certified training...to get the certification. I do know that there are several gentlemen that I've learned from in the area that are very...they should be certified. And it's not necessarily a class, it's a test. [LB429]

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SENATOR GEIST: Okay. Thank you. [LB429]

SENATOR HUGHES: Senator Kolowski. [LB429]

SENATOR KOLOWSKI: Thank you, Mr. Chairman. Jason, thank you for your testimony. How long has your company been in operation? [LB429]

JASON OLBERDING: 2004 we opened the doors and I was primarily a gutter/siding company when we first started. [LB429]

SENATOR KOLOWSKI: And you're up to 50 employees. [LB429]

JASON OLBERDING: Close to 50, yeah, I think we have 47. [LB429]

SENATOR KOLOWSKI: The certification, what senator was asking about, the licensing...or certification, do you work with the community colleges at all on this? [LB429]

JASON OLBERDING: We're actually beginning working with the community college on implementing a system to help get some education for these jobs starting with Southeast Community College. [LB429]

SENATOR KOLOWSKI: Excellent. [LB429]

JASON OLBERDING: And so we've really...and I'm more than willing to help and I'm sure several other installers in the area are too. [LB429]

SENATOR KOLOWSKI: May I ask some personal background, are you from this area originally? [LB429]

JASON OLBERDING: Yes, I was born and raised in Lincoln. [LB429]

SENATOR KOLOWSKI: High school, you attended? [LB429]

JASON OLBERDING: I actually graduated from Beatrice High School. My father started a business there, but I attended Northeast High School until I was a junior. [LB429]

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SENATOR KOLOWSKI: You and many other students that I've known over the years are the millennials that we need to keep here. We need to bring you back and have you rooted in Nebraska with this kind of growth of a company. I've had numerous students like this in the past that have done exactly what you're doing in technology and many other areas that is a success story that we can't have enough of. So thank you for what you're doing. [LB429]

JASON OLBERDING: Oh, you're welcome. [LB429]

SENATOR KOLOWSKI: And I know your future is very bright. Thank you. [LB429]

JASON OLBERDING: Thank you. [LB429]

SENATOR HUGHES: Additional questions? Senator Walz. [LB429]

SENATOR WALZ: Thank you. Can you just give me a little bit more background on the Haymarket project, like how it started; who benefits from it; who is involved? [LB429]

JASON OLBERDING: Well, several businesses; it's owned by...it's many different businesses incorporated in it. And I do know there's going to be a press release on it here in the next few days. So I'd like to defer a lot of the questions due to the fact that the company that owns the system would like to be the one to more present it. But it's going to be the...from what I understand now that you can put tags on a lot of things, but one of the largest roof integrated systems in Nebraska, if not the largest. It's got 943 110-watt solar modules is what we call panels, so it's a very large project. And it's...and we also kept the historical value of the building so that it still is a historical facility. [LB429]

SENATOR WALZ: Okay. [LB429]

SENATOR HUGHES: Okay, additional questions? Seeing none, thank you, Mr. Olberding. [LB429]

JASON OLBERDING: All right, thank you. [LB429]

SENATOR HUGHES: Next proponent. Welcome. [LB429]

LAVERNE THRAEN: You betcha. My name is Laverne Thraen, 4819 Chicago. To answer your question, sir, OPPD is in my way. How? [LB429]

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SENATOR HUGHES: Excuse me, would you spell your name, please. [LB429]

LAVERNE THRAEN: Laverne, L-a-v-e-r-n-e, Thraen, T-h-r-a-e-n; 4819 Chicago, Number 11, Omaha, Nebraska, 68132. Again, OPPD...I was excited on my original one, sorry, ruined my speech. And well, how do they block us? Dual meters. Okay? Net metering here isn't true. They charge us avoided costs or wholesale costs...or they don't charge us retail and then they pay us wholesale, or avoided costs. Virtual net metering--why would you want to do it? Because of the third bill on this list today which is your solar gardens. This is a financing mechanism that helps solar gardens. So when you vote for this and the solar garden and you put those both in, they'll be complimentary to each other. And that's another good reason to do it. You see those solar panel and it's generating power and it's going to a battery pack. So my dual meters, extra costs, I'm only going to get paid wholesale 2 or 3 or 4 cents avoided costs, what it costs to burn coal, even though they don't include any of the mercury in the fish or any of the nuclear waste on the river or any of those other costs in their little cost figures. I would think the utility would be grateful that I would buy a solar panel on my own and add to the clean energy that they're all clamoring to try to get to. I would think. I was here in 1992, you guys were discussing wind energy at the time. OPPD's contribution was they did a test and the only thing they remember from it was there was no wind turbines left on the pool. I had just come from an international wind conference in D.C. and was so excited because I had a small scale wind turbine in my hand and all these beautiful facts and what's going to happen over the next ten years. And, you know, nothing happened here of course. But all across the whole nation wind turbines got put up. So for some reason our state loves to help out the nuclear waste generators and coal burners and the polluters with tax credits and using our water and our land for their dumping ground. So they don't want this kind of thing to happen because then they might not be able to use our water and our land anymore to dump their pollution. OPPD is the largest polluter in the state. That's my electric company that I'm embarrassed about. They didn't close the north Omaha plant because they closed the nuke plant instead, even though they promised to close the north Omaha plant. They're still burning coal over there in north Omaha. And it's because we can't get these things up. We're here asking for your help. Solar, this little solar guy that's been sitting around since 1950, invented this panel in 1950, it was in the magazines as a child and you could get it. So could you please hook these two bills together, this one and the solar gardening because it has a nice financing mechanism for them and actually do something positive for renewable energy. I mean, the petro chemical guys have had benefits to a trillion dollars a year across the whole country--benefits to use our lands, benefits to use our water, to dig up our coal, to leave nuclear waste at the river. They get permission from you guys to do all of that, but we can't get permission to have true net metering where maybe what I generate I get paid for from a public utility that's trying not to make a profit? Why should I only get paid avoided cost and they get to charge me retail? Why can't we have it both ways? Why can't I have a retail fee? Why do I have to do a 20-year hook up? What can you guys do to help the smart grid along so this stuff is just

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like this? You know, on or off. That's what a smart grid, there's a little computer chip in here so I'll never burn it up. So please help solar. And have a nice day. [LB429]

SENATOR HUGHES: Thank you. Are there any questions? Seeing none, thank you for your testimony. [LB429]

LAVERNE THRAEN: You bet. [LB429]

SENATOR HUGHES: Additional proponents? [LB429]

JOHN HANSEN: Mr. Chairman, members of the committee, for the record my name is John Hansen, J-o-h-n, Hansen, H-a-n-s-e-n. I'm the president of Nebraska Farmers Union, but I've also been involved in helping organize and sponsor the wind and solar conferences in Nebraska. So we started those in 2008. But to kind of give you kind of a benchmark of what the level of interest and activity has been, by 2013, we had to expand our conference to include solar because it had been a growing amount of interest, a growing amount of interest on the part of a lot different folks. It is a good fit for a lot of communities. It's a good fit for agriculture. It's a good, especially solar, is a good fit for the Platte Valley where you've got wind issues and flyway issues. And so the level of interest in solar at our conference is reflected in our program. And I'd invite you to, if you have an interest, to be able to go to the Nebraska Energy Office Web site and you can go back and pick up a lot of those past presentations on different topics and the PowerPoints and in some cases the video of those is kind of a background of sort of what the latest technology and what the latest challenges are. We thank Senator Wishart for bringing this bill forward. We thank Lincoln Electric System for their vision and their commitment in building their solar project in the northwest corner of Lincoln. We had a tour of that this last year at our wind and solar conference here in Lincoln at the Cornhusker. What an excellent array and a facility. And the way that LES has worked with the community, and the whole idea of virtual net metering is one that is...really broadens the opportunities and makes things easier to do. And, you know, we have such a mix of folks. I think I counted, just sitting there waiting to testify, count seven of our Farmers Union members and officers that are wind and solar dealers and installers. And so we have folks that are hands on; they're good at those kinds of things. They use it as an additional business to supplement their farm income. They believe in the benefits of what they do. And then you have other folks that are, well, not so handy. And so the idea of having something hang on their roof and having to look at stuff in their house, but they're certainly supportive of the idea. So virtual metering is a way for folks who either don't have the physical facilities or not inclined to master what it takes to have it in their own properties to participate. And so the level of interest is really growing. And so from my vantage point where we look at this in terms of our public power system, it is a great system. But what you have all of these folks wanting to use these kinds of renewable options, it kind of amounts to a sort of public

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relations with your owners. And so our view is that we need to be able to find a way to make sure that we're clear about the Rules of the Road for both the owners of the system and also the utilities and so we commend Senator Wishart for doing that. We think that it's always better to make the rules clear and that we thank all the folks in Central City and Holdrege and Lincoln and all the other places that continue to...that have built facilities. But I would tell you that the number of communities that call us continue to grow. So this is a cost effective way to aggregate and to allow people in a community to pursue their solar interests. So with that, I'd be glad to end my testimony and hope you don't ask me any technical questions. [LB429]

SENATOR HUGHES: Okay. Are there questions? Seeing none, thank you. [LB429]

JOHN HANSEN: Thank you very much and good luck. [LB429]

SENATOR HUGHES: (Exhibits 2, 3, and 4) Next proponent. We have letters...proponents from Tim Fickenschler from Omaha; Elaine Wells from Omaha; and Holly Wedemeyer from Bellevue. Okay, we'll move to opponents to LB429. Welcome. [LB429]

COLE BRODINE: (Exhibit 5) Hello, Senators. I'm Cole Brodine, C-o-l-e, last name B-r-o-d-i-n-e. I'm the manger of engineering for Dawson Public Power District in central Nebraska. I'm also a registered professional engineer in the state of Nebraska. I graduated here at UNL and currently live outside of Elm Creek. I don't want you to think today that I am in opposition of virtual net metering per se or of solar installations. Dawson Public Power has had great growth in solar in our district and we have yet to deny a facility that has applied to us. My concern with LB429 is due to how vague and incomplete the bill seems to be. It is unclear to me if the bill is simply intended to require electric utilities to engage in virtual net metering, or if it's just to define virtual net metering. Questions to consider today: Are utilities supposed to only offset a customer's residential meter? In our district we have industrial, commercial, agricultural meters. Many of these meters are billed on annual or seasonal rates. Rate classes have different rates based on demand, based on time of use, all sorts of different things. Are we aggregating all of the customers' meters? If an individual customer installs a large solar system in Lincoln County, am I required to offset his irrigation system in Buffalo County, two counties away? The other issue we currently have is that we don't have the capabilities to do virtual metering in our billing system. This bill will define for us how to do that. And right now we don't feel it's clear. We will need a clearer definition of virtual metering and who it applies to and in what way so that we can implement a billing system without any confusion for our customers. The other issue we have is that community solar and virtual net metering is already being done in Nebraska. Lincoln Electric System right here in Lincoln; Nebraska Public Power, Central City, we've heard about all these solar systems today and they're already doing virtual net metering in some way. I guess from our perspective, why do we need a bill when there's already...it's already being done. I

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personally would love to hear from a group of customers in our district that would like to put one of these in. We would be very receptive to it. So as far as I'm concerned, I guess there's no impediments today to virtual metering, at least in central Nebraska where I work, and from the looks of it, elsewhere in the state. So we would just like the bill to be reviewed and maybe be written in a more specific way so that public power districts can use this to define virtual net metering and be consistent. So that's all for my testimony. I'm happy to answer any questions you have. [LB429]

SENATOR HUGHES: Thank you, Mr. Brodine. Any questions? Senator Bostelman. [LB429]

SENATOR BOSTELMAN: Thank you, Mr. Chairman. Welcome, Mr. Brodine, and thank you for being here today. [LB429]

COLE BRODINE: Thank you. [LB429]

SENATOR BOSTELMAN: Could you explain, I guess, a little more about net metering and how that works or how that comes into play in your area? [LB429]

COLE BRODINE: Yes, in our district, we follow the word offset in the virtual net metering very closely. So we work closely with customers to make sure that the system that they're going to install offsets their kilowatt-hour load on an annual basis and doesn't overgenerate. If they chose to overgenerate, we do move them to a buy/sell rate with dual meters. But if they stay under that limit, then we only have the one net metering meter that they have for their normal service. [LB429]

SENATOR BOSTELMAN: Umm, sorry, when...umm...is it...my understanding of net metering around the state is you size your metering, your solar panel, whatever it is you have to the load that you potentially will use. [LB429]

COLE BRODINE: Correct. [LB429]

SENATOR BOSTELMAN: And then if you oversize that, that you actually...it's...the benefit of net metering is sizing it properly so you use and have a little bit, maybe, that you...over generation that you sell back. But if you go beyond that, if you generate a lot more electricity and put it on the grid, do you actually...that's less beneficial, is that correct? [LB429]

COLE BRODINE: That is correct, yes. Our goal is to help our customers generate power for themselves. We feel that once they move past that point and they start to sell it, then it's a

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business proposition, I guess, on their end with us. They're now generating for their friends and neighbors. [LB429]

SENATOR BOSTELMAN: So if we have multiple...I'm sorry, one last question. [LB429]

SENATOR HUGHES: Go ahead. [LB429]

COLE BRODINE: Sure. [LB429]

SENATOR BOSTELMAN: So if we have multiple generators, multiple people in different locations, can they...do they all have separate...I'm trying to understand net metering. [LB429]

COLE BRODINE: No, that's... [LB429]

SENATOR BOSTELMAN: Do they have separate meters? Are they at one location? Are we talking about two different things? [LB429]

COLE BRODINE: To me, it's basically two different things. Right now, we don't have one of these community gardens in our district. Right now, it's individuals who all have solar facilities on their property somewhere. So they have one meter, typically for their business or home and the solar panel is also behind that meter. So we net their usage out for that one service. We are aggregating them across multiple geographic locations currently. [LB429]

SENATOR BOSTELMAN: My last question for you is, what does...what's the typical sizing for a house? [LB429]

COLE BRODINE: We normally put in what's a 25kva transformer, 25kW roughly. [LB429]

SENATOR BOSTELMAN: Are they usually in the 5 to 6kW range for (inaudible)... [LB429]

COLE BRODINE: Correct, we... [LB429]

SENATOR BOSTELMAN: But they're not really using that 25kW (inaudible). [LB429]

COLE BRODINE: No, they rarely use that. We size the 25kva mostly due to pricing from our vendors, that's a good price for a transformer. But we rarely see a house get over 12 to 15kW for

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demand. A typical...it really depends if they're electric heat or not. That's usually your big user. But if you have no electric heat, you're probably in that 8kW range. If you have electric heat, you're maybe more like 12. [LB429]

SENATOR BOSTELMAN: Thank you. [LB429]

COLE BRODINE: You're welcome. [LB429]

SENATOR HUGHES: Senator McCollister. [LB429]

SENATOR McCOLLISTER: Thank you, Mr. Chairman. So with the net metering that your company employs, it's one-for-one. You only want to sell them the electricity at a certain rate until they have generated sufficient power. It's just you match up the sale and the purchase? [LB429]

COLE BRODINE: That's correct, yes. We measure the kilowatt-hours in and kilowatt-hours out all month long and then we subtract the two basically. If you are a net user, you get billed at our normal residential rate. If you're a net generator, you get the excess...you get paid at our net metering rate. [LB429]

SENATOR McCOLLISTER: Which is essentially the wholesale rate? [LB429]

COLE BRODINE: Essentially, yes. [LB429]

SENATOR McCOLLISTER: Less than the retail rate. [LB429]

SENATOR HUGHES: That is correct, yes. [LB429]

SENATOR McCOLLISTER: Thank you. [LB429]

COLE BRODINE: You're welcome. [LB429]

SENATOR HUGHES: Senator Albrecht. [LB429]

SENATOR ALBRECHT: Thank you, Chairman. When you talked about either you're trying to understand this bill, if it's required of you... [LB429]

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COLE BRODINE: Yes. [LB429]

SENATOR ALBRECHT: ...and you would like it defined. So if you're a public power entity, you would probably have rules for your people when they come to you. [LB429]

COLE BRODINE: Correct. [LB429]

SENATOR ALBRECHT: What makes most sense to you in your situation in this bill? [LB429]

COLE BRODINE: What I would like to see is for somebody who builds solar...community solar or a facility like that, I would like to see them be able to offset one meter of their choosing with maybe with one panel. They could buy multiple panels and choose which meter to point that generation to. The difficulty for us comes when you're trying to aggregate multiple meters. If you're a farmer in our district and you have one meter that's your house and one meter that's a grain facility miles away and one meter that's an irrigation well which only runs in the summer, trying to aggregate all three of those users together, all three of those meters together becomes very difficult. So I would like to see a one-to-one. I would be okay with them choosing which one of those they want to offset. [LB429]

SENATOR ALBRECHT: And would it require more employees to do that with the metering? [LB429]

COLE BRODINE: It would probably require cost on our part to update our billing system. Beyond that, I don't believe we would need to hire any additional people. [LB429]

SENATOR ALBRECHT: And would you be at all concerned about any contract that a person would become involved in with a solar company that puts their energy, their new energy, on their place? [LB429]

COLE BRODINE: My biggest concern if they work with a contractor is what happens if that contractor dissolves or goes away. You know, who takes care of the facilities? Are they going to fall to us, the public power district, to maintain and take care of now? Does the contractor have money set aside to dismantle facilities if they go away? You know, are we stuck with a eyesore somewhere or is there something in place for when these facilities are retired? That is a concern we have, but that is our hope is that it's not public power's responsibility to clean up when the private companies disappear one day. [LB429]

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SENATOR ALBRECHT: And I guess that gentleman before us said that we should take leadership. But to take leadership we have to be protecting the consumer and businesses just as well, so I appreciate your comments. Thank you. [LB429]

COLE BRODINE: Thank you. [LB429]

SENATOR HUGHES: Okay. Additional questions? Senator Kolowski. [LB429]

SENATOR KOLOWSKI: Thank you, Mr. Chairman. Thank you for being here today, it's good to have you here. Is there a restructuring that you need to do within the public power discussions as to how you described the meter here, the meter there, the meter there, on this one man's or family's property? Do we need to rethink how we're thinking about charging for and collecting and doing all this rather than this is how we do it now. This is how we charge it. This is how we bill you. All those kind of things. When do we upset the apple cart a little bit and come back and have a sit-down and talk about all this has changed and all this is going on around us. How do we restructure this so we come out okay and they come out okay and we gain the use of this kind of power rather than more pollution and more problems in our lives? [LB429]

COLE BRODINE: We have worked with customers to combine meters into a single meter on their properties. Our biggest problem is that we cover four counties. So many times this customer's other meter is tens of miles, if not 50, 80 miles away from their other meters, so the geography becomes a problem. Lots of times those meters are not even on the same substation. They're, maybe, even fed from different transmission sources through Nebraska Public Power. That becomes an issue for us because now this large generator that we're aggregating all these meters with, the power actually has to flow back up into the bulk electric system, possibly travel every which way and around to get to the person's meter. And that's not really what happens, it always goes to the closest source. If we don't have the load in the area where the large generator is, it will flow back onto our wholesale provider and back onto the transmission system, which we can be penalized for currently. [LB429]

SENATOR KOLOWSKI: Okay. And I sit here as not knowing all your intricacies internally and how you do what you do, but totally respecting what you have to do and how you do that. But I sit here also with eight years' experience in the NRDs. NRDs are built on watersheds. [LB429]

COLE BRODINE: Yes. [LB429]

SENATOR KOLOWSKI: Those are God made, not man made, not human made, but they are the way nature made that watershed. We've got 23 of them in the state. They slop over and they flop

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over everything in the world, you can imagine, but there's 23 distinct units called NRDs. And we've had to rethink how we do that and rethink how water is handled in the various structures of water handling in our state. Do we need to do the same kind of thing in the electrical area? And again, it's your area, not one that I'm familiar with in depth. But I believe in restructuring the paradigms we have right now that we're working with to match the coming direction of where we're going to be. As Mr. Cavanaugh said very well, this is happening. This is going on around us right now. We either get ahead of it or we're going to be chasing the rabbit all of our lives trying to catch up to it. Comment on that. [LB429]

COLE BRODINE: I guess one thing that I'm looking forward to as a technical advancement is better energy storage. That's going to be something, as prices of batteries come down. [LB429]

SENATOR KOLOWSKI: They're working on that? [LB429]

COLE BRODINE: Yeah, and things like that are going to greatly help power districts, because it will give us the ability to store this energy and use it later. Electricity is unique in that it is one of the few commodities that must be used as it is produced. The current state of batteries are not such that it's easy to store large amounts of power. So that's something I think that will be a large paradigm change. And when the price of batteries or things come down, that's going to be a game changer for power districts. Until then, we're kind of stuck where we're at. There's other smart grid advancements that are currently being worked on, which I think will be excellent for us. And we try to keep an eye on that. Right now, cost is always a concern with those new technologies. They're not always tried and true. We hesitate to spend ratepayer money on technologies which have not been vetted in the industry yet, so that is always a concern for us. But I like to think that we're very forward thinking. We've implemented an AMI metering system, automated metering system in our district. We are implementing new electronic protection devices and things to help with installing solar and other renewables. So we are trying to make advancements. And we understand that the paradigm is changing and we can either get on board or we can be left behind. [LB429]

SENATOR KOLOWSKI: Good luck with your work. Thank you. [LB429]

COLE BRODINE: Thank you. [LB429]

SENATOR HUGHES: Okay. Senator McCollister. [LB429]

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SENATOR McCOLLISTER: Yeah. Thank you for your testimony again. What I think I hear you saying is that you're not philosophically opposed to this bill, you just think it needs some better definitions. Is that correct? [LB429]

COLE BRODINE: Yes. Yeah, that's my biggest issue really. [LB429]

SENATOR McCOLLISTER: Would you be willing to work with Senator Wishart to better define some of the terms that concern you? [LB429]

COLE BRODINE: Certainly. Yes, we would love to. And we're members of the NREA, I'm sure there are other fellow members would love to help as well. [LB429]

SENATOR McCOLLISTER: Yeah. Thank you very much. [LB429]

COLE BRODINE: Thank you. [LB429]

SENATOR HUGHES: Okay. Additional questions? Seeing none, thank you, Mr. Brodine. [LB429]

COLE BRODINE: Thank you, Senators. [LB429]

SENATOR HUGHES: Next opponent. Welcome. [LB429]

KRISTEN GOTTSCHALK: Thank you. Chairman Hughes, members of the Natural Resource Committee, my name is Kristen Gottschalk, K-r-i-s-t-e-n G-o-t-t-s-c-h-a-l-k. I'm the government relations director and registered lobbyist for the Nebraska Rural Electric Association. And I do represent the 34 rural electric providers, including rural PPDs and electric cooperatives. And to give you a better idea, our members serve more than 235,000 meters over 87,000 miles of distribution line. And I'm here to testify in opposition to LB429. And I want to emphasize, much like Mr. Brodine, that our opposition is not to the concept of virtual net metering but is in opposition to the bill as drafted. I do want to commend Senator Wishart for her interest in establishing alternative means for members of the public to engage in the development or establishment of renewable energy. Our opposition to LB429 is based primarily on the fact that it is unnecessary. And depending on how it is defined, it could actually limit existing projects that are in the development right now because they may employ a different definition of virtual net metering. While the intent of the bill is to provide a definition of virtual net metering, it references two facilities that are authorized to engage in net metering and that is inappropriate. As you go back and you look at the definition for net metering facilities, this bill would be in

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direct conflict with that because the definition is you are to meet or offset your energy needs at one location and the generation source would be at that location. So that would need to be changed. And I think as we look at the bill that's coming up next dealing with aggregation of meters, that would get to some of that. But there are some inherent problems with that as well. Allowing customers to come together to purchase the output of a community renewable energy facility is currently prohibited by law. And, in fact, you see it around and we've had several testifiers come up and say, these are happening, we've got them all over the state. We have looked at just the ones that the utilities are doing: there's the Central City model, community solar projects are being developed by NPPD in Venango, in Kearney, and Scottsbluff, and there are plans to do more. LES has their project, which my understanding is going to be expanding. And we're going to begin to see more and more of these. So there's not a reluctance on behalf of the industry to look at community solar, to look at alternative ways of meeting the needs of our consumers. But you got to remember, each of those projects were developed to meet the needs of the community they served and they have a slightly different take on virtual net metering. So caution needs to be taken in this process of providing the definition in statute that may inhibit these projects or may not be appropriate for the communities' needs and we need to be receptive to that. While it's not clear, the bill does say that it defines net metering, it appears that it is also the intent that it mandates virtual net metering. And again I say, unless we have a compelling reason, none of this is happening, there's a large demand to do it and it's not happening, that may be a compelling reason. But as we see the development, we don't see that compelling reason to define it in statute. And, in fact, I think there is the likelihood that you're going to see more flexibility, a lot of variability in projects that may indeed have greater benefit in the long run. So it is important to give those electric utilities flexibility in applying virtual net metering in the development of renewable energy products. So since there continues to be a development, our ask at this time is that we don't see a need to pass LB429. One of the things that came up in the testimony in this has kind of gone a little off and on, on the bill and off the bill for different topics. But the question was asked, what kind of certification do you need to install solar projects? The reality is...and it's good to hear Mr. Christensen and the Lincoln developer talk about the training and the certification that they go through. Keep in mind that's not mandated in statute. There is no requirement to be certified to be a renewable installer. And, in fact, there have been problems across the state with that. And so in light of that, it's encouraging to see that there are some, but I want you to understand that that's not everywhere in the state and there are problems with that. With that, I'll close my testimony. I know we'll be talking again on the next bill. I'd be happy to answer any questions. [LB429]

SENATOR HUGHES: Thank you, Ms. Gottschalk. Anything? Any questions? Senator Bostelman. [LB429]

SENATOR BOSTELMAN: Thank you, Mr. Chairman. Thank you for being here this afternoon, Ms. Gottschalk. Questions with the...are there other issues you're seeing across the state or heard

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from your...from the other utilities, distributors, transmissions, that's coming up with putting these systems on line? [LB429]

KRISTEN GOTTSCHALK: Problems with net metering or with... [LB429]

SENATOR BOSTELMAN: Well, just interconnection, you know, sitting up the whole...connecting into the transmission lines. [LB429]

KRISTEN GOTTSCHALK: Well, typically, you know there's a set process. A system has interconnection standards that must be met. And when you have somebody who goes through the process the way that they are supposed to, notifying the utility ahead of time, meeting those connection standards, working with the distribution system to make sure that generation is appropriately sized, then we don't have problems. But we are having problems where we have interconnections without notification. We have problems with systems going on line before a state inspection has been done. And, again, I wouldn't say that the installers that you had talking to you here today wouldn't allow for that to happen. But we are seeing that happen elsewhere. So we do see some problems. [LB429]

SENATOR BOSTELMAN: Thank you. Where I'm going with is--once again, I'm not trying to get in the way of... [LB429]

KRISTEN GOTTSCHALK: Okay. [LB429]

SENATOR BOSTELMAN: ...and it seems to me if we're going to have to further define, then are we going to have to further define in statute the things that you're seeing, the trainings, the connections, the types of systems you can put in, how you go about doing them, because there's a multiple different ways that the public power or the utilities are working with different projects across the state that makes them successful. And I'm afraid that the more we put into get into this, are we going to overregulate something that doesn't need to be put too much into the statutes? [LB429]

KRISTEN GOTTSCHALK: Well, actually, you get at a point that I feel very strongly about here, because there are variability in the way that these systems are put on line. For example, you listen to the Central City, people actually have ownership of the panel. They don't just have a share, they have that ownership. And the overall generation of that system is figured and they calculate what that person's share or their panel is and that goes back on their bill. Now you look at what NPPD is doing, they're doing something very similar, but it's different. They're allowing people to buy shares into the system--which are equivalent...probably equivalent to a panel--but

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instead of amortizing, looking at the actual generation of that facility, they're projecting what the overall generation would be for the year and they're providing a set amount each month on that person's bill equivalent to the shares that they have. And that works well for them. It's predictable for the consumer and it limits the subsidies that may come in if they had done it another way. And those are both great ways and the communities are happy with those and those work for the communities. If we put a specific definition in, if it eliminates a process or it takes out something that may be more innovative, you may have tied the hands of looking at ways of doing new projects in the future. [LB429]

SENATOR BOSTELMAN: Thank you. [LB429]

SENATOR HUGHES: Okay. Senator McCollister. [LB429]

SENATOR McCOLLISTER: Yeah. Thank you, Mr. Chairman. If I understand what you're saying, Ms. Gottschalk, is that the utilities that you work with now are already permitted to do just what this bill says. Is that correct? [LB429]

KRISTEN GOTTSCHALK: Yes. There is nothing required in statute to allow us to virtually net meter. We have net metering statutes, but absent net metering statutes there is nothing that would prohibit us from engaging in net metering as well. [LB429]

SENATOR McCOLLISTER: And do some of your companies already do this? [LB429]

KRISTEN GOTTSCHALK: At this point we do not have projects...community solar-type projects. We have a number of our systems that are engaging in developing solar projects where they're buying the full output of the project, but there is a considerable amount of interest amongst the utilities, although I have to say there has not been a demand or a request from their consumers. I mean, they're looking at what they would do into the future, but they haven't necessarily been requested to move forward with these types of projects yet. [LB429]

SENATOR McCOLLISTER: While you say this bill might not be a particular...might not be beneficial, it does no harm, does it? [LB429]

KRISTEN GOTTSCHALK: It depends on what the final definition is and how it's tied to projects, because would it limit...would it change the way NPPD is doing their project or the way Central City is, because it wouldn't necessarily fit what we prescribe, one definition for virtual metering. [LB429]

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SENATOR McCOLLISTER: So if those terms were defined to your satisfaction you could come in neutral on the bill? [LB429]

KRISTEN GOTTSCHALK: I think if the terminology is defined to be inclusive--and I've actually shared some language with Senator Wishart's office that would be a little bit more inclusive--I think, yes, we would be more receptive. However, what we are not likely to be receptive to is a mandate to move forward with certain projects if our customers are not requesting them, that we should still have the flexibility to do it. [LB429]

SENATOR McCOLLISTER: Thank you. Thank you, Mr. Chairman. [LB429]

SENATOR HUGHES: Okay. Additional questions? Seeing none, thank you, Ms. Gottschalk. Additional opponents. Welcome. [LB429]

DAN SCHMID: (Exhibit 6) Good afternoon, Chairman Hughes, members of the Natural Resources Committee. My name is Dan Schmid, D-a-n S-c-h-m-i-d, from Dwight, Nebraska. I reside in Butler Public Power District. I am opposed to LB429 for the following reasons: One, it's unclear what kind of formula or program would be used in connection with virtual net metering. For example, as has been talked about, who would pay the cost for needed transmission upgrades, facility improvements, etcetera? Number two--and I'll talk about this a little bit later--inherent, intermittent, chaotic output of solar power means that fossil fuel energy would need to continue to be available 24/7/365 to cover those times when solar ceases to produce. We don't have the batteries. And personally, I don't see anything on the horizon for that yet. Number three, these connections add cost to Southwest Power Pool in regards to grid reliability and stability. There would be more grid intervention required. Germany has gone in quite a bit, solar power, and because of the chaotic condition of solar power...there's a company called TenneT that runs their grid system; they have projected that in 2017 their grid fees would go up 80 percent because of intermittency of solar and wind power. I am encouraged to hear, unlike what I hear about wind, that most of these companies behind me are Nebraska. They originate in Nebraska, whereas in wind I hear it's from Florida or outside of Nebraska that want to come in and collect subsidies. So I am encouraged that way. Although, one more caution--this comes from environmentalprogress.org--Germany added 2.5 percent solar in 2015 to 2016, yet their solar output was reduced by 1 percent after adding that 2.5 percent. The sun didn't shine as much, so. Thank you very much for your time. [LB429]

SENATOR HUGHES: Thank you, Mr. Schmid. Questions? Seeing none, thank you for your testimony. Welcome. [LB429]

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TIM LINDAHL: Thank you, Senator Hughes, members of the committee. My name is Tim Lindahl, T-i-m L-i-n-d-a-h-l, I work at Wheat Belt Public Power District in Sidney, Nebraska. I come today not necessarily opposed to the concept, but really to illustrate some engineering constraints that we might have with mandates of virtual net metering across our system. We've heard a great deal about how this is ideal for neighborhoods in Lincoln and the various cities. But we cover 3,600 square miles and have about 2,500 residences in that space. And to solve those problems, maybe to your point earlier, if you could bring some more people out to rural Nebraska we could absorb things much better. But really our concern is, is on a day like today, 70 degrees, there's no heating load, no air conditioning load, no irrigation load, a good share of our substations are running at about 100kW for the entire substation. And so it comes more to a proper sizing opportunity. If we allow someone to size a facility at one location but serve the residents or some other location, we are going to be putting power back on the bulk electric system. And like Mr. Brodine mentioned earlier, we could be subject to penalties and transmission use fees and other things of that nature. And so my only concern is, is as you look at this and deal with this, as it is I think we're opposed, because I think it's better left to the local utilities because they understand these constraints and these intricacies in our systems. But if we do do something on the state level, we do need to consider some of the differences that we have in a very rural system versus someone like LES or an OPPD. That's all I have. Thank you very much. [LB429]

SENATOR HUGHES: Thank you, Mr. Lindahl. Questions? Seeing none, thank you for your testimony. [LB429]

TIMOTHY LINDAHL: Thank you. [LB429]

SENATOR HUGHES: (Exhibit 7, 8, 9) Additional opponents. Seeing none, we have three letters in opposition from Bruce Vitosh, Norris Public Power; Paul Neil, Dawson Public Power; and Gwen Kautz, Dawson Public Power. Is there anyone wishing to testify in the neutral capacity on LB429? Welcome. [LB429]

SCOTT BENSON: Thank you. Good afternoon, Chairman Hughes, members of the committee. My name is Scott Benson, S-c-o-t-t B-e-n-s-o-n, I'm here on behalf of Lincoln Electric System. We're testifying neutral on this bill. We already have a couple of installations or programs that look very similar. We have our virtual net metering program; you've heard a lot about it today, how our customers can buy into that project up front in exchange for over 20 years--the life of the program--they get a credit on their bill based on the output of the installation. We also have what we call our renewable generation rate. Now you heard a little bit today from the 300kW project, you heard about the project at Capital Beach that's 100kW. Both of those are under LES' renewable generation rate. That's a program that's not necessarily net metering. What we do is

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we have an installation with a dedicated meter, we meter all the output from that facility, and then we pay them a rate which currently is at the full residential retail rate, but it's designed to step down over time. The idea there is solar is kind of expensive, so under that renewable generate rate people can go together and partner. We send out one check to the...once a month to the person who's the point person and they can divvy it up to their members. So both of those kind of already assemble what you're seeing here proposed here under this virtual net metering bill. Now we do have a couple of concerns though with the specific language. First and foremost, we're not 100 percent sure if virtual net metering under this bill is supposed to fall under the current limit for net metering under state statute. Currently, under state statute net metering is limited to 1 percent of the average monthly peak demand for a utility. So you only have to take that many up to net metering where you're going to pay for excess. And why is that important? Well, if you look at LES, about 73 percent of the costs that go into our residential retail rate are fixed costs: wires, transformers, things that have nothing to do with how much energy we produce. And so under net metering or virtual net metering--they both work the same--anybody who puts in solar, they're offsetting their full retail rate, which means they're not paying their fair share of those fixed costs. And those are fixed costs that what? They go towards maintaining those parts of the system that they actually need in order to do net metering or virtual net metering. So we think that's an important distinction. And what we'd like to see with any kind of virtual net metering bill would be that it would be common under that limit, so a utility would be required to do up to 1 percent net metering, up to 1 percent virtual net metering, or up to 1 percent any combination of two, because fundamentally they're not that much different. And we also have concerns about the billing complexity that would go into this bill. LES has a virtual net metering program. We had to do quite a few upgrades to our system to make it be able to handle that. You would think that would give us a leg up on being able to handle whatever virtual net metering came out of a legislative bill. But we don't think that's the end of it. Basically, this bill would put the utility in the middle of trying to attract which people are participating in which projects and what their percentage of participation is in each of those projects. And you all know, as relationships are going to come and go, well, the members in different projects, they're going to change and those levels of participation are going to change and you've put the utility in the middle of that. And we think that is going to be easier said than done; we see complications there. And then finally, as has already been pointed out today, with this particular bill we're concerned a little bit that it's devoid of some details. You've got to walk a fine line. We want it to be high level; you don't want to get too prescriptive, as has already been pointed out, because you might preclude some projects that have already been done. But at the same time, I think there are some fundamental things that would probably need to be ironed out to make sure it was uniformly applied. For instance, what if there's excess generation in a billing period? How are you going to value that? It doesn't talk about that in the bill. The bill appears to imply that you would earn the full retail rate for your credits. It doesn't necessarily come right out and clarify that. That would be something else that would be one of our concerns. So that's the primary points I have for you in my testimony today, but I'd be happy to answer any questions. [LB429]

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SENATOR HUGHES: Thank you, Mr. Benson. Are there questions? Senator Quick. [LB429]

SENATOR QUICK: Thank you, Chairman. And thank you for testifying. As you have your system here, have you found that...let's just say someone got in and decided, oh, I can't afford this. Do they have to sign up for a certain period of time or can they get out of a...is it like a contract they have to sign? [LB429]

SCOTT BENSON: So under our virtual net metering program, people sign up for \$685 for a virtual panel. So there's 15,000...a little over 15,000 physical panels at the site. So the way our program works is, each month we meter how much output actually came out of the facility. We divide that by about 15,000, and that's what each virtual panel is essentially worth. So you're really buying a percentage of the project's output. So that's \$685 up front and that buys you in for the rest of the program. It's already presubscribed in the rate schedule exactly what the buyout rate each of the years is for the next 20 years. So if you come up in three or four years and say, hey, I'm going to move out of the territory or I'd just like to quit the program, you already know what your buyout is going to be. So \$685 is the purchase price for the first year. The purchase price goes down each year, because the length of the contract that LES has to hold gets a little bit cheaper because there's less years on it. And you basically get a buyout at 75 percent of that purchase price. [LB429]

SENATOR QUICK: Have you had many people jump in and jump out or has it been pretty steady? [LB429]

SCOTT BENSON: Well, so it just started. In December of '16 was when you first could sign up and as of the end of January we've sold about 100 virtual panels. So that would be about 30kW's worth. So, no, we haven't had anybody quit yet, but they haven't had much time to see it. [LB429]

SENATOR QUICK: Yeah. [LB429]

SENATOR HUGHES: Additional questions? I guess I want to drill down a little bit more. When you came before us last week or two weeks ago and you talked about the initial program of LES, going to your customers and doing a survey before you built the solar, can you run through those numbers again for me? [LB429]

SCOTT BENSON: Sure. So I can give you a little background, too. So when we originally did our community solar project, we didn't offer virtual net metering. We didn't offer that till December, because we wanted to wait until the project was actually up and running. The initial

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program was called LES Sun Shares and people could elect voluntarily to support the project for as little as \$3 per month on their bill. Okay? So they would contribute \$3 a month or any dollar increment beyond that--some people went way beyond \$3--to help support a project and see a large project brought to Lincoln. Now this was not virtual net metering. There was no promise of any credit coming back to you, this was just a voluntary contribution to see this project. And so we did a survey before we kicked that off, a statistically valid survey by a national firm. And the results of that survey showed that about 50 percent of our customers would pledge \$3 per month to go ahead and support a project. I looked it up because I knew you were interested. It was exactly 47.4 percent. That's what the survey said, 47.4 percent were very likely to contribute \$3 per month to support the project. The survey people cautioned us that anytime you do a survey where you ask somebody how much money they'll give you, it ends up being drastically different than the amount that you actually get. So we knew it was going to be a little bit lower. Where we ended up was about 1,200 customers pledging about \$6,000 per month, which sounds really good. But 1,200 customers, that's about 1 percent of our customer base, so we're far short of the 47.4 percent. [LB429]

SENATOR HUGHES: Okay. Getting back to the buyout, you said they buy in at \$685 and then it's a reducing cost over a 20-year period? [LB429]

SCOTT BENSON: Yes. [LB429]

SENATOR HUGHES: And then you said about 75 percent is the minimum it will cost them or what was the 75 percent? [LB429]

SCOTT BENSON: So let's take another crack at explaining. So we've got a 20-year contract with the solar developer under a power purchase agreement. That's where the contract came from. And so what we've told people is we're going to figure out what the net present value of that contract is on a per panel basis today. That's \$685 per panel. The next year it goes down a little bit because LES no longer has 20 years on the contract, we only have 19 years on the contract. So that's why the price goes down every year. And what we've told our customers is if you get into the program and at some point if you want to get out, we'll let you return that to back to LES and we'll refund 75 percent of the cost in that given year. So 75 percent of the...what would be the current purchase price. So this year it would be 75 percent of the \$685. Five years from now it would be something less than \$685, to the 75 percent of the purchase price. And I should specify one thing. That's only if someone wants to leave the program. With our virtual net metering program, if you live in a house and you decide to move across town, well, the panels follow you. So that doesn't matter. It's really if someone leaves the service territory or they just decide they don't want to do the program anymore. [LB429]

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SENATOR HUGHES: Okay. Thank you. Senator McCollister. [LB429]

SENATOR McCOLLISTER: Yeah. Thank you, Mr. Chairman. So the utility owns the panels or is it the investors? [LB429]

SCOTT BENSON: It's a third-party developer that actually owns and operates and maintains the solar site. LES has a power purchase agreement to purchase all of the energy they produce at a set dollar (inaudible). So we don't actually own anything, but we essentially have ownership of all the energy that comes off the project. [LB429]

SENATOR McCOLLISTER: But the third party refunds the money when the person wants out? [LB429]

SCOTT BENSON: No, that's...so it's a little confusing. So there's actually three parties. We have a developer that built the project and they have a contract with just LES to sell all the energy. All right? And then LES took and figured out what's the net present value of that contract on a per panel basis and that's what we're selling the energy to the customer with. So the customer only has a relationship with one party, LES. The third-party developer that built the solar project and maintains it only has a relationship with one party, LES. We're in the middle. [LB429]

SENATOR McCOLLISTER: I see. So you return the money rather than some outside party. [LB429]

SCOTT BENSON: Yes, correct. [LB429]

SENATOR McCOLLISTER: I see. I guess that's my question. Thank you. [LB429]

SCOTT BENSON: Okay. Hopefully, that was helpful. [LB429]

SENATOR HUGHES: Okay. One last question from me. So, LES being the middleman, are you in a break-even position or do you make a little or subsidize a little to the customer between the producer and the developer, the producer and the consumer? [LB429]

SCOTT BENSON: Well, so, LES really doesn't...that part doesn't change. So if you look at it, we're buying energy from the solar developer, right? And then we're turning around and we're essentially selling that energy to the virtual net metering customers. Well, if we have no net metering customers, no one signs up, we're still buying all the energy from the solar developer.

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Right? Well, but if everybody signs up and they essentially buy all that energy we still kind of end up in the same position, because by buying all that energy from our solar project they're not buying the energy from us as a utility. So LES kind of ends up in a middle position. Now who's going to win or lose? That depends over 20 years. We did the math on it and I will tell you with ours, when you buy it for \$685 per panel, that's equivalent to an installed cost of \$2.25 per lot. So earlier you had a reference to 100kW, what would that cost a customer? If you bought 100kW from our virtual net metering project it would be \$225,000. It's a very low rate because it's a very large project. You're getting 100kW for a much lower price because it's not 100kW, it's really about 5 megawatts worth, okay? And so you end up with that low per unit price up front of \$2.25. If you do just a simple payback and you estimate out what LES's rates are going to be and you just do what's our average rate increase over the last ten years and what's that going to be over the next 20 years, the payback...simple payback is about 18 years. So we've told all of our customers, my guess is if you sign up for this program no one is going to be a big winner, no one is going to be a big loser, we're all going to come out in about the middle. But it won't be exactly the middle. You might do really good on the program, you might not do so good on the program. It really depends on where LES's rates go. If LES's rates go up at a very high increase, the community solar is a great way for you to go. If our rates stay really low, you probably would have been better off to stay on our rates. But it's a customer decision and a lot of people like that option. [LB429]

SENATOR HUGHES: Okay. Thank you. [LB429]

SENATOR McCOLLISTER: One more. [LB429]

SENATOR HUGHES: I can't get the last one in, can I? Senator McCollister. [LB429]

SENATOR McCOLLISTER: Winners and losers. Who gets the depreciation on the panels? [LB429]

SCOTT BENSON: Well, so that's...really, when you look at things like depreciation on the panels, all of that is the developer. So the developer, they're owning, they're operating, they're maintaining, that is their project. We've got a set rate that we'll buy all the energy from them. [LB429]

SENATOR McCOLLISTER: Right. [LB429]

SCOTT BENSON: Regardless of whatever happens with that project, regardless of how they structured it financially, it doesn't change the rate that LES pays. [LB429]

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SENATOR McCOLLISTER: Who gets the tax credits? [LB429]

SCOTT BENSON: The tax credits? That...the developer took the tax credits. But the theory is, indirectly LES benefited from those because they lowered their PPA price by help of the tax credits. And then indirectly our customers, as part of the virtual net metering, are taking advantage of those because it lowered LES's contract price, which lowered the net present value that we passed on to the customers. So the solar developer took the tax credit, but LES and our customers that are enrolled in virtual net metering we're all benefiting from it. [LB429]

SENATOR McCOLLISTER: Thank you. Thank you, Mr. Chairman. [LB429]

SENATOR HUGHES: Okay. Any additional questions? Seeing none, thank you, Mr. Benson. Appreciate it. [LB429]

SCOTT BENSON: Thank you. [LB429]

SENATOR HUGHES: Additional neutral testimony? Welcome. [LB429]

TIM TEXEL: Thank you, Chairman Hughes, members of the committee. My name is Tim Texel, T-i-m, last name is T-e-x-e-l, I'm the executive director and general counsel for the Nebraska Power Review Board. We're the state agency in Nebraska that has primary jurisdiction over electric utilities, but we do not have jurisdiction over net metering programs other than the net metering report that you heard mentioned earlier, and I'll mention a couple things on that later. I just wanted to bring up two of the issues that my board has identified, technical issues with this bill. We don't take any stance on the policy of it, that's your purview. But I did want to mention a couple of conflicts in the bill and on the record. Ms. Gottschalk mentioned at least one of the conflicts, so I'll just mention them here. Current law set out in Section 70-2002(7)(d) that says that net metering qualifying facilities in Nebraska can only be intended for the customer generator's own needs. LB429 would seem to allow the qualifying facilities to be larger than needed for a customer generator's own needs by selling shares to other customers. If not, the shares sold in virtual net metering would need to necessarily be pretty limited. So I assume they could be larger, so that might be one conflict this bill sets up. Also, in that same statute, subsection (7) and in subsection (e) says that to be a qualifying facility the facility must not be intended to offset or provide credits for electric consumption at another location or for any other customer. Obviously, for virtual net metering it would be for other customers off site of that location. So that would set up another conflict with current law with the bill as drafted, so I wanted to point out those two issues that would come up. How they'd be dealt with by the court I don't know, but I wanted to raise those. I think they need to be addressed. I'm certainly able to address them, but I wanted to point them out so we could do so. That's really the extent of my

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testimony. I did want to mention the net metering bill...or the net metering report that we do each year. The Legislature had requested it and we collect that information from the utilities on the net metering facilities in the state. We do not have the 2016 numbers yet. We have the 2015 numbers. It's on our...I have those numbers. If the committee would like to know what they are I can get those for you. But the next...the 2016 numbers will come out in March. They aren't required to--by the statute--give them to us until March 1, so it will be a little bit into March before we put them into our system and have that, so unless there's any questions on that. One question on...I know that was asked about insurance on some panels that are currently in the state. And I might mention under the ones in Central City--when I talked to Mr. Mesner, who helped coordinate those--those panels are individually owned and individually insured, which was important to my board when we looked at not running into service area issues that we essentially said they are self generating at a remote site, so it didn't create a service area issue in those contexts. Net metering, virtual metering could impact on the service areas where you could become a power supplier supplying a third party with energy in the state and that could run into problems with the service areas. So the way that Mr. Mesner in Central City--and I think Holdrege--was mentioned, both those are set up the same way and they're individually owned panels, individually insured by the owners of those panels. So my board saw that as being the same as you putting it on your own site and self generating. It's just constructively...actually on another site, so we constructively said that it's self generation. There may be issues about wheeling that might come into it. We don't deal with that at the Power Review Board, when you use somebody else's transmission distribution lines to get them the electricity there. But that's not something we would directly oversee but that could be an issue for those involved. It's kind of beyond my realm, but I just point that out. So unless there's any questions, that's all I had for testimony. Thank you. [LB429]

SENATOR HUGHES: Okay. Thank you, Mr. Texel. Any questions? Seeing none, thank you. [LB429]

TIM TEXEL: Thank you. [LB429]

SENATOR HUGHES: Thank you. Welcome. [LB429]

ROBERT BYRNES: (Exhibit 10) Good afternoon, Senator Hughes and members of the Natural Resources Committee. My name is Robert Byrnes, R-o-b-e-r-t B-y-r-n-e-s, I'm a 20-year resident of Lyons, Nebraska. I've been producing 100 percent of my own electricity for the past 10 years and work in the field. I'm testifying neutral for a couple of reasons, some of which had already been stated so I won't go over them in terms of the conflicts with current statutes that you'll have printed in the LB87 bill. There are some conflicts there. But I do appreciate Senator Wishart bringing this forward and her past involvement with getting LB436 approved some years ago. So

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I'll just kind of summarize some of the issues that jumped out at me. It seems like the bill is asking public power to serve as the intermediary. This has kind of been mentioned. My concern is here, I remember years ago at a meeting when it was stated that it cost public power \$40 to write a check. So these are administrative burdens we want to have to be very careful about signing. For those of you senators that have not been involved with net metering issues and things in the past, you guys, you've had a heck of a learning curve here this afternoon. And I've seen it's been difficult because we're talking of virtual net metering in the context...virtual net metering, community solar garden style under net metering, which are really two different programs. Community solar and net metering really are two different programs. And I think...I sense some confusion there in trying to get your arms around those. Before net metering was enacted in LB436, we had a hodgepodge of net billing, can't do it, net metering, it was a patchwork quilt in the state and LB436, lacking in some areas, at least gave us a standardized one rule for everybody. Everybody has to play on the same page and that was a huge benefit. As all these things are starting here with community solar, yeah, things are already going because of different leeways and loopholes and this may be an opportunity to at least create some kind of standardization and not create a backdoor into public power. We got out-of-state companies coming in, we can't see their books, and they're making power, putting it on the grid and selling it to Nebraska customers. So that is one concern I have in all this. It's just like the Wild West with community solar gardens. It's proceeding without any legislation. Okay, I have a couple of suggestions I think for the bill, obviously, the conflicts with current statute being primary. I mentioned the goal of prudentially standardizing this solar garden, virtual net metering, off-site solar production thing. And I think the technology...it's difficult, but I think the technology we have today can assign these costs very readily. I mean, there were more reasons not to go to the moon than to go to the moon. Okay, but those are solvable problems. If this was to take place with net metering, you've got a 25kW cap. If you try to assign half of that, you're only talking a couple of homes. There's not enough room to work something like this under a current net metering program. I heard it come up also with Nebraska-owned companies, Nebraska jobs, you know at a small scale 100kW, not a big deal. You start talking about MWs, those are big deals and we may want to get ahead of that and ensure that subsidies and tax credits and things get preferential treatment just like the vehicle that we have on the books now, C-BED has provided for. And I don't see a reason why C-BED can't be used as a good jumping-off point for community solar and creating another parallel program with a specialized interest. As far as certifications, that was mentioned. Nebraska state electrical inspector comes through, everybody is certified, I think we're pretty covered there in that regard. And I think the intention here is good. There is certainly a lot of good that can be done with off-site solar, but I think we...it can be a complex thing and the NPPD's got this, LES got this, the REAs don't have anything, this one is doing this. So I think it's an opportunity at least to create some minimum standards for any program that operates in Nebraska. Thank you. [LB429]

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SENATOR HUGHES: Thank you, Mr. Byrnes. Are there any questions? Senator Albrecht. [LB429]

SENATOR ALBRECHT: Thank you, Mr. Chairman. So you said you pay...you don't have any public power at all? [LB429]

ROBERT BYRNES: No, ma'am. [LB429]

SENATOR ALBRECHT: You have all solar? [LB429]

ROBERT BYRNES: Solar and wind. [LB429]

SENATOR ALBRECHT: Solar and wind. Okay. Is it a home or is it a farm or... [LB429]

ROBERT BYRNES: It's a rural home, "farmette" type of thing. I milk my goats with solar power. We made the first biodiesel in Nebraska at that site. [LB429]

SENATOR ALBRECHT: So did you have any problem working with your electric company? [LB429]

ROBERT BYRNES: Not since I told them, no thank you. [LB429]

SENATOR ALBRECHT: You're done, you don't do any of it. Interesting. Maybe you should write this bill. [LB429]

ROBERT BYRNES: I did this...I did that at a time when there was net billing, before net metering. So the terms of net billing--we had other words for it that I won't use here--but basically you sold them everything for dirt cheap and you bought everything at retail and that million dollar insurance policy. So those were not the times for doing that. So net metering did make some improvements. We'll talk about some further ways to grow net metering here, next bill. [LB429]

SENATOR HUGHES: Okay. Any additional questions? Seeing none, thank you, Mr. Byrnes. [LB429]

ROBERT BYRNES: Thank you. [LB429]

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SENATOR HUGHES: Additional neutral testimony. Seeing none, Senator Wishart, you're welcome to close. [LB429]

SENATOR WISHART: (Exhibit 11) We made it. Well, thank you again for hearing this bill today. I will pass out...I know Senator Blood will likely have these statutes on net metering, but I will pass them out as well for you to look at. First of all, I just have a few comments. And then I'll be open for any questions. First of all, I'd like to say one positive takeaway is even in the opposition's testimony there was a general support for the idea of virtual net metering, which I think is very positive. Obviously, we have some technical work to do on this legislation. And I have already talked with a lot of the utilities and I'll be working with them on that. I also wanted to just remind everybody that while we talked a lot about solar energy today, net metering encompasses a lot of other forms of energy generation. So I wanted to clarify that. And then I did want to say that there is an example that Graham Christensen mentioned about Randy Thompson and his son Troy, who lived in Martell. They live in Norris Public Power District and they were denied the ability to do this form of virtual net metering, so that is an example of a family wanting to do this and being denied the ability to do that. I will be working and happy to work with the committee on ways that we can make this more clear for the utilities. I did want to mention, in the statute where the conflict is that several of the neutral testifiers mentioned and so did Kristen, when you look at the net metering statute that you have in front of you, on the back side of the page that I've handed out Section (d) and (e), both of these sections...actually, I think it kind of clarifies why we need this legislation, because these two sections very distinctly say that this form of virtual net metering under the net metering statute would not be allowed. So when we're looking...if the committee is interested in virtual net metering, that is something that we would have to look at is how we would be able to define virtual net metering in a way that is comfortable for everybody who's going to be involved, but then also how it works within the current statutes of net metering. [LB429]

SENATOR HUGHES: That's it? [LB429]

SENATOR WISHART: That's it. [LB429]

SENATOR HUGHES: Okay. Are there questions for Senator Wishart? Seeing none, thank you, Senator. [LB429]

SENATOR WISHART: Thank you. [LB429]

SENATOR HUGHES: That will close our hearing on LB429 today. And is...there she is. We will open our hearing on LB87. Senator Blood, welcome to the Natural Resources Committee.

[LB87]

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SENATOR BLOOD: (Exhibits 1, 2) Well, happy sunny day to all. Nature's bounty is showing its solar power today, so what better intro than that. And I'd also like to thank the committee for doing all the heavy lifting and getting a lot of the terms defined before I came up here. I will say before I start that unfortunately I will not be able to close because I'm expected in my district, not knowing that it was going to be such a late day. So I apologize for not closing today. So good afternoon, Chairman Hughes and members of the Natural Resources Committee and thank you for hearing LB87 today. My name is Senator Carol Blood, C-a-r-o-l B-l-o-o-d, and I represent parts of Bellevue and Papillion in Sarpy County, the fastest growing county in the state of Nebraska. As Senator (sic: Governor) Ricketts said in his State of the State Address last month, we need to spur economic growth and make Nebraska more attractive to business and families looking to relocate. My bill, I believe, is a step in that direction. LB87 would update the state's restrictions on net metering in a way that would raise the cap for renewable energy customer generators from at or below 25kW to at or below 100kW. In addition to raising the limit of energy produced, these customer generators can aggregate more than one meter and also aggregate at more than one facility, but only up to the 100kW limit. The first thing that this bill does is not only allow for more generation at places that are relying on renewable energy to power at least part of their operations, but also it gives the user more leeway because aggregation of the meters will allow them to find more options, more options that may be more feasible in the placing of the renewable energy systems, such as solar panels. The reason that I brought this bill forward is because I was hearing from constituents and businesses over and over again that the current standards were simply not getting it done. Whether it was because they weren't able to generate as much power as they needed or because they were having to place things like solar panels and other collection devices in locations that made the tools an obstacle--like in the middle of a cornfield--it was clearer that the current legislation as written had become a burden on local business owners and others who have been asking how they can participate in solar, but really had no clear answer. So while the original legislation, LB436--which you have already talked about over the last two and a half hours--that passed eight years ago brought a new approach to renewable energy, the energy industry has really changed quite a bit since that time. And there's a new demand for Nebraska businesses to develop renewable energies. So simply put, we've outgrown that old law. I believe that this kind of legislation is always the kind that needs to be revisited, updated, and changed, depending on the needs of the public and the needs of the business community in Nebraska. The business side is especially important when it comes to raising these caps, as there are high tech companies that have been looking at having more presence in Nebraska. These companies could decide the climate is not friendly enough if we don't allow for more flexibility when it comes to renewable energy generation. Outside of making sure new businesses are coming to the state, I also want to make sure that the companies that have already been taking advantage of LB436 and the benefits that it brought to Nebraskans are able to expand. I want to support their efforts to embrace alternative energy. I think raising the cap, especially based on the e-mails and letters my office has received--and I think you probably have in front of you--and there were substantial proponent letters that it shows more

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people would love to get into this kind of practice, but they need that 25kW cap higher for it to make sense to them. I acknowledge this bill still won't address larger industrial users' requests to develop solar Nebraska, but at least it takes a small step forward, a small step forward that allows for our midsize businesses to participate. I think that will require a separate and much larger discussion amongst stakeholders down the road, and hopefully sooner than later. With that said, I understand there's going to be some pushback. I've had a conversation with the Rural Electric Association and others and I've heard their concerns about the bill. But in the end, I respectfully believe it is a matter of a difference of opinion. Change is never easy and it is usually never painless. But after eight years, it is absolutely needed. While LB436 was a good first step, it has turned into something that ended up restricting the little guy way too much. We want to make sure we are not discriminating against small and medium-sized farms and businesses that want to participate and utilize their local renewable energy resources. There will likely be some comments that such a large jump in the cap is going to cause problems and that the cap was set the way it was in order to avoid overburdening non-net-metering customers. I agree the 25kW cap was a good idea at that time, as kind of a test case. But there hasn't been any proof, any solid proof that the non-net-metering customers have come even close to being overburdened. I don't believe their bills have gone up since net metering was put into place. And I don't believe their bills will go up if we increase the cap. The fact remains that these customer generators can now produce energy cheaper than what it costs the larger energy companies. During a period of time when commodity prices are low and property taxes are so high, I think it's irresponsible to do anything that would discourage Nebraska businessmen and women from trying to find new ways to save money. In fact, as the law currently stands, I personally believe it's a prime example of government overreach at its finest. So finally, I'd like to address the map that I handed out. Hopefully, you got a chance to look at that. I know you've got a lot of things to look at today. While Nebraska does not have the lowest net metering cap in the United States, it is pretty darned close. Forty-three states, as well as Washington, D.C., and four territories have net metering policies that have been adopted in one form or another. When it comes to caps on net metering, only five other states have a cap as low as ours. This goes back to making sure we are competitive when it comes to keeping businesses here and luring new businesses in that have a vested interest in working with our local renewable energy resources. Obviously, we want to do that while still acting responsibly. I believe LB87 offers small and simple solutions and truly fits that bill. With that, I would ask that you support LB87 and vote it out of committee onto the floor for full debate. I would add, there are a number of people who have traveled from all over Nebraska that are here who are either customer generators or work in the renewable energy field that would be more than happy to answer any more of your technical questions that weren't already answered at the previous bill. But I would be happy to take questions as well and I appreciate your time and your active ears today. [LB87]

SENATOR HUGHES: Thank you, Senator Blood. Are there questions? Senator Bostelman.
[LB87]

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SENATOR BOSTELMAN: Thank you, Mr. Chairman. Good afternoon. [LB87]

SENATOR BLOOD: Good afternoon, Senator. How are you this fine day? [LB87]

SENATOR BOSTELMAN: Great. How are you? [LB87]

SENATOR BLOOD: I am well, thank you. [LB87]

SENATOR BOSTELMAN: Thanks, Senator Blood. Question...I guess...do you see...and I asked this and you may have heard me ask on the previous bill. I don't want to get in the way of things and currently we're able to do all of these things you're talking about without putting any new legislation in. We're able to do 25kW, we can do 100, you can do more than that and you just need to work with your local utility. So I'm kind of...where I'm at is I'm trying to figure out again where the benefit of increasing this will be to the individual because net metering requires us to...the load, what your usage is, is what the net metering is for, not to generate to go into excess. [LB87]

SENATOR BLOOD: Right. [LB87]

SENATOR BOSTELMAN: And so, since we're already doing this in the state, I'm just wondering how this will help or hinder. [LB87]

SENATOR BLOOD: Really good question. So if I hear you correctly, your concern is that you feel that the vast majority of consumers can go to their utility companies and ask to go above that 25 cap. [LB87]

SENATOR BOSTELMAN: Uh-huh. [LB87]

SENATOR BLOOD: But the truth being...and I'm sure some people will come in behind me and back this up is that, since it is in state statute and it is capped at 25, people are not being allowed...with a few circumstances, like Lincoln--they talked about that program--to raise the cap. By raising the cap in state statute, it does one of two things. It says to the utility companies, it is our expectation that you're going to help us grow renewable energy by allowing that cap. It's also going to give a message that we are designated as a alternative energy-friendly state. So when small businesses...really good example is PayPal, Facebook, these younger-type organizations that are looking to use renewable energy, we want to make sure that we are designated as a friendly state in that fashion. And by having it in state statute we're saying we

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support renewable energy. That is our expectation no matter where you bring your business to in the state of Nebraska, that you will be able to go beyond that 25 cap to 100. [LB87]

SENATOR BOSTELMAN: Okay. I'm sorry, but my understanding from what was said, that that's already allowed. [LB87]

SENATOR BLOOD: That that's already allowed? [LB87]

SENATOR BOSTELMAN: Right. [LB87]

SENATOR BLOOD: I'm going to let the testifiers behind me come and speak from experience. Based on what I heard over the last year as I knocked on doors and I talked to businesses and I talked to farmers, that's not what I'm hearing. So I certainly would not want to say that somebody is telling a tale...a story out of...yeah. [LB87]

SENATOR BOSTELMAN: That's fine. That's why I asked the question. I mean, I don't know. [LB87]

SENATOR BLOOD: So that is not my understanding. [LB87]

SENATOR BOSTELMAN: Would this be a mandate? [LB87]

SENATOR BLOOD: Would it be a mandate? [LB87]

SENATOR BOSTELMAN: Yeah. [LB87]

SENATOR BLOOD: What do you mean? [LB87]

SENATOR BOSTELMAN: Well, is this going to require... [LB87]

SENATOR BLOOD: That everybody has to go 100 or everybody...? [LB87]

SENATOR BOSTELMAN: No. No, that the utilities or the REAs have to do this no matter what. There's not a, I guess, a workable option or that it's been required if someone wants to put in 100kW they have to allow it, no matter whatever the load is on the line, no matter what it is, how it affects the power situation in that area. [LB87]

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SENATOR BLOOD: You know, I'm certainly open to forming a symbiotic relationship with the more rural electrical companies, but here's the issue is that if we...I don't know if mandate is the right word, but if we don't allow that option, we don't have it in state statute, all I think we're going to be doing is going backwards with...we're not anywhere where we need to be. When you look at...we have more sunny days in the state of Nebraska--at least in eastern Nebraska--than Dallas, Texas. A lot of people don't know that. I love playing Trivial Pursuit, so. You know, I don't know mandate is the right word. I hear what you're saying. I think that it's expectation. [LB87]

SENATOR BOSTELMAN: Okay, thanks. [LB87]

SENATOR HUGHES: Any other questions? Senator Quick. [LB87]

SENATOR QUICK: Thank you, Chairman. And thank you, Carol for...or Senator Blood. [LB87]

SENATOR BLOOD: Thank you, Senator Quick. [LB87]

SENATOR QUICK: I guess my question would be kind of following what he's saying. But some of the rural power districts that maybe have trouble with...we heard some testimony on the earlier bill about maybe their substation can't handle the excess power on a day where the load is down. So if they were...if this was say ends up being a mandate, now they have to expand their or make their substation bigger or put in more lines. Who actually...I mean, that cost, what is that? Who would pay for that? Who has to pay for that? [LB87]

SENATOR BLOOD: And, again, I am not the technical person and so we're asking about speculation. But what I do know is that, you know, it's our assumption that everybody that participates in this program is going to get like and need that amount of energy and I frankly don't think it's the case. I think this is something they're going to be able to build up to and be able to meet the needs. I don't think that everybody that's using solar is immediately going to start aggregating multiple meters and causing overload and causing financial stress. That's just not going to happen. I think it's going to be incremental. I think we have the ability to discuss further, if necessary, because I think this is an important bill that we need to get through for discussion, because I think we're behind other states. And it would be nice if Nebraska would be more progressive. You know, as far as the cost and whatnot goes, that's not an area that I consider myself an expert in, so it would only be speculation. But the thing that I do feel comfortable saying is that none of this is happening overnight. And it's going to be building up gradually. And we have so many people that are experts behind me that I think can better answer those questions. But we cannot continue to say, hey, we're in favor of alternative energy, but not putting the tools out that we need to truly compete with other states. And you know, whether we like it

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or not, we're a pretty sparsely populated state. And if we're trying to bring in young millennials, a really great way to do that is to make sure that we're moving our alternative energy programs forward. [LB87]

SENATOR QUICK: Thank you. [LB87]

SENATOR HUGHES: Additional questions. Senator Kolowski. [LB87]

SENATOR KOLOWSKI: Thank you, sir. Senator Blood, I think you're hitting something on the nailhead exactly. You can't have chambers of commerce, business leaders, governors, saying we want to bring in, we want to bring you, here is our state, come and see us, and then have...trying to say that there's a free market opportunity for you to grow your business here and do the things we ought to do, yet there's a control that is upon the possibility of those that want green energy to use that in our state. And that's going to be a turnoff because there's a cap on it and the cap is by somebody who keeps it there and doesn't permit it to be higher in a state. So you can't say, come take part in our free market opportunities and then have a lid on something that you can't get the lid off and you can't grow the way you'd like it to be with the power that you'd like to use. So I find it to be a very interesting dichotomy when we look at the reality of what could be taking place compared to where it is. So stay tuned. [LB87]

SENATOR BLOOD: Well, and Senator Kolowski, that's such a valid statement. And dichotomy is the powerful word that needs to be used, is that you know we constantly talk about moving Nebraska forward. And the problem is that we don't understand that none of those tools are in place that we truly need. And having a deficit is only complicating the issue. The one thing I love about Nebraska is public power. I mean if you look at our rates compared to other parts of the country...but I also know that a lot of this push that's against public power is because of this very thing, is that we're not getting the tools that we need in Nebraska to move forward when it comes to renewable energies. So somewhere we've got to find that middle ground between why it's so awesome to have public power and why we need to bring renewable energy up to the level it truly belongs, like it is in states like Oregon, Arizona. We always talk...everybody...it's like, I don't ever go to a hearing that I don't hear the word brain drain. Well, gosh, here's a really simple solution to keep young, educated people in Nebraska and create jobs and they're going to be good paying jobs. [LB87]

SENATOR HUGHES: Okay. Any other questions? Seeing none, thank you, Senator Blood. [LB87]

SENATOR BLOOD: Thank you. And, again, I apologize for not being able to close, but vote LB87. [LB87]

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SENATOR HUGHES: That will be fine. Okay. With that, we will open it up to proponents of LB87. Welcome. [LB87]

ROBERT BYRNES: (Exhibit 3) Good afternoon, Senator Hughes, members of the Natural Resources Committee. My name is Robert Byrnes, R-o-b-e-r-t B-y-r-n-e-s, still from Alliance, Nebraska. Nebraska is 13th in solar potential in the Union. I am very grateful to Senator Blood for introducing this bill. This will be the fifth time I am before the Natural Resource Committee trying to get this done. I hope we can do that this year. I'll be straightforward and to the point. The current net metering bill is comprised of language inserted into the original net metering bill, LB436, by lobbyists behind the scenes. Current net metering law is full of protections for public power that are excessive and punitive to responsible infrastructural development and access to available tax credits to net metering. Because they were not able to stop net metering, as they had for the 15 years in Senator Priester days, they allowed it to leave committee and then proceeded to hobble it in layers of redundant restrictions and limits. Even with that, net metering has flourished to 320 facilities comprising 2.7MW. When we saw the initiation of net metering in Nebraska, small wind power was installing at \$4 to \$5 a watt and solar was higher. Currently, we are seeing solar installing at \$2 to \$4 a watt or half the price of small wind systems. So while I tend to focus on solar because of economics and practicality, this discussion is all about clean energy technologies that Nebraska can bring to their grid. The lobbyists will undoubtedly go back to the play book and try to keep net metering in a small pen, so let me try to add some perspective. First, 100kW is a small system. As defined by the federal Department of Energy, it qualifies for the residential energy credit available from the IRS up to 100kW. At 240 volts we're talking about a peak of 400amps that you might see 2 percent of the time. Solar systems have a capacity factor of 16 percent to 18 percent of ready capacity, so that 100kW is really just an 18kW system running all the time, which is about ten hair dryers. Okay, also, you should all have a copy of this testimony that I've submitted and there's several scenarios in the back that show the current limits versus historical power consumption trends. So, hopefully, you have that in your book. If not, we'll get it to you. Secondly, public power is already protected from having to receive excess in the law by requiring the customer generator--this goes to your question, Senator Bostelman--that they are responsible...the customer is responsible for any infrastructural build out that is required for that system. So if a small user tries to put up a system much larger than his service allows, they will be footing the bill for upgrading the lines appropriately, which is not going to happen. Net metering is meant for offsetting on site consumption, not exporting power to the grid. It is not a money maker. It is a money saver, much the same as conservation, which they also subsidize. This factor provides a common sense limit to system size because it makes supersizing your net metering system uneconomical. Thirdly, any excess net energy at the end of the month is purchased by public power at avoided cost, which is less than wholesale. This energy is then sold to the neighbor at retail. This process actually helps public power make more money. This is another factor that will limit system size, as illustrated in the examples at the end of the testimony. Sending more power than you need to the grid is not economical under

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the current net metering, as appropriate. The lobbyists will no doubt decry the customer generator using the grid as a battery bank. While it sounds like they are stealing from their neighbor, let's look at that argument. First of all, customer generators are owners of the systems as well. They also pay a customer charge to give and take power from the grid, which applies for maintenance to the infrastructure. If they do put excess on the grid at the end of the month that power is valued at avoided cost which is far below retail, which the power company then resells at a profit. Okay. This naturally limits system size as economics fall off rapidly when excess power is generated. LB87 also calls for raising the system cap from 1 percent to 5 percent, and this is for a good reason. For large suppliers like NPPD and LES 1 percent is a big number that may take a long time to meet. But Nebraskans that are served by municipal suppliers and pay the highest rates in the state, that number may be very low. In the small community of Lyons, which is a municipal supplier, I did the study at peak cap. And the 1 percent would only allow 18kW in the entire town of 1,000 people. I think we can all agree, net metering is not hurting anybody and should be allowed to grow. And if 5 percent net metering on the grid is going to cause an upset on the grid, we got a problem. Knowing their own language very well, power lobbyists would be quick to point out statutes allow larger systems if they choose. In reality, they do not. I have asked many times, many customers have, they don't say, yes, they only say, no. Just to sum up here real quick, it should be seen that public power is amply protected by the redundant protections within the statute. Meter aggregation is likely to be contested because of perceived complexities and administrative burden. I think public power can figure this out. But this in the context of a self generator, the same customer, which would tremendously help, especially agricultural operations. Not different customers, different sites, different...you know, a simple case of that. A virtual net metering was not. [LB87]

SENATOR HUGHES: Mr. Byrnes, your red light is on. Could you wrap up, please? [LB87]

ROBERT BYRNES: Yes, sir. Just to wrap up, your public power still talks about shifted burdens and ratepayers subsidizing renewable energy systems. But in reality public power writes no check, does no maintenance, and receives excess power at a rate equal to the lowest possible cost and then turn around and sell it at retail in the immediate area with essentially no distribution loss. Who is subsidizing who? Net metering customers pay connection fees like everybody else. No numbers have ever come forward showing any significant burden on the electrical supplier. After hearing lobbyist fear mongering about shifted burden for years, we could have heard a pin drop in the hearing room when their own overestimated study reported it amounted to pennies per year per ratepayer. [LB87]

SENATOR HUGHES: Mr. Byrnes. [LB87]

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ROBERT BYRNES: I hope the bill can get to Select File and be prioritized and get done. And excuse me, sir, I did have included in the testimony I included several scenarios of actual customers where we either have 25kW, would like more, there's a situation here with 25kW, while appropriate, does not make sense because of winter heating. [LB87]

SENATOR HUGHES: Have you submitted that? [LB87]

ROBERT BYRNES: That is submitted. [LB87]

SENATOR HUGHES: Okay, thank you. There are many people that like to testify after you. [LB87]

ROBERT BYRNES: I understand. Thank you, sir. [LB87]

SENATOR HUGHES: Okay. Are there questions for Mr. Byrnes? Seeing none, thank you. [LB87]

ROBERT BYRNES: Thank you, sir. [LB87]

SENATOR HUGHES: Next proponent. Welcome back. [LB87]

JAMES CAVANAUGH: (Exhibit 4) Thank you, Senator. My name is James Cavanaugh, J-a-m-e-s C-a-v-a-n-a-u-g-h, I am counsel and registered lobbyist for the Nebraska Chapter of the Sierra Club and I appear today to testify in favor of LB87. And I would beg the committee's forbearance to allow me to complete my testimony with supporting testimony for LB610. You may have heard me mention earlier a 13-year-old that I have and I'm supposed to pick him up in Omaha in about an hour. So I'd rather stay in his mother's good graces and make sure that I made that appointment. So we support both of these bills and kind of for the same reason that I stated in the earlier testimony on Senator Wishart's bill. But I've got to tell you, I've been doing this for a long time. This is my 30th session testifying before the Legislature...my 30th year. And what you hear in terms of reservations about moving forward with this worthy initiative--all three of these bills--is what my father, who Senator McCollister knows well, used to call the two iron laws of government. In the first iron law of government he said, you violate these at your peril. First iron law of government, we've always done it this way. Second, we've never done it that way. That's what you're hearing today. I mean, we've always done it this way, we've never done it that way. We're not trying to throw any needless onerous regulations in your way, although they are needless and onerous and they are in the way, but we've never done it the way that you're suggesting. Change is hard. Change is difficult. Government doesn't like change. It's easy to go

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along with, we've always done it this way. But that's not going to happen here. Whether we like it or not, change is coming. And this legislation, as you heard Senator Blood testify and Senator Kolowski undoubtedly will testify as well, means lowering barriers, barriers that exist. Whether you want to recognize them or not, what you've been hearing here from proponents are, these barriers exist, they're in the statutes, they bother us, they inhibit our business, they are onerous government regulation. We are against onerous government regulation. Lower those barriers and a benefit will be a lower carbon footprint. This is the hottest year in recorded history. Last year was the hottest year in recorded history up to that time. The year before was the hottest year in recorded history up to that time. And you know what? Next year is going to be the hottest year in recorded history up to that time. We can't do a lot about that, but we should be doing something and this will help. Finally, jobs and tax revenue. This means jobs. In my home district, the Omaha Public Power District, hundreds of OPPD workers are losing their jobs because we're moving from one energy generation source to another. This could mean jobs for those people and it needs to be directed in Nebraska. Right now all we're doing is serving as a conduit for jobs east of us going west of us. We do nothing but sell them gasoline along Interstate 80. They generate no taxes except the gas tax at the gas pump while they gas up to get out of this state. Finally, that tax question should be uppermost in the Legislature's mind this year. If you want to talk about property tax relief, if you want to talk about meaningful sources of revenue that don't exist right now, look at this. This is property tax relief big time. And once it comes, and it's coming regardless of what we do here today, you're going to see it back home in your school districts and your local counties and your local cities. So for all those reasons I think that you should look favorably on LB67 (sic: LB87), LB610, and LB429. I'd be happy to answer any questions you might have. Thank you. [LB87]

SENATOR HUGHES: Thank you, Mr. Cavanaugh. Are there questions? Seeing none, I will take your advice and share with the group that if you do wish to testify in favor or in opposition to any of the bills it will be duly noted and entered into the record so you don't have to come up and say the same thing twice. So thank you, Mr. Cavanaugh, for that. [LB87]

JAMES CAVANAUGH: Thank you, Senator. [LB87]

SENATOR HUGHES: Safe travels. Next proponent. Welcome. [LB87]

MARTIN KLEINSCHMIT: Thank you. Thank you Senator, committee members. My name is Martin Kleinschmit, M-a-r-t-i-n K-l-e-i-n-s-c-h-m-i-t and I was in the third grade before I got that last name right--not part of my testimony. I'm from...I'm a farmer from Hartington, Nebraska, Cedar County, as a matter of fact. And about four years...five years ago, actually, I built my own first solar panel setup, a 9kW unit that I designed myself to adjust, to accept, or to more...collect more sun seasonally, so we adjust it four times a year. And it was a lot of fun. And

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I waited a year to see what it would do. It fulfilled my expectations and a little bit more and it replaced about half of my power on my farm. And I'm kind of retired now so I didn't have that big a load, so it did what I wanted to do. And then I began looking around and what I could do in my retirement and so I started my own solar business. So we build primarily for farmers. We kind of specialize in ground mounted units, although we do the others as well. And so I'm here to speak in favor of this bill, because I've seen a lot of problems with the farmers. We have our meter pole setting in the middle of the place and we've got bins over here and we've got silos over there and a barn over here and wires all over. We don't have a good spot to put that solar panel except a distance. At the same time we have farmers that have hog barns around the section and irrigation systems all around the farm. And yet...and they would have to put a solar system wherever that meter might be. And so that's a big problem, especially when you're talking about cornfields because you don't want to get them wet from the irrigation water because it kind of puts a crust over them and they stop using them. So I think if we could aggregate those meters, again, we have a farm, we have plenty of good spots to put them and we don't have to cut down trees, we don't have to run long power lines to get to that meter pole...to each meter pole, I should say. And so we can do this. If we can aggregate this meter, I think it would be beneficial. At the same time, I like the idea of increasing it from 25kW--which some have seen that as a restriction--to that 100kW because again 25 fits a house really well and maybe a few outbuildings. But when it comes to barns and bins, it's not enough for this farmer. So if we could increase that, that will help as well. That's really all I have to say. The earlier ones talked about many of the things that I have here, but that's kind of where we're at right now. I'm in favor of this bill and I'm open for questions. [LB87]

SENATOR HUGHES: Thank you, Mr. Kleinschmit. Are there questions? Senator McCollister. [LB87]

SENATOR McCOLLISTER: Yeah. Thank you, Mr. Chairman. If this were increased to 100kW, how would your business be different? How would you operate your business differently? [LB87]

MARTIN KLEINSCHMIT: Well, we'd have more panels to sell I think; not for every customer. We do a lot of small 10kW units. But we do...we have one customer that did a 25 and he wanted to do 50 and we couldn't do it for him. Again, he had one meter in the middle of the place and that's where we had to go through for that. It was mostly a bin site that he was trying to do. [LB87]

SENATOR McCOLLISTER: A typical customer uses, what, 10 to 20kW? [LB87]

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MARTIN KLEINSCHMIT: That's correct. If it's a residential or just a farmstead only. Once you add agriculture...industrial agriculture with it, then it pops right up there then, so then they don't even bother with this. [LB87]

SENATOR McCOLLISTER: Have you sold any units to industrial customers? [LB87]

SENATOR HUGHES: No. We kind of focus on farmers and we do that. [LB87]

SENATOR McCOLLISTER: Thank you. [LB87]

MARTIN KLEINSCHMIT: Thank you, sir. [LB87]

SENATOR HUGHES: Senator Bostelman. [LB87]

SENATOR BOSTELMAN: Thank you, Mr. Chairman. Mr. Kleinschmit, has the question on the--I'm curious--on from going from 25 to 50, was it because of intermittent use? In other words, I understand for the dryers or for pivot or gravity fin. You couldn't increase it because it was seasonal usage? Is that why they denied that or was it another reason? [LB87]

MARTIN KLEINSCHMIT: It was we had a single meter that ran all those facilities and so we were limited to 25 going into that meter. [LB87]

SENATOR HUGHES: Senator McCollister. [LB87]

SENATOR McCOLLISTER: What would prevent a customer from just putting in an extra meter and then use that second meter for the overage? [LB87]

MARTIN KLEINSCHMIT: I don't know. I imagine I'd have to talk to the power company and see how willing they would be to do that. I guess that would work, sir. [LB87]

SENATOR McCOLLISTER: Okay, thank you. [LB87]

SENATOR HUGHES: Additional questions? Seeing none, thank you, Mr. Kleinschmit, for your testimony today. Welcome. [LB87]

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CHELSEA JOHNSON: (Exhibits 5, 6) Hello. My name is Chelsea Johnson, C-h-e-l-s-e-a J-o-h-n-s-o-n, and I am here representing the Nebraska League of Conservation Voters. And I will skip over some repetitive things in our testimony. NLCV supports LB87 as it promotes renewable energy and sustainable urban communities and rural farmers and rural communities in our state. Although there are many renewable energy generation systems mentioned in the bill, photovoltaic energy may see the greatest benefit. And there are several reasons why, as Nebraskans, we would want to see an increase in these solar systems in our state. Last year one out of every 50 new jobs in the United States came from the solar industry. According to The Solar Foundation Solar Job Census 2016 the solar industry has outpaced the overall U.S. economy by 17 times and has had a 25 percent employment increase from 2015 to 2016. The largest percentage of these jobs, over half, are in the installation of solar panels, especially for residential uses, but also in larger solar arrays. In other words, the growth in part reflects the fact that more and more American families and businesses are turning to solar. According to the National Conference of State Legislatures, at least 17 states have authorized aggregated net metering, including Arkansas, Colorado, Minnesota, Nevada, and Utah. Out of the 46 states with net metering policies the lowest cap in New York and in Georgia starts at 10kW, while New Mexico has a cap of 80MW and Ohio and Arizona have no limit. Nearly half the states with net metering policies authorize net metering for systems up to 1 or 2MW in capacity. And the spreadsheet that I passed out just goes through the policies that exist in every state. And there are more than 46 policies listed, because some states have it set up where utilities can have their own policies. But you'll see on there that 53 out of the 72 policies listed allow for 100kW or greater systems generated from nonresidential sources and 60 policies have capacity limits greater than 25kW, which is what Nebraska's current limit is. And when it does come to residential limits, 36 policies allow for 100kW or greater and 42 have caps higher than 25kW. So the majority of states have these sort of limits and we're supporting this legislation because it puts us more on par with what other states are doing, what they've seen as effective and it removes barriers and burdensome regulations and in turn can spur job growth in this industry and economic development in Nebraska. So NLCV sees it as helping us responsibly manage both our financial and our natural resources. And I'd be happy to take any questions. [LB87]

SENATOR HUGHES: Thank you, Ms. Johnson. Are there questions? Seeing none, thank you for your testimony. [LB87]

CHELSEA JOHNSON: Oh, sorry. One thing that I forgot. We did have folks...our members sign on to our letter of support and so as of printing this this morning, we have 519 individuals, constituents. Many of them are...every one of you has at least a couple of constituents on here, some of you have a couple dozen, so I will submit that as well. [LB87]

SENATOR HUGHES: Thank you. Next proponent. Welcome. [LB87]

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JEFF BERGGREN: Thank you. Senator Hughes and committee, my name is Jeff Berggren, J-e-f-f B-e-r-g-g-r-e-n, I am here as a proponent to both...all three bills, LB87, LB610, and LB429, specifically, LB87. I'm the program manager for Genpro Energy Solutions. We have currently a dozen projects ranging in size in Nebraska from 5kW to 5MW. We have locations in Piedmont, South Dakota, is our home office, but we have a location in Lexington and I'm from Grand Island. Been struggling against the 25kW cap for about nine years now. This is my tenth year in the solar business in Nebraska. I randomly pulled 100 proposals that I've done over the past year. And of those, 87 percent, 87 out of 100 could have used more than 25kW if allowed. Mainly, these are agricultural and commercial entities. When we started out, a 5kW to 10kW was a lot just due to costs and roof space usually. But now that the costs have come down and the ground mount has come down in cost as well, we're seeing a lot more of that; 25kW on a farmstead or for a business is just a drop in a proverbial bucket, and even the 100kW. We've been involved with the two communities that have been mentioned earlier today, Venango and Scottsbluff. Venango, with the engineering that we did along with NPPD and the village of Venango, we determined that even that old line would need a very minimal upgrade to get to 94kW. This is literally the end of the line out there at the outskirts of Venango, Nebraska, five miles from the Colorado border. So 100kW, as Mr. Byrnes mentioned, isn't truly that big a system. In Scottsbluff, where we put it right in NPPD's front yard, 114kW, there was very minimal upgrade that was needed for that, if any at all. And that system went in very quickly. Our average customer, once again, is agricultural. We've done very little commercial. Although we get the requests, the 25kW, once they hear that's all they can do they're not interested. We witnessed Kearney lose Facebook. One of the reasons was the renewable energy. Now Kearney is putting up a 5MW solar where the Facebook place was projected. So they...the utilities are seeing it. They're still not making it easy for us. It's still a hard cap for the smaller customers. When we're working on the residential scale...the community scale we're even running into it there. The city of Aurora simply wanted to take their wastewater treatment facility and offset what they do, what they use every year. Very consistent load seven days a week, 365. Calculations were very easy, it's going to take 500kW. Well, Aurora is a customer of NPPD. We immediately ran into the 25kW cap, had to get into negotiations with NPPD, took almost a year to generate the buy-sell agreement and the dual meter set up, and Aurora will now be the first one in Nebraska to offset their wastewater treatment. But it was a lot of time and energy that could have been spent elsewhere getting to that extra above the 25kW cap. The 100kW on farmsteads often...it's been stated multiple times...I have one customer in particular. Three meters, each...machine shop, home, and then truck shop, basically, grain-hauling shop. Each one of those meters could use over 25kW easily, year round. He's a cattle hauler. He also raises crops. I see that time and time again where, when I tell them that the 25kW is all we can do the enthusiasm runs out. We can only set off a quarter of your bill, a tenth of your bill, whatever it is. We've actually run into the 1 percent cap as well, as Mr. Brynes mentioned. We ran into it in the village of Callaway. We had a rancher who had...his homeplace was on the village of Callaway system; his adjacent pivot was on Custer Public Power; his homeplace, which he would like to offset at 25kW, he applied for

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and received the 25 percent USDA grant, he was going to be able to take advantage of the tax credit. So 55 percent of his system was going to be offset. We went to the village of Callaway and found out that that 25kWs would be right at or slightly above their 1 percent. They came back and we negotiated some avoided costs. In the end the avoided costs that he would be generating were at a low enough level that the rancher elected not to do it, even though he had 55 percent of his system potentially paid for. So that 1 percent cap, too, for the smaller utilities definitely needs to be looked at, raised to the 5 percent, as well as aggregation of the meters. That would help a lot. Every farmstead we deal with has multiple meters on it. And that's all I'd like to say today. [LB87]

SENATOR HUGHES: Okay. Thank you, Mr. Berggren. Are there questions? Senator Bostelman. [LB87]

SENATOR BOSTELMAN: Thank you, Mr. Chairman. Just a point of clarification so I understand. On most of, if not all or some of the farm implementation that you're using at a farm where they have multiple meters, is that size and is that use year round or is it during grain-drying season? Is it during irrigation season? Is it...you understand...see where I'm coming from? [LB87]

JEFF BERGGREN: Yes, I do. Yep. The grain dryers are absolutely a seasonal thing. Most of the time the pivots aren't...meters aren't near the homeplace, they're off on their own meters near the corner of the field. But so the grain drying is a seasonal. But a lot of these guys, especially the farmer-rancher who does both, have year round high electrical use in their machine shops, their mechanic shops, their scales, you know they're doing things all year round. Their load is high. [LB87]

SENATOR BOSTELMAN: Okay, thank you. [LB87]

SENATOR HUGHES: More questions? Seeing none, thank you, Mr. Berggren. [LB87]

JEFF BERGGREN: Thank you. [LB87]

SENATOR HUGHES: Next proponent. Welcome back. [LB87]

GRAHAM CHRISTENSEN: (Exhibits 7, 8) Thank you, Chairman Hughes. Thank you, members of the Natural Resources Committee. A couple things I wanted to address, I heard some... [LB87]

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SENATOR HUGHES: Would you give us your name and spell it, please. [LB87]

GRAHAM CHRISTENSEN: Yeah. Graham Christensen, G-r-a-h-a-m C-h-r-i-s-t-e-n-s-e-n. A couple of things that I'd heard recently that I thought were very pertinent that I've kind of just flipped up a little bit of my testimony today. And then I have some examples in my testimony I'd like to fall back to if we have time or if so I should be granted additional. But number one, I thought that the Dawson...gentleman from Dawson that spoke earlier brought up a good point that's pertinent to this, looking at aggregation of meters. You're going to look at, if you're looking to aggregate the meters, the ones that are the most economical. And that's how it's going to determine which meters you actually use. The higher usage, more consistent meters are logically going to be the first ones in line. And, of course, it's tied into net metering so I think that it would be also limited total to 100 kilowatt, at least that's how I understood the situation to be. Senator McCollister, you had asked about why not put additional meters. Because every month it's an additional \$20 to \$90 meter fee is the fixed rate that you pay for having a connection to a meter and that changes the dynamics of things very quickly. And then, Senator Bostelman, you had talked about, well, you know, why we restricted. You know, we could go over at the larger sizes. It's because Byrnes talked about it a little bit, but once we go over 25 kilowatt, we don't even get the one-to-one offset for the first 25 kilowatt. We get reverted back to the voided cost rate which is like a third or a fourth of the price on your bill so it's not economical. So that's why we're prohibited basically because it doesn't cash flow--100 would give us that one-to-one offset just so folks can replace their own energy usage needs. Above and beyond, once again, not economical. Customers that I've worked with haven't looked to pursue that option. Moving right into business on the testimony, I have listed several examples of 25 to 100 kilowatt situations where the 25 kilowatt cap was not adequate. Kevin Anderson (phonetic), a grain farmer, could have used about an 80-kilowatt project up in my home area. So we settled on a 25 kilowatt there. Feller feedlot and cattle company in Wisner, they had six meters, 25...would exceed the 25 kilowatt limit. It would kind of put us in a pickle dealing with their situation as well. Dale Kurtenbach, a grain and hog farmer out of St. Edward, could use about a 75 kilowatt. We're prohibited from being able to do that in an economical fashion for that gentleman. Zipline Brewery, who currently would be able to fit under LES's program, but if this program is filled up, the program goes away. Therefore, this law would help us still have a program for Zipline, who has larger energy uses on all of their meters as well except for one. And some Omaha examples, 7 Day Furniture mart has approached us, would be a larger application as well. And then the old Kiewit building at 120th and I has a million kilowatt-hours per month that they want to offset so we don't even get close to that yet, and I don't have an answer for them yet. This piece of legislation would certainly help, but it's not going to solve their problems. In Burt County Public Power District, we're about ready to hit the 1 percent cap. Their cap is about 250 kilowatt. And last year alone I was able to develop...well, since I started my business, a year and a half, been able to develop 115 kilowatts. In Burt County Public Power, we're over 200 as a total. And so we could essentially hit the cap in Burt County Public Power District next year. And then finally, I guess I

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just wanted to close by presenting to you this analysis. I knew that it was going to be a concern that there could be costs that go to other users. And so this looked to be what I thought the best analysis that took into consideration a whole multitude of studies that look at other states that are using net metering and what is showing the overall net metering programs have been a net benefit and, furthermore, that it hasn't been a proven increase on the rates of other customers in the district. And I actually went forth so you could take a look at yourself and the highlighted are the examples here. Thank you for the time. I'm very grateful to Senator Blood for putting forth this bill, very simple, very easy but could make a great deal of difference with little impact to the utilities. Thank you. [LB87]

SENATOR HUGHES: Okay, thank you, Mr. Christensen. Are there questions? Seeing none, thank you for your testimony. [LB87]

GRAHAM CHRISTENSEN: Thank you, Chairman. [LB87]

SENATOR HUGHES: Next proponent. Welcome. [LB87]

RANDY SCHANTELL: Hello. Thank you, senators. My name is Randy Schantell, R-a-n-d-y S-c-h-a-n-t-e-l-l. I'm the owner of SWT Energy here in Lincoln. According to LES officials, I've installed most of the net metering systems in Lincoln area; proud of that and I'm working on the largest building application with J-Tech Solar, that we heard about earlier today that will be in the paper here shortly and it will have plenty of publicity. My deal is that I got a lot of systems that are shovel ready right now and we're just hinged on this bill moving forward. So it's a matter of us being able to move ahead with our business as we would like to and grow. We got more opportunities coming, as well, out of state and neighboring areas that...it seems to be endless. When I got in this business in 2006, there was only a handful of solar dealers. Actually, I was in the solar business from 1978 to 1984 as well, and that was what they call thermal solar. Photovoltaic was just kind of a dream at the time. NASA used it, it was too expensive to even think about putting it on your home. So now a days, the cost has come down, it's cost effective with the tax credits. We just need a little bit more room to grow. One percent is ridiculous when we got Colorado next door with 30 percent renewable energy portfolio. I don't think Iowa even has a cap. So it's ridiculous that we even have a cap on a renewable energy. That being said, I'll take any questions. [LB87]

SENATOR HUGHES: Okay. Thank you, Mr. Schantell. Are there questions? Seeing none, thank you for your testimony. [LB87]

RANDY SCHANTELL: Thank you. [LB87]

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MONTE ANTHIS: Hi. My name is Monte Anthis, M-o-n-t-e A-n-t-h-i-s. I'm an actual electrical contractor. I've been working with Graham Christensen. I'm the guy that actually installs the panels and goes out there and carries things around and puts everything up. So I hear a lot of questions sometimes with this stuff with what do you have to do to be able to do this or what's the regulations? Well, first of all, to hook this to the grid you have to be a contractor and you have to get a permit and then the inspectors have to come out and make sure you did it correctly. So you can't just turn these things on and if...I heard there was problems with some of that...with some of the people just turning their own on. Well, that's against the law to do that so that's another issue. I've seen this...I started a solar plant awhile ago and I went and did the training to learn about it and picked up what I needed to know to do this. That's been probably since '97. It's been pretty slow to happen here in Nebraska, but I see it happening now and it's starting to go. I wanted to be ahead of the curve when I did that. I think we're kind of there now. And I'm already seeing with Graham how these things are happening. These 25 kilowatt issue, we have customers calling us right now saying--I want to do more than this. And we're like, well, we can't do that; I'm sorry, you know. That doesn't seem okay to me. So I see solar is happening and we all kind of know that now. I think we do. And I'd like to see us be on the front of that, not the back end. I think if we did it now I think we'd probably be in the middle of it all, not even at the front of it all. So if you guys...does anybody know what the power that they have in their own house is? [LB87]

SENATOR BLOOD: (Inaudible) [LB87]

MONTE ANTHIS: No, no, no. What's the size of the panel you have in your own house? Does anybody know? Like most people have like a 200 watt...200 amp panel. Yeah, in their house. That seems...everybody kind of remembers that stuff. So I did the quick math and I did 100 kilowatts. And they did the math on that one, it's about 418 amps. So if you have a 200-amp panel in your house and your neighbor has one, there's that...close to that 400 amps right there. I don't know how we're putting excessive burden on the power lines with this stuff when it's only about two houses or three houses worth of power. Now, somebody could argue that with me, but I just did the quick math on that and that's what I came up with as an electrician. So if it can't handle the 400 or 500 amps on the system going back through it, then we really have some problems. So I just want to make that easy, basic math for you guys to see where I think we're at. And that's all I have. [LB87]

SENATOR HUGHES: Okay. Thank you, Mr. Anthis. [LB87]

MONTE ANTHIS: Yep. [LB87]

SENATOR HUGHES: Senator McCollister. [LB87]

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SENATOR McCOLLISTER: Thank you, Mr. Chairman. So an outside seller comes in, sells the unit, and then you simply install it. [LB87]

MONTE ANTHIS: We work together on it, correct, yes. [LB87]

SENATOR McCOLLISTER: Who finances the units? [LB87]

MONTE ANTHIS: I don't do the financing myself, no. Some people pay cash for these systems and sometimes they use that low interest rate that's available. [LB87]

SENATOR McCOLLISTER: Okay. But a typical house unit would cost what, around \$10,000? [LB87]

MONTE ANTHIS: Yeah, \$10,000 to \$20,000 depending on how much they're using in their house. Everybody uses so much different amount of power in their house. But you could start with that if somebody would like to. We have one like that right now that's around \$12,000 because they want to start with something. [LB87]

SENATOR McCOLLISTER: Okay. Thank you very much. [LB87]

SENATOR HUGHES: Okay. Additional questions? Seeing none, thank you for your testimony. [LB87]

MONTE ANTHIS: I was hoping for a bunch of questions? (Laughter) Thanks, guys. [LB87]

SENATOR HUGHES: Welcome. [LB87]

LEO ARENS: Welcome, Senator Hughes and members of the committee. My name is Leo Arens, L-e-o A-r-e-n-s, from Omaha, Nebraska; originally from Cedar County, where Mr. Kleinschmit is from, so that's kind of a hot bed of solar activity in that part of the country. Historically, my first blush with renewable energy was when I was four years old and we lived on the farm and our folks had a wind charger and we had truck batteries in a cave. And at night we would have DC electric lights in our house and the DC radio. And about 9:30 at night, the lights would start flickering and my mom or dad would say it's bedtime now. That was our thing with electricity. And then we got REA and my father and the neighbors helped put up the poles so that we could have electricity...dependable electricity at our house. I got involved in solar energy in 1981. Randy Chantell was one of my competitors at the time and we put in thermal

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and hot air systems and so forth. And we have some of those systems are still running today, 30-some years later. We put a warranty on it 20 years. At that time, photovoltaic was not practical because it was still in the research labs at the university. Anyway, coming forward to this bill, you've heard the testimony about the opportunities out here in the rural areas of needing of 100kW system and so forth. That's a reality. The aspect of aggregation, I think that should be worked out with the power company and with the homeowner or the business application. It could be the address that they use that...that they use for their property taxes and so forth and that could be worked out so any meters on that property would be acceptable, or some combination of that. I know that there are people that have, you know, like 25 irrigation wells spread over four different counties. I could see where that would be a challenge from that standpoint. So on that aspect...I also look at, I think this is important to have the 5 percent limit on it and so forth because it creates a choice. When I say "choice," there is an opportunity right now for our local utility companies to get in with having their own solar garden or solar farm. And that can be based upon a survey of their customers as to what size. A utility company right now could put in a solar farm for two dollars and change. Where if I come out as a solar contractor to you, I'm going to be talking in the neighborhood of \$4. Now it's going to go up or down somewhat. But here...from my standpoint, how many of our REAs have went to the Department of Agriculture and applied for a REAP Grant? They are able to do that. Look on the Web page of the Department of Agriculture. They can get a 25 percent grant where they can actually get involved in the solar at the local level and get a positive cash flow. What I'm talking about, putting a system in for \$2.21 versus \$4 out here if I buy it myself. There's a spread in there where we create...we put the system in, we sell it, we create a positive cash flow for the kitty here so that the local utility company can keep the jobs, the clerk can keep her job, the guy in the corner office can keep his job. I look at this here...with this being a choice in all it provides an opportunity for the utility company to get involved in here and give the choice and create the positive cash flow. The fellow from LES talked about present value. Fifteen thousand panels that they have at \$685 a panel up front, how many millions of dollars is that that goes into the treasury? That gets then, basically, spread out over 20 years. So I'm looking at this is an opportunity for the utility companies to get involved, but yet give the customer a choice out there. And that's all I have. [LB87]

SENATOR HUGHES: Okay. Thank you, Mr. Arens. Are there questions? Seeing none, thank you for your testimony. [LB87]

LEO ARENS: Thanks. [LB87]

SENATOR HUGHES: Welcome. [LB87]

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CHARLES OSTDIEK: Good afternoon. Thank you, and welcome to this fine day yourself. My name is Charles Ostdiek, C-h-a-r-l-e-s O-s-t-d-i-e-k; I live at 420 South 38th Street in Omaha, 68131, apartment B. And I'm here speaking in favor of this one and the previous bill, LB429. And I'm speaking on behalf of the Nebraska Green Party. I do political work--elections and political organizing. Before I began that, actually I began working on net metering issues and closing down coal and nuclear power plants in as early as '96, working with lobbyists on those sorts of issues even then. And I remember 15 years ago when Senator Preister was working on early net metering work. And why have I been doing this? This is to the point; I'm sensitive to time. It is to reduce this base load, these fixed costs, these costs of infrastructure, these so-called barriers to getting these things done that...those are costs on the public. And this also...these measures, this one and the previous bill, these will reduce carbon and pollution output and the generation of nuclear waste. Those are these base load fixed costs. There are aspects to generating power in those ways that are liabilities. They simply are. And these sorts of measures offset those costs. These sorts of strategies lower those costs all the way around, in particular with the nuclear power plant. Cooper Station is not immune to the economic situation overall. It has a different capacity, but it is not immune over all. And on an environmental level, the storage of nuclear waste in an ongoing, continuous ongoing burden to the community. So that plant should close. We do need to begin generating power in other means and with other strategies. And these bills support that. And, incidentally, they're cleaner and they reduce overall costs. So there was a claim earlier today that there has not been a demand or a request for these sorts of things for their area and maybe. So, okay, well, I'm demanding that on behalf of the Nebraska Green Party and anyone who wants this, really, all the citizens. I'm requesting that on their behalf. This bill is consistent with work I've been doing for over these 20 years. I've worked on many OPPD election campaigns to elect people to that board. And for the past four years, I've been working with the Green Party of the United States nationally. I've been twice elected as national co-chair. So on a national level, I network with other people doing renewable energy issues, energy efficiency and conservation issues and have been working on the national platform for that party. And these bills are consistent with all of that work and they should be allowed. The citizens who want these measures are the public. They are the public of public power. The obstacles are bureaucratic; they are solvable. Someone used the word earlier, these are solvable problems. They're solvable, they're surmountable; they're not true obstacles to these incentives for clean energy that reduces costs overall. So that's basically my testimony. And thank you. Please support these bills. They reduce pollution and costs...the cost associated with all of the carbon footprint of all these coal plants and the metal mercury that gets into the water and all that, and the long-term management of the nuclear waste. We have to stop generating nuclear waste. Nuclear power plants are falling like 9 pins all over the country; all these plans are being cancelled and stopped. There's a couple that have opened up recently and there's a few more that are on the books. But most every nuclear power plant is over budget and over time and they are tremendous boondoggles. Cooper Station should shut down by the way and we need to

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compensate for that electricity throughout the rest of Nebraska also. These bill will help to do that. Thank you. Thank you for letting me testify. [LB87]

SENATOR HUGHES: Thank you, Mr. Ostdiek. Are there questions? Seeing none, thank you for your testimony. [LB87]

CHARLES OSTDIEK: Thank you very much. [LB87]

SENATOR HUGHES: Next proponent. Welcome back. [LB87]

LAVERNE THRAEN: Thank you. Laverne, L-a-v-e-r-n-e, Thraen, T-h-r-a-e-n. So industry saying it's worried about ratepayers. I notice they weren't around when we built the nuclear power plant, Fort Calhoun, paid double the amount and we only got one reactor versus three. I notice no one was around worrying about ratepayers in 2011 when the reactor burst into flames and we shut down for two years and that was after \$100 million upgrade and then they spent another \$180 million just to run it for two years and close it down again. Industry wasn't around to cry about any of those ratepayers sucking that up. I just noticed that one fellow said five times this bill has rolled around. That's what they said at the OPPD, the lobbyist at OPPD says, yeah, this always comes around; she's a new senator, you know. Don't worry, we'll keep our eye on it. So why does it keep coming around? Round and round and round. Now the industry says, nobody is asking for this. Well, then pass the bill. Pass a bill that we can generate a million watts. No one is going to use it; no one is going to do nothing, what difference does it make? It's just like passing a bill that all cars need to be black back in Henry Ford's day. Yeah, it just lays on the books. But nobody cares. Nobody cares. So if industry is correct, pass the bill right now. Just put it through; run it through. Industry is right. No one cares; no one is going to ask for this. So what would industry have to do if you passed a bill. Well, they'd tell their bookkeeper that if somebody calls, you know, we'll get to it. But nobody is going to call according to them because nobody is interested in this. Well, I don't know if you saw all the people behind you and what all they said. They seem interested. The bill has come up five times; that's interest. I mean, come on. We're way behind in the renewable energy business. We're the last when it comes to solar, you know, in the country. We have the worst solar laws of course which is terrible. Caps on clean energy--if you had to do this again, if you're sitting here going to erect a brand new system when nobody has power and we're going to do an energy system today, would you put a cap on clean energy or would you put a cap on dirty energy? There's some solar panels, here's some coal, here's some nuclear, and they presented it all to you and here's a brand new system, let's build it. Would you put a cap on renewable energy, on clean renewable energy? Or would you say, hey dude, your coal is going to go into my fish and, you know, that nuclear waste is going to sit there for a long time and maybe we should put a cap on the dirty energy. But no, dirty energy is about the whole state. We just love to put mercury in the fish as fast as we can with these coal

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plants. You know, and I've testified at this Legislature since the '90s, over and over and over again, slowly turning gray as no solar is being erected anywhere. We keep asking for it. Utilities keep saying, well, maybe in the future. OPPD just said at their last committee meeting, we would rather have a utility-sized solar system. That would be more affordable and more manageable and it wouldn't be so much paper work. But it's been that cost effective right now. And these boys behind me are hooking up solar panels today? Somehow it's cost effective for them. I don't think these farmers are just doing it because it's like good for their health. Or they thought, you know, let's give one to the Gipper and spend extra money today, you know, because corn prices are really high so we'll just get some solar panels. And I doubt they're thinking that. No, it's beneficial; offsets costs for a long, long time. Sun always shines, the wind always blows. Intermittent costs, nuclear power, closed down for two years, that was pretty intermittent. And they close them down every nine months to refuel them; that's pretty intermittent. We can plan that. Well, you can watch the weatherman. The weatherman will tell you if it's breezy; the weatherman will tell you if it's sunny. Every day he does; gets up, we all watch it. So it's predicable. The weatherman predicts it. You can make your judgments based on the weather. So anyway. You guys have a good day. Hope you do the right thing. Please pass these bills so we can quit coming down here and messing about. And I just want to put one more thing out, if the public utility was really, really doing it and was still gung-ho on solar, we wouldn't be here now would we? We wouldn't be discussing these issues over and over and over again. The utility was so excited about it, just we wouldn't be here. We'd all be using clean energy. So get on the utilities for us. Thank you. [LB87]

SENATOR HUGHES: Thank you. Are there any questions? [LB87]

LAVERNE THRAEN: Nobody wants to ask me any. [LB87]

SENATOR HUGHES: Seeing none, thank you for your testimony. Additional proponents. Welcome. [LB87]

LUCAS NELSEN: (Exhibit 9) Thank you, Chairman Hughes and members of the Natural Resources Committee. My name is Lucas Nelsen, L-u-c-a-s N-e-l-s-e-n, and I'm testifying on behalf of the Center of Rural Affairs. I don't want to take up too much time, because I know you still have plenty of folks to hear from and much of our letter of support, which is being passed out to you right now, a lot of the information has already been mentioned, but I think it bears repeating that we support LB87 because we think it can have a significant effect on our rural economy, providing savings to rural small businesses, as well as farming operations and also help a growing industry in our state. And that's through raising the cap on net metering, as well as aggregation. And, you know, we've talked a lot about solar, and I think that's with good reason. It was already mentioned that Nebraska ranks 13th in the nation for solar energy

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potential. But I think it's also worth noting that in the year 2015, I apologize, I don't have 2016 numbers at the moment, but 290 kilowatts of solar was developed in the state which was a 48 percent increase from the beginning of the year. And in 2015, the state currently supported 776 jobs, mostly...I believe the majority of those were actually in project development and installation. And you heard from installers today mentioned that they've run against these caps. They've heard from customers that mention that. They'd like to install more but there just isn't a path forward. And so I urge you to support LB87 to help those rural small businesses, those farmers that were mentioned earlier, and also help this burgeoning industry in Nebraska. Not just solar, but also distribute generation in the form of methane digester or geothermal. Thank you. And I'd stand for any questions you might have. [LB87]

SENATOR HUGHES: Thank you, Mr. Nelsen. Are there any questions? Seeing none, thank you for your testimony. Additional proponents. [LB87]

JOHN HANSEN: Good afternoon, again, Mr. Chairman, members of the committee. For the record my name is John Hansen, J-o-h-n, Hansen, H-a-n-s-e-n. I'm the president of Nebraska Farmers Union. Thank you for your interest and your patience this afternoon; it's been a long day. We began working on the development and efforts to do net metering a good eight, maybe ten years before 2009. And so we had this constant effort where folks that would come in and testify and we just heard--no. And finally we got to the point in 2009 with the patience of Senator Haar to bring folks together to talk and say, all right, no is not a solution; no means no, but it doesn't mean how we're going to fix things and make things work. And thanks to the patience of Senator Haar we were able to bring folks together and we struck up a bargain in 2009 when we passed LB436. And I was in the middle of all of those discussions and those efforts. It was a good-faith effort. And we agreed, so that we're clear on what the understandings were at that time is that we're going to try this and we're going to see how this works. And if we need to make adjustments, we will, at a point on down the road, come back together in order to be able to figure out what's working, what's not working, what we need to do in order to move things forward. And so I hope that that is the spirit that the folks who have issues with these bills today, and these are good bills. And I thank Senator Blood and Senator Kolowski and Senator Wishart for bringing these forward because they reflect the feedback of folks who are out in the field doing things. And so based on the fact that we are kind of the center for a lot of this and all of these folks that you've heard from today, I don't think I recognized any new faces as we go forward that the business of understanding the logic of these three things that we do, especially in LB87, is to begin with aggregation because aggregation is a commonsense thing and that is that you use the mobile meters that you have at one general location so that you can put together one facility rather than four. That makes no financial sense, no spacial sense. If you think about the logic of a center pivot, it's usually a pole at the end of the...in the road, and so you've got the meter out there. That's, obviously, not a good place because you're right in harms way as the pivot comes around at the end of the field. You put it in the middle of the field, now you've got

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all kinds of problems with height and you got water on the panels, you got film that develops. And so in my case, I have a pivot on electricity; I have grain bin complex; I have an office and shop and machine shed; and then I have the rest of the farm. I have four meters. So the logic would be is to use the one good location that you actually have and do it right and aggregate the three or four meters that make the most sense to be able to do it in a more concerted kind of way. So that's the logic. And if you do that logic and understand that, and that a commonsense, pro-business, don't have excessive government regulation kind of thing to do then you get to the issue of 25kW. So that's, obviously, not large enough. So then there's a logic for why it is you need to go to 100. And if the 1 percent cap is...if the 5 percent cap is too large, I will tell you that the 1 percent cap that we set eight years ago is now too small. So we need to try to figure out what is the commonsense meeting in the middle. So I hope that as we hear folks who have issues that we're also hearing solutions. And that these are...that the amount of interest, the amount of opportunity here is great. And I think, again, we all do things best when we work collaboratively. And my goal as someone who represents these folks who are out in the field doing these things, these are our members, especially for farm and rural businesses, this is a big issue. And also, someone who is a hardcore defender of our public power system, our goal should be, at the end of the day, to make sure that the owners of our public power system are treated in at least as a user-friendly way as are the customers of private sector utilities who live in other states. That ought to be the minimum. And so with that I hope that common sense and good faith comes together on this process and we don't have to have a knock-down, drag out over this for eight years before we get an update. With that I would end my comments and answer any questions if you have any at this late hour. [LB87]

SENATOR HUGHES: Are there any questions? Seeing none, thank you. [LB87]

JOHN HANSEN: Thank you. [LB87]

SENATOR HUGHES: (Exhibits 10-36) Next proponent. We have letters to be submitted from Duane Hovorka; Jackie McCullough; Bryon Line; Beth Everett; Eric Bostrom; Kevin Connot; Jenni Harrington; Kimberly Morrow; Laura Priest; Kevin Raun; Helen Deffenbacher; Cesar Garcia; Jim Knopik; George Lippert; Kerry Hoffschneider; Nancy Meyer; Helen Abbott Feller; Don Preister; Marcus Powers; Art Tanderup; Melissa Baker; Kenneth Winston; Rita Corell; Holly Wedemeyer; Tim Fickenscher; Elaine Wells; and Larry Scherer. So with that, opponents to LB87. Welcome. [LB87]

TIM LINDAHL: Thank you, Chairman Hughes, Senators. Tim Lindahl, T-i-m L-i-n-d-a-h-l, I'm here on behalf of Wheat Belt Public Power in Sidney. I have the same concerns on this bill, as I mentioned, with the last bill with the diversity and how our system operates. When we size systems, we're sizing it for when that house or service or whatever is using its peak load. But

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again, like today, they're not using the heat, but tomorrow when the winter storm comes that's when they're going to be using the energy. And my concern is that it doesn't put us in a regulatory conundrum, especially with our transmission system. And I want to emphasize that. But I really want to focus on what we have been doing. That was mentioned--well, what have we been doing? In 2007, we had an industrial customer potential come to us and want to locate in Nebraska in our service territory. And as part of the agreement, they wanted to self-generate with a waste product as part of their process of 1,000kW or about a third of their service. And so in 2011, our board of directors allowed that and said--no, that's fine. It met our regulatory obligations, it met our engineering obligations, and it met our economic obligations so we didn't shift costs. So we have had for ten years now a very good partnership with industry with a 1,000kW unit and we would do it again if it made sense going forward and fit in our engineering needs. A couple of other things we're focusing on. We're spending a lot on engineering. We talked about battery technology. Battery technology for storing electric energy maybe isn't quite there. One of our warehouses, we're doing a test right now where we're actually using in-floor heat and concrete as a battery to store heat, same basic principle. So we've got that in place to where we're heating that up to 130 degrees off peak and it coasts throughout the peak time. When we eventually put our solar system in, that will be changed to where we will utilize our solar system during the peak of the day to heat that floor up and let it coast, essentially, being off grid overnight. So we're looking at those types of things and really trying to prove those out as a system taking on very minimal risk that maybe we can use for solving some of these net metering issues, especially with the sizing issues. I also serve on our national technology advisory council which we do research into how to solve these issues. So we're working with companies like Tesla and GE and things really trying to work on how we can make solutions that work good for consumers to do this type of thing and on utility scale as well so we can do more of that type of stuff. The last thing I wanted to bring by, to my knowledge, hasn't been discussed yet. We have not seen a problem with this, but cybersecurity is getting to be a bigger and bigger deal. And as we see more of these generators out there, that might be a consideration that we need to look at at some point is some kind of protection in the cybersecurity area when they're tied to networks that the utility can't control or anything. And I'm not saying that's an issue now, but it's just something to keep in the back of your mind as we move forward with this in the future. So with that I'll entertain any questions. [LB87]

SENATOR HUGHES: Thank you. Mr. Lindahl. Any questions? Seeing none, thank you for your testimony. [LB87]

TIM LINDAHL: And I'll beat it home before the storm. Thank you. [LB87]

SENATOR HUGHES: There's another bill today. (Laughter) Welcome. [LB87]

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NEAL NIEDFELDT: (Exhibit 37) Good afternoon, Senators. My name is Neal Niedfeldt, spelled N-e-a-l N-i-e-d-f-e-l-d-t. I'm the president, CEO of the Southern Power District located in Grand Island. We serve seven counties with 27,000 meters. The Southern Power District opposes LB87 primarily for one issue and that's because it does not solve an ongoing issue of customers with a qualified generator on their side of the meter paying their fair share of the distribution utility's operation and maintenance expenses, administrative expenses, and debt service. Through net metering, the customer is able to completely eliminate their bill which means that they are not paying for the distribution utility's expenses. And they are still connected to the electric grid and they are still dependent on us for service when their generation is not operating. So when you think about it, if we have contracts for tree trimming and the guys are out trimming trees, or we've got an outage, or we've got linemen out late at night trying to restore power, or we've got a customer service representative that's sitting in the office taking calls and helping customers with their service and with their billing questions, should a customer with a generator behind their meter help pay for those costs? And the answer is yes, because they're still dependent on the utility for those type of services. Currently, that's not happening. The current net metering language as found in the statutes, 70-2002 and 2003 were unable to collect those costs up to 25kW on their side of the meter. Proponents of LB87 now wants to make a bad situation worse by increasing that rate of capacity that would qualify for net metering. A couple of consequences that I think that's happening today in response to this gives the end utilities (1) either ignoring it, and if they ignore it then the customers that don't have generation behind their meter are paying the cost for those that do and those customers have made that decision that they are not interested in doing that. But, unfortunately, it becomes a subsidy from them to those with the generation behind their meter. The other consequence, or another option that some of the rural utilities and the municipals are looking at is increasing their customer charge. So everyone gets charged a customer charge every month. It's, basically, for the minimum amount to have connection to that service. And yet, in order to try and collect something from the customers with generation behind their meter, they're increasing the customer charge to make sure that they collect a little bit from them. The consequence of that though is that small users throughout the whole system end up getting higher rate increases than larger users, so putting pressure on low electric users when we do that. We know that the interest in solar generation behind the meter is growing. In Nebraska, the growth had been slower than other states, primarily because we have really low electric costs. And the economics of adding it just hasn't been there in the past. Now with new tax policies, tax credits that are available to them, they can sell their depreciation and on and on, we're seeing some movement in that. And we understand that. So to work with that, we've got to...we would ask for this committee to do this, that (1) is to not advance LB87 as it is; that we retain the net metering of 25kW and the maximum allowable for the utility at that 1 percent level that we've been talking about all afternoon. But we would like to see us review the current statute and possibly change language to this, the current statute reads that a customer generator may not be charged any additional standby capacity demand or other fee or charge. That prevents us from adding back to their bill a charge for their distribution costs. If that

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sentence could be removed from the statute and replaced with some kind of verbiage that would either be...allow us to set up a rate schedule for those kind of customers or allow us to put a charge on their bill for their distribution expenses then we are much more conducive to going forward with this net metering issue. Those customers would still receive compensation for the energy that they produce and then they would now be contributing to the costs of utility for the services they still receive. So with that I will end my testimony and take questions. Thank you. [LB87]

SENATOR HUGHES: Thank you, Mr. Niedfeldt. Questions? Senator McCollister. [LB87]

SENATOR McCOLLISTER: Yeah, thank you, Mr. Chairman. You said that applying some kind of fixed charge is probably the ultimate answer. Have you looked at models in other states to know...since Nebraska is a bit slower than the other states, have you looked at other models that we could employ? [LB87]

NEAL NIEDFELDT: There are...there are, there's a couple of ways that you could do that. You could...we could continue our net metering, like we do today, but allow the utility to charge the fixed charge as a flat fee or an amount based on the capacity of their generation. The flip side to that is that we would continue to bill them the regular retail rate like we do today, they get the same bill, but we then give them a credit on their bill for the value of the...if it's solar, the value of the generation that is being put...that they've generated not only for themselves but put back onto our system. And so there's a couple of options there that I think would work really well if we would give it a little time to study. [LB87]

SENATOR McCOLLISTER: Thank you very much. [LB87]

SENATOR HUGHES: Okay. Additional questions? Seeing none, thank you for sticking around. Mr. Benson, welcome back. [LB87]

SCOTT BENSON: Good afternoon. You know my name; I don't know if that's good or bad. Scott Benson, S-c-o-t-t B-e-n-s-o-n. It's been a long afternoon; I'm going to be disappointed if you don't ask me at least three questions. Okay. (Laughter) So I've talked before, LES has a net metering program that goes well beyond state statute. We've got some really lucrative incentives for customers. We've got a renewable generation rate that already allows generation up to 100kW. Most of that is solar. But we're opposed to this bill and that's because of some specific pieces in the language. First and foremost, the primary one, that's the increase in the cap from 1 percent to 5 percent. So you're allowing up to 5 percent of the average monthly peak demand. I've talked previously, but I'll say it again for the record, if you look at LES, 73 percent of the cost that make up our residential retail rate are fixed costs--things that don't vary with the energy

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we sell. And under net metering when you're offsetting the entire retail rate, you're not paying your fair share of those costs. But I'm going to give you numbers this time. If you look at LES, to go from 1 percent to 5 percent at full build out, that's the equivalent of \$2 million a year, \$2 million every year that the net metering customers at 5 percent would not be paying their fair share. That's \$2 million and that's the difference to go from 1 percent to 5 percent. So each percent we go up is about a half a million dollars. Two million dollars that LES has to replace somewhere. That's not LES replacing it; you know who would be replacing it. That's the nonparticipants, the other customers, far and away the bulk of the customers. And so that's our primary concern is the cost subsidy. Net metering in and of itself by default is a cost subsidy. That's just the way it works. That's okay, the state has state statutes, the utilities are working through it, people are embracing it. We just don't want to see that get increased because it puts a lot of burden on those nonparticipants. Similar to that, in a similar vein, you've got this bill allows for aggregate metering, right? So you've got multiple meters against one solar project, or multiple solar projects against one meter. It's also looking to go from 25kW to 100kW. Well, it's still under the confines of net metering. And so what do those things do? They allow a solar customer to put in even more solar than they can today which brings them more benefit than they get today. But what does that mean? It means that the nonparticipants are paying for that extra benefit. You have the many paying for benefits to a few. And we think that's a major concern. I've mentioned, we have 100kW rate. And you're probably wondering--why are you going against this if you've got 100kW rate? Technically, we have no issue with hooking up 100kW to our system. But you got to look at the differences. Our renewable generation rate, right now if you hook up, we'll pay you the full residential retail rate for everything you generate. Has nothing to do with your load, but it works the same as net metering because you're getting the full residential retail rate. And we guarantee you that rate for ten years. Well, we're only going to hold that rate until we hit one megawatt of customer-installed solar on our system. That allows us to get enough on the system to get some knowledge, know what the pain points are going to be, work with them. But it doesn't make too big of a cost shift. Once we hit one megawatt, new customers are not going to get full residential retail rate, they get half the residential retail rate and they'll be guaranteed that for ten years until we hit two megawatts on the system. When we hit two megawatts on the system, it's probably going to ramp down again and we don't know what that rate is going to be. But we know what it's going to be based on. It's going to be based on a value of solar study. I don't know if you've heard value of solar before, but in 2014 we completed a value of solar study and we've used it as frame of reference every time we come up with these rates. Value of solar means you go out and you quantify all the benefits that you truly get from distributed solar on your system and you turn that into a rate--cents per kilowatt-hour. And you say that is the rate I'm going to pay my solar customers because if I pay them that rate, they're getting the fair rate for all the benefits they bring to my system. But it also means you've put no burden on the nonparticipants because you've paid them an equitable rate, there's no one that has to fund those extra costs. I'm going to leave you with one last thing because I just want to clarify. A lot has been made today that sometimes this is attack upon a cap; you're trying to

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cap renewables. Well, last year LES's renewable portfolio...so you take all the wind, hydro, landfill gas, and solar that's in our generation portfolio, it produced enough energy in 2016 to serve the equivalent of 48 percent of our total retail sales over that same period. Everybody who gets a bill from LES for their retail energy, our renewables produce enough to serve the equivalent of about half of that. For LES especially, and I think for a lot of the utilities in the state, this is not a looking at capping renewables. We have a lot of renewables in our portfolio. What we're looking at is trying to cap that cost subsidy, that cost shift from the nonparticipants to the participants. Thank you very much. I'd be happy to answer any questions. [LB87]

SENATOR HUGHES: Thank you, Mr. Benson. Are there questions? [LB87]

SENATOR GEIST: I'll throw you one since you want three. [LB87]

SENATOR HUGHES: Senator Geist. [LB87]

SCOTT BENSON: One. [LB87]

SENATOR GEIST: Oh, I'm sorry. I do that every time. What about...have you thought of instead of hiking the 1 percent to 5 percent just going one more percent and then waiting to see how that goes and going one more percent? I guess what I'm saying is increasing gradually as opposed to making a big jump? [LB87]

SCOTT BENSON: You know, from a global sense, that, obviously, would be preferred, right? Because the lower you keep it, the more you're kind of keeping down that cost subsidy. From the utility standpoint though, you have to look at where we're at. Everything we do, public power state, is cost of service, everything is cost of service which means you make very careful to make sure one rate class is not subsidizing another rate class. So, yeah, you can say would 2 percent be better than 5 percent. Absolutely. But it's still worse than 1 percent and it still means you're accepting a cost shift which is something inherently that we're told not to do. [LB87]

SENATOR GEIST: Thank you. [LB87]

SENATOR HUGHES: Any additional questions? Seeing none, thank you, Mr. Benson. [LB87]

SCOTT BENSON: All right, I'll let you off at one. Thank you. [LB87]

SENATOR HUGHES: Welcome back, Mr. Kayton. [LB87]

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CURTIS KAYTON: (Exhibit 38) Thank you. Chairman Hughes, members of the committee, I'm Curtis Kayton, C-u-r-t-i-s K-a-y-t-o-n. I'm the general manager of Southwest Public Power District located in Palisade. We provide retail electric service to our 6,200 customers in all our parts of Chase, Hays, Dundee, Hitchcock, and Red Willow Counties in southwest Nebraska. Neal has given a good depiction of what I'm going to talk about, as well as LES with the cost shifting involved with net metering. I have a very simplistic graphic that I've handed out to you that is going to...just used to illustrate the effects of where net metering pits participants against nonparticipants and it can be drastic. But first, I want to point out just the cost components in an electric bill. We are the ones out in the southwest Nebraska who do calculate a bill...read the meter, calculate a bill, send it, collect the money, and own and operate our system. We do that in a residential class with a cost breakdown of a customer charge and an energy charge. Now, fixed costs, for just easy math, if our true cost of service provide service to a residential customer is \$50 a month, that's, perhaps, not affordable for all. Some class of our ratepayer may struggle with that so we knock that down to \$25. Okay? And call that a customer charge. The rest we'll build into our energy sales and you can see in the example here of the kilowatt-hour breakdown. Let's just say we charge 10 cents a kilowatt-hour, 5 cents of that represents fixed cost recovery; 5 cents for fuel which is coal, nuclear, wind, natural gas, whatever in the mix. Okay? Five cents for each. The net metering customer can one-for-one credit or offset their bill, they're getting a 5 cent benefit by getting the full retail value of that kilowatt-hour that they generate. The nonparticipant, or the person who does not participate in net metering, has to pick up the value of the 5 percent of that fixed cost because they don't have the ability or they just don't participate with net metering. Our state law requires that our rates be collected in a fair, equitable, and nondiscriminatory manner. And that's not fair and it's not equitable and it does discriminate and gives a very unfair advantage to net metering customers versus non-net metering customers. We're not against net metering, but we would much rather pay...we at Southwest, we would much rather just pay the value of the fuel. And personally, I wouldn't see a need for net metering at all; we would connect any customer generator, but we feel we should only reimburse the cost of the fuel, or the real value of the generation that they're delivering for us. That's the only mutual benefit that we have in the transaction. The fixed costs we can't give away because we have to shift that to those who can least afford it. That's my explanation. I've heard some other comments in the past. One seems to be interest in solar. You might remember from last week, I just recently did a survey of our customers. I don't recall...40-some percent of our responses contained a handwritten response. I went through every one of those handwritten responses and there may have been three or four genuine inquiries--hey, did you ever think about looking into wind and solar? I will respond to those. They're genuine questions. It's an education thing. In a rate making, I don't see how we can advocate for net metering and play favorites like we are and still operate under state law. So major change would have to happen so that we can make some exception for net metering. And, obviously, we're capped at 25 percent now, increasing that level to 100kW only amplifies that disparity in dollars that won't be collected to the utility that will have to be shifted. I'll answer any questions you may have. [LB87]

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SENATOR HUGHES: Thank you, Mr. Kayton. Senator McCollister. [LB87]

SENATOR McCOLLISTER: Yeah, thank you, Mr. Chairman. Do you have a generation facility of your own or do you buy all of the power that you retail? [LB87]

CURTIS KAYTON: We purchase full requirements from NPPD. [LB87]

SENATOR McCOLLISTER: So you really don't have a fuel cost. [LB87]

CURTIS KAYTON: The fuel cost is what I'm calling...fuel cost is our wholesale pure energy component. Okay? We get charged for transmission and we get charged for substation and energy. [LB87]

SENATOR McCOLLISTER: That's a fixed cost? [LB87]

CURTIS KAYTON: What's that? [LB87]

SENATOR McCOLLISTER: That's fixed costs or variable cost? [LB87]

CURTIS KAYTON: That's variable, but it is built into our energy rate that we charged to cover on the wholesale side. Okay, let's not mix up wholesale and retail. Okay? So if...I'm talking just fuel only, our energy cost that we get billed from NPPD is going to be about 2.8 cents a kilowatt-hour. And that's what I'm saying...that's the real value of the generation that the customer generator would be giving to us. [LB87]

SENATOR McCOLLISTER: Might say your situation is a little different than a utility that actually has a generating facility, correct? [LB87]

CURTIS KAYTON: Their fuel costs, they're going to have some handling and then some variable O&M with that, yes. But pure Busbar...Busbar energy charge, ours is around 2.8 cents a kilowatt-hour. [LB87]

SENATOR McCOLLISTER: Thank you very much. [LB87]

SENATOR HUGHES: Additional questions? Seeing none, thank you, Mr. Kayton. [LB87]

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CURTIS KAYTON: Thank you. [LB87]

SENATOR HUGHES: Additional opponents? Welcome back. [LB87]

COLE BRODINE: (Exhibit 39) Thank you. I'm Cole Brodine, C-o-l-e, last name B-r-o-d-i-n-e. I will just start off by saying, we're that district that raised their fixed cost charge. So if you have questions on that later, I'd be happy to field those. One of our primary concerns with this is the 100kW cap. Right now, we look at the customer's generation and offset, as I mentioned in my last testimony. If a customer decided to put in a 100kW, we see that as a mandate that we would have to allow that based on the language of this bill. To show you how our system load fluctuates, we're heavily irrigation--30 percent of our revenue comes from irrigation services. Our summer peak is 250 megawatts, roughly 250,000 kilowatts. It's five times less in the spring and the fall. We have substations which are loaded to around 300 kilowatts, right about today would be a good example. So if we were forced to bring on a 100kW system, three people on that substation would then match the load of that substation. Additional customers would overload it at 100 kilowatts. The net metering law says that we get to cap it now at 5 percent of our average peak, if we take this language that's proposed. To show you how much our load fluctuates, that's only 4,500 kilowatts in our district, despite the fact that we peak at 250,000 because of our spring and fall loads being so low. If all of those customers put in a 100kW system, that's only 45 systems out of our 15,000 customers. We don't feel that that's fair to our other customers that would want to put in solar. And I will limit solar on a circuit or substation if I feel that it is going to cause instability in the system. There's such a thing as high-penetration solar. There's lots of studies on it by the IEEE and other technical organizations. If you get too much solar on a system, it causes voltage issues, it causes stability problems. Our fear is, in the spring and the fall, we could not absorb high levels of solar. You'll see today the sun is shining brightly and I promise you we do not have the load to match it. I have the same issues with the aggregation that I had last time. If you read technical documentation, one of the things that they refer to this type of generation as is distributed generation. And the advantage to that is, your generation is near your load sources. We feel that by aggregating meters across geographical distances, you're basically losing that advantage to putting in these types of systems. Now you're asking us to continue to transmit power and have to put in the facilities that would require that kind of power transmission. When in reality, if those generation customers could place it near the loads, it would actually cause us to make less of an investment in our facilities. We feel, essentially, that you're removing the distribution from the distributed generation. Dawson Power wants to be friendly to distributed generation. Bear in mind, we're a smaller company compared to an LES or Nebraska Public Power. Although, we are one of the larger rural electrics with 15,000 residential customers. We currently have 12 renewable generators connected, and 7 of them came online in 2016. So we have seen, in our opinion, large growth in this area. One of the systems we're bringing on in 2017 is a 300kW system which is generation only, not net metering. We have two more systems over this 100kW limit which we have been...had inquiries on and

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we're looking at working with those people to place them. These are farmers in our district who want to gain the tax benefits of installing these facilities. And we're happy to do it as long as we can place it in a place that makes sense for us and for our other customers. So, I just hope that as an employee of a rural utility, you let us implement this kind of load and generation in a way that's most beneficial for us and our customers, bearing in mind that we're very different from the large municipal utilities. So I'm happy to field any questions. [LB87]

SENATOR HUGHES: Thank you, Mr. Brodine. Are there questions? Seeing none, good job. Thank you. [LB87]

COLE BRODINE: Thank you. [LB87]

SENATOR HUGHES: Additional opponents. Welcome. [LB87]

JERRY ENNS: (Exhibit 40) Hi. Senator Hughes and members of the Natural Resource Committee, I'm Jerry Enns, J-e-r-r-y, last name Enns, E-n-n-s. I'm the manager of engineering for the Norris Public Power District. We serve five counties in southeast Nebraska, 18,000 meters. And I'd like to talk a little bit today about some of the technical issues that I guess I foresee with upping that cap and also the penetration of solar or wind in a rural system such as ours. Due to time constraints, I think she's passing out some written testimony that you can look at at a later time as well. But the discussion involving distributed energy typically centers around the savings of the DG customer...or customer generator and what that...what has to be subsidized by the other customers to help support that. But today, I'd like to talk a little bit more about the technical issues and safety challenges that we have as more and more of this intermittent generation were to come online. So as you heard today, too, the rural systems are not as robust as the high-population density areas such the LES territory here. The rural distribution systems are made up of many miles of line with very few customers. In fact, in rural Nebraska, we average about three customers per mile of line. So three-phase feeders, the way our system is set up, we have substations located throughout various parts of our service territory. We leave those substations with three-phase feeders. These are larger conductor, of course, three phases. And then they extend out into the countryside where then they break into single-phase taps that come off of these. And on the end of the three-phase feeder, there may be taps that run off different directions then to serve the customers and farms in that area. So these single-phase lines, you know, they were never really designed for heavy generation, or really any generation at all when this system was designed. They were meant to feed the customer load and not necessarily backfeed into our distribution substation system. These rural distribution systems were designed using breakers and fuses. So at our substation feeders, we typically have breakers there at the sub. And so substation may have distribution lines that run four different directions. So each circuit there would have three breakers, one for each phase on each circuit. So we have to set

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those breakers to where they can identify faults in our system. And a fault is we can have various faults--line to ground fault, a line drops to the ground, may be damaged by a tree. We have phase-to-phase faults, you know, all kinds of faults. We have faults caused by ag equipment, motor vehicles and so forth. So those breakers are set to identify those faults and to open up in response to those faults to kill the line, to save equipment, if somebody is in an accident in a car, we hope that that breaker opens and de-energizes that too before somebody were to lose a life. And then downstream, of course, we have the fuses and they...we set those based upon the load on the circuit as well. So we want those fuses to open up when we have a fault, okay, when there's a fault in the system. So that's the way the system works. So neither a breaker or fuse can detect the difference between a high-impedance fault, and when I say a high-impedance faults, I'm talking about a fault that has a large resistance to it, like, say a line were to fall on a vehicle. Okay. Those car tires will somewhat, for a time, insulate that vehicle from a fault. And so as those tires begin to break down, that fault then draws more and more current. And we want those breakers to be able to open and kill that line in that case. A tractor hits it, the same scenario. But part of the concern is, is with...as this generation gets larger, you know, that generation then contributes fault current to that fault and our breaker does not see the excess fault current. So here we have a generation system downstream of our sub feeding into this fault; we have a substation feeding into the fault which helps mask that fault which we don't see, our breaker doesn't operate. So there's some safety issues there as these system become larger and larger. I guess I have a minute left here, let me fast forward here a little bit. But the existing 1 percent cap that we have in place in the 25kW limit, you know, that is more than sufficient to promote distributed generation. The Norris District, I think, has probably more distributed generation than any other rural districts in the state, we have 45; we have 45 of these customer generators. Three of the generators are above 16kW. The average kW of the 45 systems is 9kW. The total distributed generation capacity connected to the Norris system is approximately 400kW. After eight years of distributed generation, the Norris Public Power District is currently at only 30 percent of the 1 percent cap. If there's any questions, I will end my testimony there and try and answer them. [LB87]

SENATOR HUGHES: Thank you, Mr. Enns. Are there any questions? Seeing none, thank you very much for your testimony. [LB87]

JERRY ENNS: Okay. Thank you guys for having me. [LB87]

SENATOR HUGHES: Welcome back. [LB87]

KRISTEN GOTTSCHALK: (Exhibit 41) Thank you, Senator Hughes and members of the Natural Resources Committee. Once again, my name is Kristen Gottschalk, K-r-i-s-t-e-n G-o-t-t-s-c-h-a-l-k. I am the government relations director and registered lobbyist for the Rural Electric

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Association and I'm here representing those 34 rural electric providers. But I'm also here to testify on behalf of the Nebraska Power Association which is a trade organization for all of the electric utilities in Nebraska, so that includes everything from a small municipal to the largest vertically-integrated utility. And my testimony is in opposition and I originally was going to try and testify before some of our rural members did just to give you a background on the bill, but I think you've heard enough of that. I do want to say that (1) I'm going to keep the fear mongering to a limited amount. And when we negotiated or we came up with the original LB436 language, it was a very amicable interaction, very inclusive process. And when the utilities came to the numbers and there was a diversity, some wanted much less as far as system caps or system thresholds and some were willing to go a little bit larger. But what we came up with in the end is a level that we felt comfortable with in providing a subsidy to engage and encourage these types of systems on our distribution systems. One of the things that was brought up and, you know, the...moving from 25 to 100kW, you heard testimony, and we agree with the previous testifiers on problems associated with that, but you heard testimony talking about how we're behind other states. And if you go to the DSIRE Web site...d-s-i-r-e, which will give you an outline of all of the state systems, there are indeed 43 states that provide net metering. However, only 22 of those states require net metering of rural electric providers, like co-ops and rural public power districts. There's an understanding that this has a disparate effect of them. And as you'll see, and I do encourage you to visit the Web site, many of the states that had implemented net metering, again when the cost of these systems was much, much higher, they didn't anticipate the loads coming in as the prices went down. And many states are now trying to backpedal or back off on the limits for net metering. So I do encourage you to look at that Web site. Again, on...we do have a problem with the aggregation of meters because it adds a level of complexity; you heard that. Mr. Byrnes said that the utilities are smart, we can figure it out. And yes, you're right. If you give us a directive, we are going to figure it out. But the reality is, figuring that out comes with a cost that then is going to be born by all of the customers on the distribution system, not just those net metering customers. And one of the things that I want to point out, and we heard early on that a 100kW solar system is going to cost between \$150,000 to \$200,000 and people want to put these in; we hear that. Those are people that can afford to do that type of thing. And what we're finding is then the extra costs associated with those systems being online are being paid for by those that can't afford it. And you heard that before as well. And going with that 1 percent cap, and we heard that some of these small utilities are bumping up against that cap. Well, 1 percent for a small utility is very impactful and may be more impactful than it is for a very large distribution system that has the ability to absorb more of these generation systems. So the 1 percent cap is something we feel strongly about as well. I hope to say that our opposition is not punitive. We truly believe that we are acting on the best interest of our customers, and that's all of our customers. So we want to support both those that can afford to engage in net metering and those that cannot. With that I end my testimony and I'd be happy to answer any questions you may have. [LB87]

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SENATOR HUGHES: Thank you, Ms. Gottschalk. Senator Bostelman. [LB87]

SENATOR BOSTELMAN: Thank you, Mr. Chairman. What was that Web site? [LB87]

KRISTEN GOTTSCHALK: DSIRE, d-s-i-r-e, and it will give you not just net metering, but any types of renewable incentives and programs in other states; it's very comprehensive. [LB87]

SENATOR BOSTELMAN: Thank you. [LB87]

SENATOR HUGHES: Any other questions? Senator Walz. [LB87]

SENATOR WALZ: Thank you. Okay, so I've heard a lot of testimony and I can say that I see where there are problems and I think that you guys are doing the best that you can to make sure that all your customers are being treated equally. But can you just give me a little bit of information or idea of...you know, what is the plan forward? How can we increase our use of renewable energy? Is there...do you see a plan or...? [LB87]

KRISTEN GOTTSCHALK: As far as a plan goes, I think as utilities have gained more experience, and again, we keep talking about solar, but this is...goes across all types of generation resources. I think we're seeing a shift towards solar because it, perhaps, has a better applicability and more predictability than wind and you also don't have additional costs. But as we have more experience with this, we're going to see more of what we've been talking about. Custer Public Power has engaged in power purchase agreements for additional solar and they're looking to add more. Their experience is motivating other distribution utilities to look at adding solar as a compliment to the energy that they purchased from their wholesale supplier, which is either NPPD or Tri State Electric G&T. And in fact, in the process of negotiating their most recent contracts, they negotiated the ability to be able to engage in more renewable generation at the local level than they did in previous contracts. And that was because there is an interest to begin to move forward, to do more with renewables in response both to our customers and in response to what makes sense for the distribution system and their consumers. [LB87]

SENATOR HUGHES: Okay. Other questions? Seeing none, thank you, Ms. Gottschalk. [LB87]

KRISTEN GOTTSCHALK: Thank you. [LB87]

SENATOR HUGHES: (Exhibits 42-54) Are there any other opponents? Seeing none, we have letters in opposition from Richard Ray, Cole Brodine, Gwen Kautz, Merlin Prior, David Custer, Max VanSkiver, Mark Kirby, Chet McWhorter, Daniel Leise, Phil Burke, Ryan Reiber, Chad

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Waldow, and Thomas Rudloff. Is there any neutral testimony on LB87? Seeing none, that will close our hearing on LB87. And the best for last, Senator Kolowski and LB610. Everybody remember, we don't have a hearing on Friday. (Laughter) Senator Kolowski, welcome. [LB87]

SENATOR KOLOWSKI: (Exhibit 1) Thank you, sir. Is it Thursday yet? I just wanted to check. Good afternoon, Chairman Hughes and members of the Natural Resources Committee. Thank you for your patience and long-suffering to get to this point this evening. I'm State Senator Rick Kolowski, R-i-c-k K-o-l-o-w-s-k-i and I represent Legislative District 31 in southwest Omaha. I'm introducing LB610 that adopts the Community Solar Energy Economy Development Act. Solar energy provides many benefits for Nebraska. Solar projects can keep energy dollars in Nebraska, provide jobs, and solar power can be easily scaled to the desired need and provides power at peak times. LB610 defines community solar projects as solar facilities that has an arrangement with public power or a political subdivision, like a city, to allow individual subscribers to receive a credit on their electric bill related to the amount of energy generated. Lincoln Electric System's current solar project would be one example. LB610 also allows for these community solar projects to apply for Nebraska Environmental Trust Grants. I have also have an amendment to present to you that you have now before you, AM122, which removes Section 5 of the original green copy. This is at the request of the Environmental Trust Board, it simply removes an unnecessary reference that clutters up the Environmental Trust Act. Thank you for your time today. We are very interested in working in combination with any of the other solar bills that you've heard today or that may exist or may be coming at us. I am happy to take any questions you might have. [LB610]

SENATOR HUGHES: Thank you, Senator Kolowski. Are there questions? Seeing none... [LB610]

SENATOR KOLOWSKI: Thank you. [LB610]

SENATOR HUGHES: You'll stay to close? [LB610]

SENATOR KOLOWSKI: Very close. (Laughter) [LB610]

SENATOR HUGHES: Okay, proponents of LB610? Welcome back. [LB610]

LAVERNE THRAEN: Yeah, thank you. Laverne Thraen, L-a-v-e-r-n-e T-h-r-a-e-n, I think these are very educational. You guys are all getting tired and stuff, but, man, I just sop this up like a sponge. But anyway, okay, you had asked--what's the solution moving forward? Not allowing our public utilities to generate power. Because so far they have used nuclear and coal and

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polluted our land and our water. They've done a very poor job. Nine percent is all they've been able to save us all these years. That's about how much we paid less than the regional average, 9 percent. OPPD is trying for 20 now by shutting the new plant down and adopting wind energy. Now these solar gardens and Prairie Wind is really privatization of the energy generation part of the package. If these public utilities got out of the business of generating and polluting energy, shut them down, as renewable energy came on board they have customers. They need energy for those customers. You can charge the generator on one end and you can charge the customer on the other and spend all your time replacing old lines, old breakers, old anything that you've got on that grid, as you heard earlier from a utility saying that they don't have lines that can handle this kind of thing. Well, they obviously haven't been up keeping their stuff because they've been spending too much time, obviously, burning coal and the rest. So I would rather have the utilities focus on the utility line, make them super smart, make them super groovy. Make it so I can buy power from anybody I want in the state, so if there's a coal generator I can buy it from them, and if there's a solar generator, I can buy it from them. And the utilities only doing the transportation of that energy. Get's rid of recording costs. Right now, every day, OPPD has to tell the Southwest Power Pool how much generated energy they can generate tomorrow. That will be the energy generator's job and OPPD don't have to do that no more. So the solution moving forward is getting our public utility out of generating power because they've done a very poor job of it for 50 years. If you don't believe it, go get the federal guidelines on how much fish you can eat out of your rivers. If you don't believe it, run over to Fort Calhoun and look at those concrete casts that need to cool down for 100,000 years. If you don't believe it, why are we only getting 9 percent under regional averages when we have nonprofits all sitting behind me. They've, obviously, done a poor job of generating power. They do a great of delivering though, except for the one that has the old lines and bad breakers, which I think he needs to get on fixing that stuff, you know, so he doesn't break down out there. Just because it's western Nebraska doesn't mean they shouldn't have power. Get yourself a nice new box. But anyway, all I'm saying, that is the solution. Solar gardens is the same thing, privatizing energy generation, just moving the responsibility from the polluters, the utilities, to people who want to have clean energy. I mean it's such a pattern, they dig their heels in whenever we talk about clean energy down here. They just dig them in, I'll tell you, this doesn't work, you can't do it, it's too much paperwork, our lines don't work. It just won't work. It's all I've ever heard from these people since the first time I can down here in the late '80s. And they just say the same thing year after year that that doesn't work. Well, since the late '80s, we've got computers. I've got a small solar panel right there charging up my phone. I got a cell phone that access the whole world. But somehow, for 25, 30 years our public utilities have old lines and old breakers so they can't put on solar panels. I mean, doesn't that seem a little ridiculous to you guys? I think it does. It seems ridiculous to me. And I still got my green...really I'm just trying to stretch out time so the industry people have to sit here in their suits. I get to sit here in my t-shirt and comfortable. Anyway, have yourself a nice day. I do everything I can to get renewable energy. I did live in a house that way for ten years and walked across the country one year, and, you know, these guys telling their old stories. I ran in '92 for

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OPPD. I got 25,000 votes in 2008 as a Green Party representative. So 25,000 people agree with what I just said. So I just want you guys to know that. I hope you do the right thing. Bring us solar; bring us wind; bring us renewables. And if these bills don't work, tell those...the senators to like go to the utility guys and say--what will work? How do we get clean energy so we can stop putting mercury in our fish? So we can just stop this polluting business. To me it's about pollution. I don't need global warming; acid rain in the northeast; mercury limits in our fish. I don't need to destroy the whole world. I just can't eat the fish in our rivers. That's good enough for me to know that what they're doing is wrong and what they're doing isn't right. And what they're always dragging their butt is on renewable energy. They should stop it. Thank you. Have a good day. [LB610]

SENATOR HUGHES: Thank you. Are there any questions? Seeing none, thank you for your testimony. Additional proponents. [LB610]

MARK BROHMAN: Mr. Chairman and members of the Natural Resources Committee, my name is Mark Brohman, M-a-r-k B-r-o-h-m-a-n, I'm the executive director of the Nebraska Environmental Trust and I was going to testify today in a neutral position and support the senator's amendment, AM122, but we're so moved, plus I've got two bills yet to come in Revenue across the road, and so I have to testify. So I'm in a support mode and I'm supporting it with AM122. And with that I would answer any questions you might have. But I appreciate the opportunity to testify today. [LB610]

SENATOR HUGHES: Okay. Thank you, Mr. Brohman. Are there questions? Seeing none... [LB610]

MARK BROHMAN: Thank you. [LB610]

SENATOR HUGHES: (Exhibits 2-12) Best testimony of the day. (Laughter) Additional proponents. Seeing none, are there opponents? Excuse me, we have proponents' letters: Helen Deffenbacher, Abbey Rhodes, Dorothy Miller, Avery Smiley, Lance Hedquist, Tim Fickenscher, Elaine Wells, Holly Wedemeyer, Nancy Meyer, Ashley Weets, and James Thele. Are there...anyone in opposition to LB610? Welcome. [LB610]

DAN SCHMID: (Exhibit 13) I'm going to spend a little time just thanking all of you. I've never sat this long before, so thank you all. I know you do it every day and I appreciate each and every one of you. So you all don't even know it's snowing outside already. (Laughter) Just kidding. (Laughter) My name is Dan Schmid, D-a-n S-c-h-m-i-d, Dwight, Nebraska; reside in Butler Public Power District. I'm opposed to LB610 for the following reasons. Nebraska Statute 81-15,168 states that the purpose in establishing the Nebraska Environmental Trust is, in part,

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conserving, enhancing, restoring the natural physical and biological environment in Nebraska, including the air, land, groundwater and surface water, flora, and fauna, prairies and forests, wildlife and wildlife habitat, and the natural areas of aesthetic and scenic values. I believe extracting funds from this trust for solar power development violates the original intent of this Nebraska statute. As I've said before, inherent intermittent, chaotic output of solar power means that fossil fuel energy would still need to continue to be available 24/7/365 to cover those times when solar ceases to produce. These connections, as we've heard, add costs to Southwest Power Pool in regards to grid reliability and stability. There would be more grid intervention required. And not everything is that rosy with solar, is number four's point there. This Invanpah, (phonetic), this Ivanpah, I don't know how to pronounce it, this solar project in California received a \$1.6 billion loan guarantee in 2011. The project is partly owned by NRG and Google. So far it is only generating two-thirds or less of the power that it was supposed to produce, and it burns substantial natural gas to heat up the facility each day. The power it produces is very expensive, running between \$135 and \$200 per megawatt-hour, which compares to power from California's natural gas plants of about \$35 for a megawatt-hour. And the source there is a Wall Street article there at the bottom that you can see. I'm not a big fan of subsidies. I wish they'd all go away and we get an even playing field and see who comes out...I think the clean power plant is up in the air. It's tied up in two ways in court right now. It's tied up and also the new administration, who knows what they're going to do, the clean power plant. So I would just...I don't think as far as getting direction from the federal government, that could change as far as subsidies. So thank you very much. [LB610]

SENATOR HUGHES: (Exhibit 14) Thank you, Mr. Schmid. Are there any questions? Seeing none, thank you for your testimony. Are there additional opponents? Seeing none, we have one letter from Gwen Kautz. [LB610]

KENNETH WINSTON: (Exhibit 15) I have a letter to offer for the record. [LB610]

SENATOR HUGHES: Sure. In opposition? [LB610]

KENNETH WINSTON: No, I'm in support. [LB610]

SENATOR HUGHES: Okay. [LB610]

KENNETH WINSTON: (Inaudible) gotten past that already. [LB610]

SENATOR HUGHES: Yeah, we move fast in Natural Resources. (Laughter) Okay. Are there any other opponents? Okay, are there any one in neutral testimony? Welcome back. [LB610]

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KRISTEN GOTTSCHALK: Thank you. Senator Hughes, members of the committee, my name is Kristen Gottschalk, K-r-i-s-t-e-n G-o-t-t-s-c-h-a-l-k, here representing the Nebraska Rural Electric Association and my 34 rural electric providers in testifying in neutral on Senator Kolowski's bill. Actually, as we provided in testimony before, there is support among the rural electrics for community solar and for the expansion of these types of projects. There is concerns with mandate. This bill does not provide a mandate, but it does have some language issues that need to be addressed. And I visited with Senator Kolowski and his staff and they're interested in working towards correcting those issues. And I might just point out, one was in the definition of "community solar project." It means a solar electric generation facility that has an agreement to sell its electric output to an electric utility or a political subdivision. It seems to me that it was not the intent that these community solar projects would become retail electric providers to government subdivisions and that there would just be a need to change that language so that it's clear that the output is sold to an electric utility who then is able to output that energy to someone else. But we look forward to working with Senator Kolowski on broadening the definition again so that it encompasses the different varieties of solar communities...solar projects that may exist so that they are eligible for the grant program. With that I conclude my testimony. [LB610]

SENATOR HUGHES: Okay. Thank you. Are there questions? [LB610]

KRISTEN GOTTSCHALK: I think I am the last. [LB610]

SENATOR HUGHES: Seeing none, thank you, Ms. Gottschalk. Is there anyone else wishing to testify in the neutral position? We do have one letter from Robert Byrnes in the neutral position. So Senator Kolowski, you're welcome to close. [LB610]

SENATOR KOLOWSKI: Thank you, Mr. Chairman. Thank you, committee, for your patience and listening ability to this late a date...hour in the day; I appreciate it very much. I just close with a very simple comment. The discussions that we had on clean up are very important to us. We think with all three of these bills today, we're probably, as a state and as a committee, on the cusp of some possible very good changes that we could sit down and negotiate out with all three of these bills and perhaps a combination, as I said, of working with all three bills together in a solar package might be a good way to go. We'll analyze that and see where that sits as far a possibility. But I think we're making some very good progress for our state. There's some things that we're behind in. There's some things that I've heard today that are very confusing and we shouldn't have that kind of confusion as we look at issues of a major importance to our state that have ramifications for years to come. So I thank you for your time and thank you for the day. [LB610]

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SENATOR HUGHES: Thank you. Are there any questions for Senator Kolowski? Seeing none, thank you very much. And that will close our hearing for LB610 and our last... [LB610]