BRANDT: --Tom Brandt from Plymouth. I represent Legislative District 32, Fillmore, Thayer, Jefferson, Saline and southwestern Lancaster counties. I serve as chair of this committee. The committee will take up the bills in the order posted. The public-- this public hearing is your opportunity to be part of the legislative process and to express your position on the proposed legislation before us. If you're planning to testify, please fill out one of the green testifier sheets that are on the table at the back of the room. Be sure to print clearly and fill it out completely. When it is your turn to come forward to testify, give the testifier sheet to the page or to the committee clerk. If you do not wish to testify but would like to indicate your position on a bill, there are also yellow sign-in sheets back on the table for each bill. These sheets will be included as an exhibit in the official hearing record. When you come up to testify, please speak clearly into the microphone. Tell us your name. Spell your first and last name to ensure we get an accurate record. We will begin each bill hearing today with the introducer's opening statement, followed by proponents of the bill, then opponents, and finally by anyone speaking in the neutral capacity. We will finish with the closing statement by the introducer if they wish to give one. How many people plan to testify today? OK. Today I think we'll be using a three minute light system for all testifiers. When you begin your testimony, the light on the table will be green. When the yellow light comes on, you will have one minute remaining. And the red light indicates you need to wrap up your final thought and stop. Questions from the committee may follow. Also, committee members may come and go during the hearings. This has nothing to do with the importance of the bills being heard. It is just part of the process, as senators may have bills to introduce in other committees. A few final items to facilitate today's hearing. If you have handouts or copies of your testimony, please bring up at least 12 copies and give them to the page. Please silence or turn off your cell phones. Verbal outbursts or applause are not permitted in the hearing room. Such behavior may be cause for you to be asked to leave the hearing. Finally, committee procedures for all committees state that written position comments on a bill to be included in the record must be submitted by 8 a.m. on the day of the hearing. The only acceptable method of submission is via the Legislature's website at nebraskalegislature.gov. Written position letters will be included in the official hearing record, but only those testifying in person before the committee will be included on the committee statement. I will now have the committee members with us today introduce themselves, starting on my left.

CLOUSE: Good afternoon. Stan Clouse, District 37, Kearney, Shelton, Gibbon and parts of Buffalo County.

CONRAD: I'm Danielle Conrad, north Lincoln.

HUGHES: Jana Hughes, District 24, Seward, York, Polk, and a little bit of Butler County.

DeKAY: Barry Dekay, representing District 40, which consists of Holt, Knox, Antelope, Cedar, and northern part of Dixon, northern part of Pierce Counties.

MOSER: Mike Moser. District 22, Platte County and most of Stanton County.

JUAREZ: Margo Juarez, District 5 in south Omaha.

BRANDT: Also assisting the committee today, to my right is our legal counsel, Cyndi Lamm; on my far left is our committee clerk, Sally Schultz; our pages today are Emma Jones, a junior at the University of Nebraska, and you'll have to introduce yourself.

_____: Hi, I'm [INAUDIBLE], I'm a sophomore at UNL.

BRANDT: OK. There we've got it. And with, with that, we'll begin today's hearings with an appointment and-- for Steve, is it Mattoon?

STEVE MATTOON: Mattoon.

BRANDT: Mattoon. And you're welcome to begin.

STEVE MATTOON: Thank you. My name is Steven F. Mattoon, spelled S-t-e-v-e-n M-a-t-t-o-o-n. I'm a resident of Sydney, Nebraska. I'm a graduate of the University of Nebraska, both undergraduate and law school, and been practicing law a number of years for-- When I, when I graduated, I came to work for the firm of Matzke, Mattoon, and Martin. And so we've always done oil and gas work. Oil and Gas Commission is actually located in Sydney. I have represented before the Commission numerous clients all the way from major oil companies such as Exxon, to mid-level ones like Exeter, Rexco, Murfin, and independent operators such as Bruce Evertson and Tiger Mike Davis. Our representation before the commission has been on all aspects from pooling, spacing, utilization, water floods, approval of saltwater disposal wells, and we've always represented these clients, and we've also represented them in private matters. I've rendered title opinions for drilling purposes, researching the records of approximately 20

counties within the state of Nebraska. Just requesting approval of my appointment as-- to the Nebraska Oil and Gas Conservation Commission. The-- I do not fulfill the requirement of being involved in actual production operations. That would be John Rundel who's on the commission and he's from Trenton, and actually is an oil operator. Then you have Roy Eckley [PHONETIC], with extensive knowledge in the industry and also with your [INAUDIBLE] applications before the commission.

BRANDT: OK. Let's see if we have any questions. Senator Conrad.

CONRAD: Thank you, Chair. Thank you. Mr. Mattoon. Good to see you again. I just wanted to state for the record that I had the opportunity to work with Mr. Mattoon when he was president of the Bar, Bar Association, and he did a great job helping to lift up access to justice, justice initiatives, particularly in rural Nebraska. And I was impressed with his leadership in that regard. And then on a personal note, I had the opportunity to go to law school with his daughters and then to work with them in various legal capacities over the years as well. And I've always been impressed by the family's commitment to public service and, and to, to the legal profession as well.

STEVE MATTOON: She was actually at my daughter's wedding.

CONRAD: I was. It's still--

STEVE MATTOON: Thank you.

CONRAD: --still, still proud to count them as friends.

STEVE MATTOON: Thank you for your comments.

BRANDT: OK. Other questions? And you're from Sydney, is that correct? And you've not served on the commission before?

BRANDT: No.

BRANDT: You're filling the spot left vacant by Senator--

STEVE MATTOON: Paul Strommen.

BRANDT: Yes.

STEVE MATTOON: When he became a legislator.

BRANDT: But it sounds like you've got extensive experience working with oil and gas companies. Is that correct?

STEVE MATTOON: Yes.

BRANDT: So tell us a little bit about how that works out there. Most of us are flatlanders here from the east part of the state. And from the maps that I've seen virtually all of the oil and gas, with the exception of maybe Richardson County in the, in the far corner comes from your part of the country, is that correct?

STEVE MATTOON: Basically the Panhandle and southwestern Nebraska and in Richardson County. That was actually the first production in Nebraska, back in 1922, before there ever was an Oil and Gas Commission, so. So and the way it works is the oil company, if they're interested, they probably have some information, they may have seismic [INAUDIBLE] information. They will hire a landman to go out and research the records. They'll take an oil and gas lease from the landman, from the owner, who may not be just the surface owner, it may be the owner of what's called the severed mineral interests. They then take those leases. When the company decides to drill, they'll hire a law firm to research the records to make sure that their lease is good, that they got everybody leased. That's called a, you know, title opinion for drilling purposes. They drill the well. Hopefully it's successful. If it is then they hire an attorney to do what's called a division order title opinion to the oil purchaser, showing how the money's to be split out once the well's completed. If it's a dry hole, or even later on when it ceases to produ-- produce, then it's the obligation of the oil company to plug the well, to restore the premises to the way they were. And that's where the oil and gas comes, and they, they oversee the-- they oversee the production operation. But they, they will oversee the plugging and remedial operations of the well.

BRANDT: OK. Senator DeKay had a question.

DeKAY: Are you originally from the Sydney area? Did you grow up--

STEVE MATTOON: Born and raised, except for seven years in UNL.

DeKAY: Yeah, that was the seven years of my first grade, so. So you specialize in petroleum law?

STEVE MATTOON: Yeah. I have always specialized in oil and gas law. Also in probate and estate planning. I am a member of the American College of-- ACTEC Legal Counsel. I've always spec-- I--and it's been

a privilege. I, I worked with my father, who was in the oil gas industry, and he, when he was alive, he taught me a great deal, was quite a mentor in that area. Members of this firm actually helped write the Oil and Gas Conservation Act in, in the 1950s. So we were-- the firm's been involved and I've specialized in that area. Thoroughly, thoroughly enjoyed it.

BRANDT: Senator Moser.

MOSER: So what percentage of the wells are successful that are drilled in your part of the [INAUDIBLE]?

STEVE MATTOON: Well, there's called, what's called wild-- if it's a true-- it's a wildcat well, that's one where they've never-- they haven't had any production in the area, it'll be about one, one to-- in ten. If there has been production in that area, the rates more like I would say 50% or so. Because they've even if they know that oil is there, they don't know what the porosity is and how much it'll take to, to actually produce it, so.

MOSER: How much oil they can actually pump out of the dirt?

STEVE MATTOON: This-- a few years ago, they were doing deep horizontal wells in Nebraska, kind of like they do in North Dakota. They were not successful. The oil was there, but there wasn't enough porosity for the oil to move because those are extremely expensive projects. They cost--

MOSER: Well, you drill down to when you hit granite? Is that the case or what--

STEVE MATTOON: Oh, I'm not, I'm not a geologist, but most of the ones in Nebraska are what's called the "D" and "J" sands, which are just sands left over from the Cre-- you know, in the-- that's theJules-- that's the--

MOSER: 5,000 feet or somewhere around there.

STEVE MATTOON: Yep. That's about right. 4,000 to 5,000. The deep wells they were trying were going to-- would hor-- the ones they would go down and then go horizontal with fracking and everything. And those are much deeper and much more expensive. It would cost them about $5 million just to drill a dry hole, and about another $5 million to complete it.

MOSER: $5 million?

STEVE MATTOON: Yeah.

MOSER: Whoo!

STEVE MATTOON: So that's why it has to be, it has to be a real good producer to pay for it. So a [INAUDIBLE]--

MOSER: So it's worth spending little money to plan ahead.

STEVE MATTOON: Yeah, yeah.

MOSER: Make sure it's what-- because I-- my dad worked for a company that drilled wildcat oil wells.

STEVE MATTOON: Oh, really?

MOSER: And so he sold interest in the production of the well. So you'd put up money and if they get enough money together, then they go drill a well and they, they hit a few, but most of the time they just hit--

STEVE MATTOON: Yeah.

MOSER: They, you know, they were not successful. What's the fight about in gas oil?

STEVE MATTOON: With what?

MOSER: What's the fight over in gas and oil? Is there a lot of litigation?

STEVE MATTOON: No. Most of, most of the applications before the commission are not contested. It's just a matter of you have to give people notice and you have to make sure the paperwork is correct. But it's sometimes, likeone oil company does not want to be included in a unit, they'll, they will contest it, contest it. If they don't want to sign a lease, it's ca-- when you pool them you can actually force somebody into, in, into the well. And if there's a penalty provision if you do-- so, they may not want to be involved--

MOSER: Kind of like eminent domain kind of thing?

STEVE MATTOON: [INAUDIBLE]-- you can-- it's not even eminent domain. Because as long as one person, one oil company has part of the land leased, they may not have all the minerals, they can then file an application to pool everybody in that unit. But-- and if they would-- if they don't sign up, then they are-- there's a penalty of 300 to 500% of the cost, so. So a lot of times, most of the times, you file

the pooling application, then people will get together and work things out before it goes to a hearing.

MOSER: Well, if they hit oil they share in the, in the proceeds of the well, right?

STEVE MATTOON: Yeah, but some of them don't want to share in the cost.

MOSER: Oh, in case it doesn't--

STEVE MATTOON: Yeah.

MOSER: --succeed.

STEVE MATTOON: Yeah.

MOSER: Then you have a there's-- you drill a well and then they have a further cost of completion?

STEVE MATTOON: Mm-hmm. Right.

MOSER: And, and at one time, that was equal to what it cost to drill the well. Is that still--

STEVE MATTOON: Yeah. It's, it's, it's expensive.

MOSER: Yeah. You better hit oil. Thank you.

BRANDT: And I guess the last question is, is more of an environmental one, I know, and talking to Senator Strommen, he said there's a large number of abandoned wells out there that need to be plugged. Is there enough money out there to do that? Or how does that work?

STEVE MATTOON: Thanks to the federal grants, unless they, they, they have a lot of money on hand to plug wells. And they-- I don't know how many, but they've plugged probably 100 wells or so where operators have just abandoned them and haven't taken care of them properly. They had funds on hand. But then with the things going on in Washington, they don't know if they will continue to have that funding.

BRANDT: OK. All right. I see no other questions. Thank you. Let's see what we've got for proponents. Are there any proponents? And you'll have to move out.

STEVE MATTOON: OK.

BRANDT: Yeah. Just-- there probably won't be anybody. Proponents? Are there any opponents? Is there anyone in the neutral capacity? And we had no comments online and that will close our hearing on Mr. Mattoon, and we will go on to our next hearing, LB349. Welcome.

PROKOP: Good afternoon, pleasure to be here with my friends in the Natural Resources Committee. Also a fellow flatlander, so I can relate to the conversation earlier. Well, thank you, Chairman Brandt and members of the Natural Resources Committee. For the record, my name is Jason Prokop, spelled J-a-s-o-n P-r-o-k-o-p, and I represent Legislative District 27, which includes west Lincoln and Lancaster County. I'm here today to present LB349. LB349 provides regulatory certainty to support property tax paying investment in Nebraska by, excuse me, codifying existing practices, recognizing both private and public investment in electric energy storage, otherwise known as ESRs. ESRs are critical to support economic development and strengthen the electric grid. ESRs provide additional and immediately dispatchable capacity and reliability services to grow the state's electric supply to support new businesses to match electric demand with supply. I want to be clear this bill is not about renewable energy. Rather, it is about providing clarity for private investments in infrastructure that serves all Nebraska ratepayers and supports grid reliability and resiliency. ESRs compliment all types of generation assets and are part of a diversified all of the above approach regarding our energy portfolio in Nebraska, or to power Nebraska. I also want to be clear that under LB349, the existing jurisdiction and oversight of the Nebraska Power Review Board remains fully in place to protect the ratepayers of Nebraska. In its Guidance Document number 14, the Power Review-- Power Review Board determined it has jurisdiction over ESRs. ESRs, therefore, must either be approved or confirmed to be exempt prior to commencement of construction or installation. LB349 would confirm this. During severe weather or other times, much like we just experienced this past week of high demand, energy demand can outpace supply. That imbalance can create grid reliability issues. ESRs serve as flexible resources to manage the mismatch in supply and demand at a moment's notice. These resources also quickly increase the overall electric capacity in our state. Right now, a lack of electric capacity is hampering economic development and thus tax relief efforts. ESRs store electricity when demand on the grid is low. During high demand hours, like on a hot summer afternoon, they provide relatively low cost, reliable, dispatchable energy. The addition of this low cost energy from ESRs, as well as around the clock provision of reliability services, protects consumers from price spikes. Lower market energy prices translate to lower electric bills for all ratepayers. ESRs in

Texas, for instance, have saved ratepayers approximately $700 million since 2023 without any state subsidies and with substantial private investment that created jobs. Those ratepayer cost savings are in addition to the local tax revenue ESRs generate. A 200 megawatt ESR, for instance, requires a private investment of approximately $327 million. That generates approximately $600,000 annually in new tax revenue, which the local county can use to fund local services or reduce property taxes on local landowners. That investment and tax revenue comes from the ESR owner, not ratepayers. Finally, LB349 as amended, would protect private standalone storage from eminent domain. This is consistent with how current law treats other privately developed electric infrastructure. Without this protection, projects become difficult to finance and thus difficult to build. I do have a white copy amendment that has been circulated to address concerns about Power Review Board authority over standalone ESRs. The amendment confirms standalone ESRs would require the same approval as traditional generation and transmission facilities. This requires that they must serve the public convenience and necessity by being reliable, low cost and non-duplicative. Thank you for your consideration of LB349 with this amendment. I recognize ESR as a vehicle for enhancing grid reliability, increasing electric capacity, drawing private investment, and providing property tax relief. Thank you again for your time and happy to answer any questions.

BRANDT: All right. Let's see what we've got. Senator Hughes.

HUGHES: Thank you, Chairman Brandt. Thank you, Senator Prokop , for bringing this. I guess I'm kind of curious why we need this, because I think that some of our places are already building such facilities across Nebraska already. Some exist, and they're in the process of getting built. So.

PROKOP: Yeah.

HUGHES: I guess what, what's happening now? What are we adding that isn't already--

PROKOP: Yeah, I think, I think the, the bottom line is, is it complements what's already going on. So I think in Nebraska, you know, we just exceeded 2 million people in population, we've got businesses that, that are high energy demand like semiconductors that-- or some of the data centers that have not been able to be here in Nebraska because we weren't able to, to meet their needs. So this is really meant to complement what's already happening, I think, to your point. So that's, that's why I brought the bill forward.

HUGHES: OK. Thank you.

BRANDT: Other questions? How big are these?

PROKOP: They're about the size of a shipping container. So they're not overly, overly large.

BRANDT: And they hold. How many meg?

PROKOP: About 200 megawatt. So I know there's folks, some of the technical pieces, some folks behind me will be able to, to speak to, to that.

BRANDT: OK. Our-- go ahead, Senator DeKay.

DeKAY: What's the storage capacity of them? How long--

PROKOP: 200 megawatts. Yeah.

DeKAY: How long, I mean how many hours can you hold them, or how many hours could they--

PROKOP: I, I don't know that for sure. I don't want to tell you the wrong thing. I know some of the folks behind me probably can address that, that.

DeKAY: And they're being built now?

PROKOP: No, they're not. They're not being, they're not being built now. I mean, there's some that are being discussed and some, I know some of the public powers are looking at doing this or these types of arrangements. But yeah, this, this bill would allow these specific types to be constructed. And developed, I should say.

DeKAY: So with, I guess, the scarcity of rare earth minerals right now, how does that bring this into play immediately?

PROKOP: So this is really about storage of, of that. So again, on some of the technical pieces and how the, the parts work, I'd probably defer to folks behind me. But this, this comes down to storing energy, not the actual, you know, any other elements of it.

BRANDT: Senator Hughes.

HUGHES: Thank you, Chairman Brandt. You're not Chairman? I have to [INAUDIBLE]. So did a pri-- so is it a private company that wants to come in, did that, is that what started the bill?

PROKOP: Correct. Yes.

HUGHES: And can I ask who that is? Are they here too?

PROKOP: They are. Their name is Eolian. So.

HUGHES: Eolian?

PROKOP: And they've got a handful of sites that they're looking at in Nebraska.

HUGHES: And they've done this in other states already?

PROKOP: Yes.

HUGHES: OK. And where are they from?

PROKOP: They-- so they, they operate in all, they operate in all sorts of different states. So Texas, for example, is, is a place where they operate. They've partnered with a public power in San Antonio on that and have similar types of arrangements.

HUGHES: Where are their headquarters then I guess?

PROKOP: I don't, I don't know off the top-- I think, I think California, but they're they're a big--

HUGHES: I can ask when they're [INAUDIBLE].

PROKOP: They're a big company. But I think it's, I believe it's California.

HUGHES: OK. Thank you.

PROKOP: Yeah.

BRANDT: Senator Moser.

MOSER: I didn't hear everything that Senator Hughes asked you, but did she ask you why this necess-- this legislation is necessary?

PROKOP: Yes.

MOSER: OK. And what, what's your, what's your answer to that?

PROKOP: So, so my response to that is it is, it's going to complement our existing energy resources in Nebraska.

MOSER: Why couldn't they do it without the bill?

PROKOP: Because right now, for a private company to do this, well, they can't do it. So it would confirm that a public or private ESR would be able to build in Nebraska. So they-- and then also, I think that the bill touches on--

MOSER: Because we're a public power state?

PROKOP: Correct. Correct.

MOSER: Private energy companies can't--

PROKOP: Right. So you'd have to be able to--

MOSER: --store electricity and then sell it again?

PROKOP: Right. In the, in the matter that this bill proposes, yes. Yeah. So the, yeah, the way it would work is that the, you know, off of the grid, the power would come, it would be in these, these batteries and store it and then-- and they would, they would get the energy in non-peak hours and then they would be able to, when the Southwest Power Pool says, you know, you can sell the power then, and they would be able to put it back into the grid.

MOSER: So why wouldn't the power companies that we have already do this?

PROKOP: They are-- they are-- I know they are looking into that. And to a certain extent they are doing some of that work. I can't speak to the, the scope in which that's happening. Let them do that, but they are, I know they are looking into it.

MOSER: Who sets the rate at what the electricity is purchased for--

PROKOP: Southwest. Southwest.

MOSER: --then subsequently sold by?

PROKOP: Southwest Power Pool.

MOSER: So you'd hope to buy it cheap and sell it high.

PROKOP: Yeah, but it's, it's set so that you can't exceed certain levels on that. So yes. But like you wouldn't want to be pulling energy at a certain time when during-- so, so they would be getting it at non-peak hours--

MOSER: At high demand times.

PROKOP: --because they-- the, the-- yeah. Southwest Power Pool would say, OK, now, and this is the rates, and then you buy it, and then they also would turn around and say when you sell it, OK, here's you can sell it, these are what the prices are. I believe that's set a day ahead of time. So that's the way it would work.

MOSER: Ok. Thank you.

PROKOP: Yep.

BRANDT: Any other questions? Senator Clouse.

CLOUSE: So you say they're already doing this in other states?

PROKOP: Yes.

CLOUSE: Texas?

PROKOP: Texas, yeah.

CLOUSE: Anybody that's in the pool?

PROKOP: I'm sorry.

CLOUSE: Is anyone that's in the Southwest Power Pool?

PROKOP: I couldn't hear you.

CLOUSE: Anybody in-- that's in the Southwest Power Pool already doing this?

PROKOP: I'd let them speak to that as far as their, their operations, so.

BRANDT: OK. I don't see any other questions.

PROKOP: OK.

BRANDT: Let's see what we've got.

PROKOP: All right. Thank you, Mr. Chairman.

BRANDT: Proponents. Cut a lot of trees. OK. Welcome.

ERIC STOUTENBURG: Thank you, Senators. Good afternoon. My name is Eric Stoutenburg. That's E-r-i-c S-t-o-u-t-e-n-b-u-r-g. I'm presenting this

testimony in support of LB349 as Director of Energy Storage on behalf of Eolian. We develop energy projects across the U.S. Energy storage is part of the "best of the above" energy portfolio to keep the lights on at least cost. It improves grid reliability and lowers energy prices, and this legislation provides a clear regulatory path for each energy storage project to demonstrate those economic benefits to the consumers here in Nebraska, and to do so in front of the Nebraska Power Review Board. It's also consistent with the generation interconnection agreements that we've signed with OPPD, SPP, and our projects, Eolian. For example, during the frigid storm just two weeks ago, temperatures in Lincoln were as low as -16 Fahrenheit. SPP had issued a Conservative Operations Advisory, which is one step below an Energy Emergency Alert when they begin to do service interruptions. SPP energy prices were as high as $120 a megawatt hour during the day, but they were also as low as $24 a megawatt hour at night. And so what energy storage does is allow us to take that, save that $24 power and offset it against $120 power on peak. So even in extreme grid conditions, you have benefits from energy storage. And these benefits are not hypothetical. In Texas, over 10,000 megawatts of energy storage have been installed by the end of last year, with zero state level policy mandates. It's all just been driven by private investment or utility investment. And as mentioned earlier, those ratepayer savings have been estimated over $750 million just in lowering the energy prices in addition to benefits for grid resiliency. The direct economic impact of each 100 megawatt project that could be built in Nebraska is approximately $8.2 million in property taxes over 15 years, 282 construction jobs, and three new local long-term jobs. The chamber's report, titled Nebraska's Energy Future, stated that Nebraska's economic growth relies heavily on strong energy infrastructure. Goss & Associates, the report that we passed around, estimated that each 100 megawatts of energy storage added to Nebraska could add 1,300 manufacturing jobs, 675 data center jobs, with an over $1 billion expansion in annual economic activity. Private developers and public power can work together on energy storage. Eolian is currently building a 200 megawatt project in Texas with the city of San Antonio. That's the largest project in Texas for public power. And that project was selected from a competitive request for proposals to meet their energy and capacity needs. That is, unfortunately, the black and white photo that I provided to all of you of what it looks like. LB349 clarifies Nebraska's open for investment in its critical energy infrastructure. Thank you, Senators, for your consideration of this legislation.

BRANDT: OK. Let's see what we've got for questions. Senator Hughes.

HUGHES: Thank you, Senator Brandt. Thank you for coming in today. So can you-- Are the headquarters in California?

ERIC STOUTENBURG: Correct. Yeah, in Burlingame.

HUGHES: And that's where you're located or whatever?

ERIC STOUTENBURG: No, me and most my colleagues are located in either Colorado or Texas that work in this region.

HUGHES: So I'm hearing that, oh, you do this because it'll lower our energy costs and it'll give us more capacity for storage and off peak and all that. What is stopping-- I mean, you said you partner with the city of San Antonio. What's stopping you today from partnering with Lincoln or working with NPPD to do this, or-- I guess I don't-- I'm curious why, why we need this.

ERIC STOUTENBURG: Certainly. Yeah. We have submitted proposal, or request for proposals to the utilities. I don't want to speak on their behalf. What we have found in-- so Texas kind of went first on storage. And what we found is that there is-- it takes a while before the utilities' integrated resource plans see the value for storage. It is understandably a new technology that doesn't seem like it fits in. We're used to turning on coal plants, gas plants, or letting the wind blow at any time. And what we've demonstrated in Texas with over ten gigawatts, of which we have three projects down there, and the fourth one is under construction for the city, is that that utility, when they ran their IRP, they kept the coal plants on, they kept their gas plants on, they're adding gas. And then they also found that storage worked well for them. So when we came to the state back in 2018-- sorry, 2017, I actually went and first visited with OPPD and said, hey, storage is very new, we'd like to do this with you long-term. Here are some, you know, places we might go. They actually showed me their substations. And those are the places we put those projects in, at least with respect to their system. Unfortunately, as, as public power can certainly attest to, SPP is extraordinarily slow at getting new generation through the interconnection queue. We happened to go in 2017 and 2018 because we saw that this capacity would be needed to serve manufacturing and data centers in Nebraska. And so we got in the queue because we had a history of knowing how long it takes to get through it. And we only recently, just last year, signed the interconnection agreements for projects we submitted in 2018. So what this legislation does is it keeps alive projects that are-- And it's not just us as private developers or other private developers who've submitted storage projects with SPP here in Nebraska. It keeps those

on the menu for public power to use, again, only should they need to. And then the project can also participate directly in the Southwest Power Pool, where the buying and selling of energy is done and dictated by the security constrained economic dispatch model of SPP that allows only these cost resources to deploy with-- to the energy needed, and also for us to purchase our power when it's at lowest cost. And so what we really end up doing in the, in the microcosm of Nebraska is you're able to take low cost coal and sometimes wind that run at night when energy is very low, and you're able to transfer that to offset a peaking gas plant that gets deployed, that does it at a much higher cost.

HUGHES: OK. Thank you.

ERIC STOUTENBURG: Certainly.

BRANDT: Senator DeKay.

DeKAY: Thank you. Have you entered in any other agreements within the footprint of the Southwest Power Pool, or--

ERIC STOUTENBURG: No, not yet. And that's actually because these generation interconnection agreements have taken this long to get through. So we wouldn't sign an agreement with the utility, and we have projects also in Missouri and Oklahoma, we wouldn't sign a contract with them until we had the generation and connection agreement, because until you have that, you don't actually know the schedule your projects on. So really, now is the time to have commercial discussions with utilities. We have submitted RFPs both in this state but also in other states.

DeKAY: So how would this work with, say, with OPPD, NPPD, or LES? How would this work where Nebraska's a public power state? And with the caps on how much you can charge and be in a privately owned, privately owned entity, how, how do you make money on that if you're capped and, and working with, you know, those entities to keep your prices low on--

ERIC STOUTENBURG: Yeah.

DeKAY: --cost per kilowatt?

ERIC STOUTENBURG: Yeah, certainly. So there's an entire menu from which public power can choose from. They can say, well, we want the development asset and we could sell them the development asset, including land, any permitting, and these interconnections, and the

public power could build it themselves. Another one that we're doing for a utility in Oregon currently is they want to own it. But under a bill of transfer agreement, we're responsible for all the development risk and the construction risk to bring it to operations and test it. And then they take the keys at that point. Another option is a tolling agreement. That's actually what we're doing with public power down in Texas. In that case, we own and operate it. So we take that risk. But they're able to dispatch it however they see fit to serve their energy needs. Another option is-- in particular in light of public power, public power money shouldn't be taking on, taking risks in the SPP energy market. However, if they are in the SPP energy market and with a capacity purchase agreement, that leaves us with the risk of being in the SPP market, buying and selling energy and providing ancillary service products, and then allows them to take the capacity credit, which allows them to grow load.

BRANDT: OK. Senator Moser.

MOSER: So who takes the risk is variable depending on how the contract is written?

ERIC STOUTENBURG: That's correct. Yeah. That's why oftentimes public power entities in other states at least have not wanted to take ownership of what's considered new technology. That was the case in San Antonio. Or they say, OK, if you guys are great at dispatching energy storage in the market, SPP or ERCOT, which is the Texas market, why don't you take that risk and give me a lower priced capacity contract?

MOSER: So the bill, as we are considering here, would allow you to operate in Nebraska. Would you buy electricity on the open market and sell it through-- sell it to the market and without necessarily marking it up or discounting it to the utility?

ERIC STOUTENBURG: Correct. Yeah. The way it works, and this is true for all generators, coal or wind, is you have a meter at your point of interconnection with the grid. And then SPP is running a model that's determining what is the price of energy at any given moment. They do it actually at every five minute interval to either purchase power of your load or of a generator who's charging like a battery, and then when you discharge. So the exchange of money, it's actually between the Southwest Power Pool as a nonprofit market operating.

MOSER: Are there government subsidies for building battery back-up?

ERIC STOUTENBURG: There is none in the states that we operate in. There is the federal one that's through-- from the Inflation Reduction Act that has federal subsidies.

MOSER: So you're not making money on the subsidy. You're trying to make money on buying and selling electricity.

ERIC STOUTENBURG: Correct. Yeah. And it's that buying and selling of electricity that is-- that's what's lowering the peak energy price. Because if you take a, an open cycle gas turbine and you take battery storage, they're really going to do the same thing when we need more energy most either a, you know, a cold winter evening or a hot summer day, they're both going to put out energy. The difference is that a gas plant needs to do that with gas, and the storage got its fuel source from the cheap energy the night before, whether it was wind or coal.

MOSER: What's the efficiency of battery storage? I mean, you store it in DC and then you have to have an inverter and step it up to whatever voltage you're going to connect into?

ERIC STOUTENBURG: Yes. Yeah.

MOSER: So compared with like a coal plant or a gas plant. I mean they might put out 60% of what they burn in, in equivalent energy. How, how do the battery systems compare?

ERIC STOUTENBURG: Great. Yeah. We call it the roundtrip efficiency. So a unit of energy in comes out 85% on the other side. So it's 85% efficient. So if, if you have those-- I think one of the questions earlier might have been how long do they run, and that depends on how many batteries you put behind it. Some people would put small is it to run for one hour, or as long as four, or six, or eight hours. And so basing these on charging if you have a four hour duration battery, because those are fairly common, you might charge for four and a quarter to four and a half hours at night, and then you're still being able to put out four hours during the day.

MOSER: But you can get back 85% of what you put in.

ERIC STOUTENBURG: Correct, and that's inlcu--

MOSER: So you've got to make that much just to break even.

ERIC STOUTENBURG: That's correct. Yeah. Yeah. So you would be selling-- you would-- if, if you bought at $8.50, you would need to sell at $10.00 approximately.

MOSER: Yeah. And then you got overhead with the, the construction of the plant and the decommissioning someday.

ERIC STOUTENBURG: Correct.

MOSER: What's the life of the batteries?

ERIC STOUTENBURG: All of the vendors now warranty the battery performance for 20 years. So most of the economic models either assume 20 or 25.

MOSER: Could you go buy, like, 20 Priuses and charge them up?

ERIC STOUTENBURG: Good question. And there's an important distinction. So one, this legislation does cover energy storage in its generic term, so there are other things other than lithium ion batteries. Lithium ion batteries are today the most cost effective. But on the horizon are sodium bi--- batteries which would be all US manufacturing. Iron-air batteries is manufactured in West Virginia. But importantly with EVs is they do use, they have to use because they're moving, the lightest batteries possible. So they have to introduce nickel, manganese and cobalt. Those are the rare earth elements I think that were mentioned earlier. Those are not used in stationary storage. The-- you, you use lithium, but the other elements are primarily iron and phosphate.

MOSER: These is prone to spontaneous combustion as other lithium batteries?

ERIC STOUTENBURG: Yeah. No for, for a couple reasons, mostly because of that same chemistry. So if you're going to have a light battery it has to be very reactive. And then hence it can also go into thermal runaway and create a fire.

MOSER: The density of the cells and stuff is closer together.

ERIC STOUTENBURG: Correct. Yeah. Whereas with these ones, and you can kind of see a bit in the, in the photo, they're in containers. So within the containers there are, if you go all the way down to the cell level, you have to pass UL 9540A standards that that cell doesn't cause-- if it fails, it doesn't make the other cells fail next to it, and then you have to have all the modules not fail the next modules,

and then the containers themselves are the largest failure [INAUDIBLE]. So.

MOSER: All right. Well thanks for the lesson.

ERIC STOUTENBURG: Certainly.

DeKAY: Senator Hughes.

HUGHES: Thank you, Vice Chair DeKay. OK. So you're kind of saying like you're a generator then, right? An alternative kind of generation. And we are 100% public power. Now, the only private generation we have really is kind of like wind and solar, right? Are-- but you're comparing yourself to gas and, and whatever. We're 100% pro-- pri-- public power. Why wouldn't-- No offense, but I don't know why we'd want you doing it. We would want our people doing it, NPPD, OPPD, right? I mean, that's what I think. But answer that, I guess.

ERIC STOUTENBURG: Yeah. So I-- maybe we could use the example again in Texas. So the city of San Antonio could have also built this project themselves.

HUGHES: Right.

ERIC STOUTENBURG: But they chose to use private companies. And we weren't the only ones selected, there was another project built by another developer. And it's just because we have a long track record of deploying the new technology safe and at least cost.

HUGHES: I guess-- So, I-- and now I'm back to this. Why do we need this? Because OPPD, or LES, whatever could contract with you today without this and have that happen, right?

ERIC STOUTENBURG: We-- well, they would still need to go to the Nebraska Power Review Board where exactly--

HUGHES: Right.

ERIC STOUTENBURG: --where exactly these economic arguments--

HUGHES: Which they do for anything else too.

ERIC STOUTENBURG: Correct.

HUGHES: So explain why-- just explain why we need this bill. That's what I don't understand.

ERIC STOUTENBURG: Yeah. So one important-- when I made the menu of commercial options for public power to choose from, one important one is, or two actually, the tolling agreement would actually have ownership stay with private. And the capacity purchase agreement would also have ownership and market operation stay with private entities. And what this bill does is say, OK, if you want to do a project in that, then the private developer needs to come forth and meet the standards at NPRB. And if we don't have that option, then those two pieces of the menu are removed from public power. And then we have to ask public power, great, are you ready to do all of the market operations which they may-- certainly may be--

HUGHES: And I'm sure they're gonna speak, so I'll ask those later.

ERIC STOUTENBURG: Yeah.

HUGHES: OK. Thank you.

DeKAY: Any other questions? Senator Juarez.

JUAREZ: Thank you. Thank you for coming. I have some basic questions. I'd like to know, like, whereabouts do you think that you would want to build these batteries if you were approved to come to our state? Have you already scouted out areas?

ERIC STOUTENBURG: Correct. Yeah, we already have generation interconnection agreements for four of the projects, Douglas, Cass, and Washington County. These projects, kind of like the photo that I provided of the one in Texas, they tend to be near power plants or large substations. So in that case, in the background you can actually see the utilities, coal and gas plant, and they kind of wanted the storage there because it also complements the operations of that.

JUAREZ: So it's already going to be in places where there are some stations. That's what you're saying?

ERIC STOUTENBURG: Correct. Yeah. That lowers the cost of interconnection to the other substation.

JUAREZ: OK. Now, so when you talk about the jobs in your presentation that it can bring to our area, is it going to be local people that you will be hiring? Are you bringing your own workers in? Could you clarify that?

ERIC STOUTENBURG: Yes. Yes certainly. So we do have people on staff that help with the construction project management, but the actual

construction is always done by local companies. So sometimes there's a general contractor. Without disclosing their name, we are using several engineering firms that are located here in the state of Nebraska for the engineering side of the projects. And so those numbers we quoted are from numbers we have verified in our building, for example, that Texas project. They tend to be local civil jobs. There's dirt to be moved, there's fences to be installed, there's concrete to be poured. That's all local. And then the three new local long-term jobs are those who continue to maintain the plant afterwards.

JUAREZ: So approximately like what could the salary ranges be of the people who would stay and manage the facilities?

ERIC STOUTENBURG: Yes.

JUAREZ: Estimate's fine.

ERIC STOUTENBURG: Sure. Yeah. Well, anybody who's going to stay on for the permanent long-term jobs is usually a certified, and often in many states a union electrician, a master electrician. So the salaries are well in excess of $50,000 per year. And I could certainly follow up with somebody from our construction team who deals with those and, and pays the bills and know it exactly.

JUAREZ: OK. And then the last question I have is, my concern is, and not being familiar, obviously, with this new technology, environmentally, what could go wrong? In a worst case scenario, what do we need to be concerned about?

ERIC STOUTENBURG: Great question. So at the end of the life these are-- when you move lithium-ion batteries, they are considered hazardous waste and they're generally moved to a recycling facility. Actually, the chief technology officer at Tesla left Tesla to go build a battery recycling factory in Nevada. So they're going to ultimately end up being recycled, because the value of the lithium and the iron phosphate being reused. During operations, if it was something catastrophic, the last full scale fire testing of one of these battery containers equated the emissions to a house fire because there are plastics in it, and those are-- that's what's primarily smoking. So that's your absolute worst case scenario.

JUAREZ: But, but where would it go for recycling? Does it stay in our state and get recycled, or you've got to go to somewhere else for recycling.

ERIC STOUTENBURG: Yeah, I don't know the locations of all the recycling facilities. I know just one of the largest companies is located in Nevada.

JUAREZ: OK.

ERIC STOUTENBURG: And that's because they're also processing the batteries right back into new batteries from raw materials.

JUAREZ: OK. Thank you.

DeKAY: Senator Clouse.

CLOUSE: Thank you, Vice Chair DeKay. A question, you don't have to get very specific, but if you're spending $327 million on a 200 megawatt ESR, what ballpark would your wholesale price that you sell in the market would that have to be?

ERIC STOUTENBURG: So there's two pieces. One, when we're selling ancillary services, and this is definitely true in Texas. They're often served by gas plants, and there used to be an average price for the ancillary services of about $15 per kilowatt per month. Now that all the batteries have come on and I get week-- or daily trading emails for what's clear there, those prices are now down to $0.53 a kilowatt per month. And so that's a 30-fold increase, or decrease. So batteries are able to deliver at, at really low cost. And all those batteries are still operating, they're still building more. So the primary savings to customers has been, at least in ERCOT, has initially been in lower ancillary service prices, which means that gas plants can stop doing that and they can actually provide more energy. And then in terms of the, the question really needs to be what's the spread we would need between the power, the price we purchase it at and the price we sell. That would also depend on the duration of the battery. So I can't give a very specific number, but I can give a range is that generally you're looking at having a spread of $15 to however the market can take spread-- Sorry, $15 per megawatt hour spread between low and high.

CLOUSE: Thank you.

DeKAY: Any other questions? One quick one. You said you're basically a buying/selling company with the battery storage, and probably just probably to supply electricity in the off peak hours. And you're 85% efficient with that. How does that equate to cost savings to the general ratepayer across the state, as compared to what OPPD, NPPD, and LES are doing now?

ERIC STOUTENBURG: Yeah. Great question. So the-- go back to the analogy of you have a gas plant that's a peaker unit, it's very expensive to run. That unit is usually what's driving the highest price for electricity in SPP. And then the difference is with the battery-- the, the gas plant must sell energy for the cost it takes to buy gas at about 415 MMBtu and convert it to electricity and pay for startup in operations and maintenance costs. And it must clear that price, otherwise it wouldn't turn on. Whereas with the battery, if it's stored energy at night, that oftentimes Nebraska's even in the negative price, which means just getting paid to take that extra energy off of a coal or a wind plant, it just has a lower fuel costs than the gas. So then when SPP goes to dispatch for 7 p.m. a really hot day, the peak load hour, what'll occur is SPP will say, OK, all the generators, give me your price that you would sell energy for, and the batteries can offer a price that's lower than the peaking gas plant. And it's that difference translates into consumer savings.

DeKAY: Is there enough savings? Say, if you have a coal plant that can't ramp up, ramp down very fast, or a nuclear plant that's basically they're running 24/7, so-- and they might possibly be selling their output at a negative rate. How does that equate into that-- this equation?

ERIC STOUTENBURG: Good question, yeah. So actually that is-- so-- that maybe doesn't necessarily translate to rate payer savings, but it does translate to existing plants such as coal and nuclear in the state are sort of fixed cost assets that people are paying to have exist. When you go to a low load condition at night and those things are asked to ramp down, they're generating less energy and thus less revenue to pay and offset what the rate payers have to pay on them. And so if you can actually increase the load at night, you can move the negative prices from, say, -$5 to -$4. That means that that coal plant actually lost a dollar less than it would have otherwise if the battery wasn't charging.

DeKAY: But it takes time to, even with a coal plant it takes time to ramp up, ramp down, and it takes days to ramp up or ramp down a nuclear facility, like-- it did-- I mean, there's a gap there where there's a lot of electricity being produced that's probably going to be sold at a negative rate. In my mind, I don't know.

ERIC STOUTENBURG: Yeah. And that's actually what we're seeing in Texas is that the-- those plants that do need to run all the time, namely large coal, large nuclear, get to run at higher levels at night

because the batteries are charging, as opposed to taking the cost of ramping down, which has O&M expenses and wear and tear.

DeKAY: Senator Moser.

MOSER: So would this legislation allow any company to build a battery facility?

ERIC STOUTENBURG: Only if they're approved by the Nebraska Power Review Board and meet that economic test.

MOSER: But it wouldn't be specific to you.

ERIC STOUTENBURG: Correct. Yeah, yeah. This is not a bill narrowly tailored, tailored for us. Yeah. Others could as well.

MOSER: What's your background? How do you get into this?

ERIC STOUTENBURG: I started in the army.

MOSER: Are you a salesman, an attorney, or an engineer?

ERIC STOUTENBURG: Yeah. No, I did start in the Army, engineer, graduate school and then was in the power sector for the last about 15 years. So.

MOSER: Yeah. Well, you're pretty comfortable with the lingo, I'd say.

ERIC STOUTENBURG: Yeah. Apologies for any acronyms I might have used, so.

MOSER: Well, that's great, thank you.

DeKAY: Any other? Senator Clouse.

CLOUSE: Yes, thank you Senator Dekay. Just a couple of things. 200 megawatts, is that per pod, per battery? Or is--

ERIC STOUTENBURG: Correct. Yeah. So in that particular image, what you're actually seeing is the first 50 megawatt phase of a 200 megawatt project being built out. So yeah, there's usually per container is approximately, depends on the vendor, 3 to 5 megawatts is in one container.

CLOUSE: OK. And how many employees is it, a 200 megawatt facility, how many employees would that have?

ERIC STOUTENBURG: Oh, in terms of like acreage?

CLOUSE: Employees, how many?

ERIC STOUTENBURG: Oh, employees. Three are sort of-- three to four, depending on the size of it are sort of the long-term maintenance crew.

CLOUSE: So it's a low, low employees.

ERIC STOUTENBURG: Correct. Yeah.

CLOUSE: OK. And then another question, I was looking through this. I don't-- what, what you're doing is you're comparing your pricing to peaking units. Is there a requirement to discharge by that discharge in here every day?

ERIC STOUTENBURG: Yes. Yes. So this Southwest Power limit, this is true for all generators. They're is-- running a security-constrained economic dispatch. The security constrained part means that they're ensuring that either the generation or not generation of that plant does not compromise the transmission system. And then the economic dispatch part is making sure that they have served that load at least cost and took in the cheapest resources, which we've demonstrated in Texas are often batteries at peak. So yeah, you don't, you're not-- no generator, but in particular batteries, they cannot just show up on the system and charge and discharge any time they want. There's a specific signal called the automated generation control signal from SPP that gives it, the plant, what level it needs to dispatch at every four seconds.

CLOUSE: So you've got to synchronize all the time.

ERIC STOUTENBURG: Absolutely. Yeah. With redundant communications.

CLOUSE: Thank you.

DeKAY: Seeing no other questions, thank you.

ERIC STOUTENBURG: Thank you.

DeKAY: Next proponent.

HANNES ZETZSCHE: Thank you, Vice Chair DeKay, members of the Natural Resources Committee. My name is Hannes Zetzsche, H-a-n-n-e-s Z-e-t-z-s-c-h-e. I'm an attorney here in Lincoln with Baird Holm law

firm, and we represent Eolian Energy. I testify in support of LB349 today with the amendment, the white copy amendment that Senator Prokop referenced earlier, because the bill provides regulatory certainty for private investment in these ESR or the electric energy storage resources. The bill codifies Nebraska's current regulation of ESR in two significant ways. So the first one is the private ownership piece. LB349 confirms private entities may develop ESRs. In 1996, the Nebraska Attorney General opined, there's nothing prohibiting a private entity from constructing an electric power generating plant in Nebraska. This bill essentially codifies that for privately developed ESRs. Under the bill, public entities, including our PPDs, retain all ability to develop, finance, construct, and maintain ESRs. This bill simply gives them the alternative of outsourcing that risk and cost to privately developed ESR developers like, like, my client who spoke before me. This bill does not limit public entities from developing, owning, and operating ESRs. Second, LB349 confirms the Power Review Board's current ESR jurisdiction and procedure. I, I provided a copy of Guidance Document No. 14, which has been in place by the Power Review Board since 2021. It's been in place since 2021 and it's worked. In Guidance Document No. 14, the Power Review Board determined it has jurisdiction over ESRs, including privately developed ESRs. ESRs, therefore, must either be approved or confirmed to be exempt prior to commencement of construction or installation. That's under the document I just handed out. LB349 codifies this. It provides that regulatory certainty to your question, Senator Hughes. I think it, it puts in statute what exists now and gives us the regulatory certainty that we need. ESRs still need approval or confirmation, just like traditional transmission or generation assets in all significant ways-- oh, and then I'm sorry, under, under Section 70-1014 of the current law, the ESRs would still need PRB approval. The Power Review Board could only approve if a new facility, if it found that it served the public interest and met those statutory factors of public convenience, necessity, and it was reliable, low cost, and non-duplicative. The Power Review Board retains all oversight of these ESRs under the statute to protect the ratepayers of Nebraska. In all significant ways, this bill codifies existing law as expressed in Guidance Document No. 14. This creates the regulatory certainty that will draw private investment and tax revenue to Nebraska. I don't-- I know that we've received some technical clean up from the Power Review Board as well, that we intend to incorporate in a new amendment. Generally, I think you're going to hear from the, from the executive director here shortly, and. I-- we welcome working with them. We're grateful to Senator Prokop for introducing LB349, we ask the committee to advance it to General File. I'm happy to answer any questions, but

I don't know if I can follow up on the technical questions that my colleagues answered just now. Thank you.

DeKAY: Thank you. Are there any questions? We'll start with-- now. Next proponent.

HANNES ZETZSCHE: Thank you, Senator.

ERIC GERRARD: Good afternoon, Vice Chair DeKay, members of the Natural Resources Committee. My name is Eric Gerrard, that's E-r-i-c, last name is G-e-r-r-a-r-d. I am a registered lobbyist for a group called the Advanced Power Alliance. We are a regional trade association of developers, builders, and investors operating wind, solar, and battery technologies. Our footprint is across the Great Plains. I'm here today in support of LB349 on behalf of that group, and we'd like to thank Senator Prokop for introducing this bill. I'm also eternally grateful that the other Eric went first based on the, the line of questionings he, questioning he handled. You've heard this before, but LB349 does provide some certainty around an emerging technology and market, and defining the issues and putting in a, a statutory framework that does help provide some of that certainty. I don't think this is fully going to answer Senator Hughes's question, but I did hear this morning, I was on a call talking about this bill, and I heard from a different, a different company that some sort of statutory framework is helpful and would likely lead to more investment in Nebraska, as other states are weighing what they've put into statute some sort of recognition, and I guess proactivity does, does help companies as they're looking where to invest. I also want to acknowledge, I think there is some discussion about energy storage at the Southwest Power Pool level. We've heard from our members that the passage of the LB349 is still necessary, as those discussions are happening at SPP. And then lastly, and maybe I shouldn't concede this point quite yet, I get the, I get the impression this probably isn't heading for consent calendar, so I do want to based on what I think you may hear, I do want to offer to this committee, if we can, can either work with you, the committee or committee staff to, to help define the bill further or work on amendments, were happy to do that. And then the last thing I was going to offer is if a briefing is helpful, we'd be happy to, to connect with the member to do that, although I think you did get a decent briefing from, from the first testifier. So I did want to offer those things up to the committee. And with that, I will pause and see if there are any questions. Thank you.

BRANDT: OK. Let's see what we've got. I don't see any questions. Thank you.

ERIC GERRARD: Thanks.

BRANDT: Next proponent. Any more proponents? OK. Opponents. Is anybody opposed to this bill? Any opponents?

MOSER: Speak now or forever hold your peace?

BRANDT: Welcome.

BRAD UNDERWOOD: Thank you, Chairman. Good afternoon, Natural Resources Committee. My name is Brad Underwood, B-r-a-d U-n-d-e-r-w-o-o-d. By title. I'm the vice president of systems transformation at the Omaha Power District. My functions include system planning, generation origination, and RTO policy. We work a lot with the Southwest Power Pool. Many of you know, OPPD's service territory extends 5,000 miles. Our system peaks at approximately 2.8 gigs. We serve 885,000 people. OPPD is strongly opposed to LB349 as introduced and the amendment AM412, which is entirely focused on privately developed energy storage resources or battery storage. Bottom line is, the effect of LB349 would impair the ability for public power to plan for and ensure adequate energy resources to meet customer demand in the state. And I'll give you a few examples why. First and foremost, battery storage doesn't generate electricity. It uses the electricity it receives from other generators, and then it discharges into the transmission system, which in Nebraska is owned solely by public power entities and our customers in the state. This means that privately developed, standalone battery storage would be an unexpected load that would be entirely reliant upon the public power transmission system. Second, Nebraska is a public power state in which only public power entities have the legal responsibility to ensure resource adequacy. And private standalone battery projects are speculating for profit and would transfer those profits out of state, very inconsistent with the public power model. The legislation does not have a requirement for private battery storage to coordinate electricity demand when it is needed most with public power providers in the state, to pro-- to make sure that Nebraska has sufficient energy, and then discharge electricity in direct competition with public power. Third, the amendment is ripe for abuse. It lacks any clarity to ensure that a battery storage resource is truly connected to and associated with the generating facility. Fourth, neither this legislation nor Nebraska laws or regulations have fully considered or developed safety standards to ensure public safety is protected with the addition of the standalone private battery storage. I have a handout here that highlights the Moss Landing fire. If I have time, I'm happy to articulate why that was a bigger concern than a house fire. Finally, private standalone battery storage has not

been fully integrated into the normal course of studying in the SPP Process, the load it creates, considering and approving it as part of the electric system. For instance, while SPP is working towards setting procedures and requirements to study battery storage impact on the system from a load perspective, and there is currently no requirement for the battery provider not to exceed its injection limits or its draw limits, codified in the Generation Interconnection Agreement. With that, I'll, I'll pause my testimony. I would love to answer any questions the committee may have, Chairman.

BRANDT: OK, let's see what we've got. Senator Clouse.

CLOUSE: Thank you, Senator DeKay. Brad, just a question. You talked about the studies, you know, maybe they didn't work out, but they have not done it in SPP. Is that correct?

BRAD UNDERWOOD: Yeah. And ERCOT's an entirely different system, so I'm glad you brought that issue up. The climate in, in Texas is completely different than eastern Nebraska. I live in eastern Nebraska. I'm a flatlander. Many of us in here know that. So when we have a system issue, many times it's multi-day. We're not talking two, four, six, eight hours. We're talking two, four, six, eight days. And so when we plan a system for a safety and reliability perspective we plan it with that in mind. And our legal charter is low cost and reliable. And that's what we plan for. I hope that's helpful, sir.

CLOUSE: But this hasn't been done in the SPP. No interconnection with--

BRAD UNDERWOOD: I, I believe, I believe there is one asset in Oklahoma. Most of the information I have is on the insufficiency and immaturity, if they exist, of market protocols with this type of assets. Primarily, no system impacts study from a load perspective. So as an example, if a load comes to eastern Nebraska, and let's use the proposed handout from earlier, which I understood was 200 megawatts. We study the system to understand what 200 megawatts of draw is going to do at that location. And does the system operate predictably with that load in the study? So right now, there is many perspectives in the SPP working groups on how that should be done. And there's not a final formal process to do that. That's exceptionally concerning to me.

BRANDT: Other questions. Senator Hughes.

HUGHES: Thank you. Thanks for coming in, Mr. Underwood. Is OPPD doing their own battery storage planning, using that at some sites, etc.?

BRAD UNDERWOOD: Yeah, we, we have, we have two batteries. One is one megawatt, it's kind of a pilot.

HUGHES: That's small.

BRAD UNDERWOOD: Let's get the technology and see what it looks like, see how it operates. The other is a bit larger. It's approximately 150 megawatts of storage. We made that selection because that location and that resource we thought was in the best interest of public power. I appreciated your question earlier on, why is this bill necessary? We did that under existing law, and, and it was very helpful to have that in, in the, in the statutes.

HUGHES: Thank you.

BRAD UNDERWOOD: You're welcome.

BRANDT: Other questions. Senator DeKay.

DeKAY: Thank you. With that 150 megawatt storage, how many, how many hours can that storage hold? How many hours could that battery hold that charge?

BRAD UNDERWOOD: The--

DeKAY: Four hours, six hours?

BRAD UNDERWOOD: Yes, sir, the duration's four hours. It's paired with a solar facility.

DeKAY: And how many-- how f-- how much load are you anticipating at OPPD in the next six to eight years?

BRAD UNDERWOOD: Our current system peak is, is 2.8 gigs or 2,800 megawatts, like I said earlier. Our forecasts without storage have us going to 3.9, approximately four gigs, which is about another 1,000 megawatrs, alittle higher than 1,000 megawatts of load growth, with the economic development that's already occurring in the state.

DeKAY: And you're already planning for that load generation to co-- cover that?

BRAD UNDERWOOD: Yeah, we've got a really strong resource plan, a lot of natural gas. Texas was brought up earlier. I'm not sure, some of

you may be aware, but the Texas Legislature from a, from an energy industry position, unleashed five gigawatts of gas built almost overnight. They did that very quickly because they felt the Texas system needs that. Our resource plan includes 1.5 gigawatts of new natural gas, and there are other utilities in the state building that resources as well, public power utilities.

DeKAY: When do you anticipate that coming online for generation.

BRAD UNDERWOOD: It comes on in phases. We expect the first 600 megawatts to come on here in the next few months. And then the other resources I believe are '29 certified if my memory serves.

DeKAY: Thank you.

BRAD UNDERWOOD: You're welcome.

BRANDT: Senator Moser.

MOSER: So your comment about the difference between Nebraska and Texas and the technology, is that based on the ambient temperature? I mean, are the batteries less efficient in cold climates?

BRAD UNDERWOOD: There-- My understanding is there is an efficiency loss in extreme heat and extreme cold. And in Nebraska, we, we certainly see both of those, sir.

MOSER: Extreme heat, you mean 100 degrees or--

BRAD UNDERWOOD: That's my working knowledge. Yes, sir.

MOSER: Do you think that this legislation allows a company to come in and kind of cherry pick the-- kind of get fat on eating the scraps, so to speak?

BRAD UNDERWOOD: I, I do think it'll, it allows acute profitability for people that might do this off the Nebraska system. I'm not sure I would characterize it as scraps or because that system is required and so critical, but generally, I agree with your sentiment, yes, sir.

MOSER: Well, there just would be times where energy's very valuable and they're going to try to take advantage of that.

BRAD UNDERWOOD: That's correct. I, I can imagine building-- so as an example, there's 1,900 megawatts of standalone storage in the SPP queue in Nebraska right now. So our system peaks at 2.8. There's 1,900

in the study process. So we're not talking a small amount. And I can't imagine being a developer, and maybe this is my public power blood and I can't, I can't get rid of it. But I can't imagine a public power-- a private company coming in, deploying that much capitol, capital and not wanting service when prices are high. That's a difficult thing for me to understand. And I think that's--

MOSER: Well, they want to buy it cheap and sell it high, right?

BRAD UNDERWOOD: And, and if we have a multi-day event--

MOSER: Well they might--

BRAD UNDERWOOD: --prices don't go cheap.

MOSER: Yeah. Yeah. Thank you.

BRANDT: Other questions? Senator Clouse.

CLOUSE: Yes. Thank you, Senator Brandt. So do you have, do you have an off peak rate at OPPD?

BRAD UNDERWOOD: We have, we have kind of off peak and on peak energy and energy prices.

CLOUSE: So if you added 2 or 300 megawatts, that would drive up your off peak rate, wouldn't it?

BRAD UNDERWOOD: If there's more electrical demand at any time, it would drive up pricing would be my expectation.

CLOUSE: OK. Thank you.

BRANDT: OK. I guess you guys are not opposed to batteries.

BRAD UNDERWOOD: No, sir.

BRANDT: What would, what would be your ideal situation of using batteries?

BRAD UNDERWOOD: It would be how we were using them today. When it makes sense for our customers, when we can do it reliably and with low cost. Some of the queue positions are at existing generators. I believe a prior testifier had stated that. One of the generators has 990,000 gallons of diesel at the generator. So those are the types of things we look at very closely. What is the proximity to other assets? What is the totality of the system risk? What is the net benefit? And

is that the right thing to do for our customer owners. We, we would contemplate all of those variables.

BRANDT: OK, and I don't know if you're the one to answer this, maybe somebody behind you, but, but my understanding on the Power Review Board is basically its generation, transmission, and retail? Does there almost need to be a separate category in the regulations for battery storage? Does that need to be treated differently than generation?

BRAD UNDERWOOD: That strikes me as a thoughtful question. I might defer to someone behind me in the regulatory side of this.

BRANDT: Fair enough. I-- Senator Moser's got a question.

MOSER: Well, when you said that there's-- I don't know what you said, 19 megawatts of storage?

BRAD UNDERWOOD: 19--

MOSER: Or gigawatts.

BRAD UNDERWOOD: 1,900 megawatts, yes, sir.

MOSER: 1,900 megawatts.

BRAD UNDERWOOD: Yep.

MOSER: And is that-- well, what is that made up of? It's not batteries, obviously. It's diesel fuel in tanks, or--

BRAD UNDERWOOD: The, the 19--

MOSER: Or water in Lake Babcock in Columbus that can flow through the hydro plant?

BRAD UNDERWOOD: Pumped hydro or hydro? No, my, my understanding is this is all storage, energy storage, lithium-ion type storage devices.

MOSER: So it is battery technology.

BRAD UNDERWOOD: Yeah.

MOSER: And those lithium batteries can start on fire and it gets to be kind of a fire that builds upon itself and builds up in intensity, and then out of control, and you can't put it out.

BRAD UNDERWOOD: Yeah. The, the--

MOSER: Never easily.

BRAD UNDERWOOD: Yes, sir. A couple of thoughts, maybe, for the committee's consideration. If, if thermal runaway occurs at a storage device, the fire department will let it go. That's the modern practice. So most of your thermal runaway risk is incorporated in your design. You want to design it so that you don't have to deal with thermal runaway because it's so challenging. So--

MOSER: Yeah, lithium reacts with water.

BRAD UNDERWOOD: There's a number of complications in, in the water usage to put out a thermal runaway fire. In, in the Moss Landing example, my understanding is there was a thousand plus acres of real estate that were evacuated during that fire. I've heard both 1,200 to 1,500. So there's thousands, you know, the thousand acres that's evacuated, and Highway 1 was shut down. It's a very serious thing. Yeah.

MOSER: Is it close to the coast? Highway 1 goes right along--

BRAD UNDERWOOD: The, the Moss Landing was close to the coast, is close to the coast. Yes, sir.

MOSER: Thank you.

BRAD UNDERWOOD: You're welcome.

BRANDT: I see no other questions. Thank you.

BRAD UNDERWOOD: Thank you, sir. Next Opponent.

JOHN McCLURE: Good afternoon, Chairman Brandt, members of the committee, legal counsel and staff. I, I'm John McClure, J-o-h-n M-c-C-l-u-r-e. I'm executive vice president for external affairs and general counsel for Nebraska Public Power District. I'm here today in opposition, not only on behalf of NPPD, but also the Nebraska Power Association, which is the association of all the public power and cooperative utilities in the state of Nebraska, whether they be a public power district, a municipal electric system like Lincoln Electric System, a cooperative, or a joint action agency. I would recommend to you, there was a letter submitted by my colleague Shelley Sahling-Zart at Lincoln Electric System opposing this. I thought it raised a number of excellent points. I'm not sure if I'll get to all

my points as I've listened to the testimony. But what I want to start with, and it's been mentioned before by, by several people in here today is, is public power in Nebraska is all about affordability and reliability, whether we're serving the lowest of low income people or a large manufacturing facility like Nucor Steel, which we serve in Norfolk, Nebraska, we need to be first and foremost reliable, and we need to be affordable. And so when public power comes to the table, we're looking at those considerations first and foremost. I think one thing we can all agree on is whether you're for or against or neutral today, energy storage, battery storage is an interesting and important emerging technology. There's no doubt about that. But it's an emerging technology, and there's a lot to be learned. There's been a lot said today that I don't think is quite accurate. And I think it's really important that you have all the facts. First of all, private entities can currently under state statute, and it's in this bill, they can construct, and own, and operate storage facilities. It's already in the law. It was put in place in, in LB824 in 2016. So the idea that they need some new authority isn't absolutely correct because there's already authority. We have a small project up in Norfolk that is privately owned. We have a contract with NextEra for them to add a 50 megawatt battery at the Steel Flat storage facility. But again, there's-- this is premature. The Southwest Power Pool is working on what the market mechanics are going to be, if you will, the market rules at the wholesale level. Then there's a retail side of this to think about. There's a number of other things. There's a confusing mix of subject matter in at least the original bill. I've not studied the amendment. We have two separate regulatory regimes here. If you're a public power, you have to go to the Power Review Board to prove a need. You have to prove it's in the public convenience or necessity. The way this bill is written, if you're a private developer, you don't have to prove those things. I've heard contrary testimony today. I don't think that's what the words say, and we'll look to the executive director and general counsel from the Power Review Board to make sure it's clear what is being required here. This is too early, it's broad changes in the statutes, there's even a place in here that says there can be private operation, or private distribution functions the way they've played with language. That doesn't make sense to me. Public power delivers all retail service in the state. This needs to be backed away from, carefully reviewed, and again, we need to understand going forward this is not something that's urgent because batteries are being built now by private developers. It can be done under current law. This goes way too far and it needs to be carefully reviewed. So with that I'm going to stop. I will add one last thing. You've heard about--

BRANDT: Go ahead and finish your thought.

JOHN McCLURE: OK. There's a lot of interest in this state and in this Legislature on small modular reactors. Where is a great place to put that technology? It's where there's a very robust transmission system. Where's the robust transmission system? It's near power plants. So do you want to see a 100 megawatts of battery storage that only can discharge four hours at a time, and then it's done, has to be recharged. Do you want to put that at Cooper Nuclear Station or a Ger-- Gerald Gentleman Station, or at the, the Bundy power plant north of-- on the north side of Lincoln? Or do you want to be more thoughtful about what's the right resources that should be located at those locations going forward? These are policy issues to be sorted out.

BRANDT: OK. Let's see what we've got for questions. Senator Hughes.

HUGHES: Thank you, Chairman Brandt. I was reading the, the letter that you referenced that Shelley Sahling-Zart did, and, and you mentioned it too, the Southwest Power Pool are kind of going through-- defining rules for this type of thing. Do you know when they will be finalized, like what their schedule is for this?

JOHN McCLURE: I would anticipate it will get finalized this year.

HUGHES: OK. Thank you.

JOHN McCLURE: It's been a lot of focus on it because again, it's an important emerging technology. But we have to have the rules right.

HUGHES: Thanks.

BRANDT: Senator Clouse.

CLOUSE: Thanks, Senator Brandt. Loaded question. If you had your druthers, would you rather have 200 megawatts of crypto or 200 megawatts of battery?

HUGHES: "Sophie's Choice."

JOHN McCLURE: Well, there's, there's-- they're two different, completely different things. 200 megawatts of crypto is a load. 200 megawatts of battery is a load. And at times it's a source of stored energy. It is not a generator. So it doesn't produce energy, it stores energy that's been produced at other times. And, and I absolutely agree that there will be opportunities to buy low and sell high. But

if you're a private developer, that's absolutely what your objective will be. It's not necessarily being affordable to the utility. It will get discharged, and the way the market works, it would likely be discharged at the same time that a high price gas peaker would also be discharged. It would be the highest price that they can get. And there's other attributes of, of storage. Again, it's a technology that is interesting. On, on a national basis the amount of battery storage we have today is probably 2/10 of 1% of the entire generation capacity.

CLOUSE: But at four hours, it's--

JOHN McCLURE: It's very small.

CLOUSE: --cheaper to let crypto go offline than it would be to run the batteries.

JOHN McCLURE: Right.

CLOUSE: OK. We got that.

BRANDT: Senator Moser.

MOSER: So would you characterize Public Power's opposition to this as this would somehow do them harm? Or would you characterize it as they're getting in your hair because they're getting in your business and you got more things to manage, and it's driving profits?

JOHN McCLURE: As currently drafted, I think it causes harm in Nebraska for a number of reasons. I, I've alluded to some of those. It, it-- the way-- and again, I've only studied the original bill. There is language in there that doesn't make sense to me. It, it, it broadens things far beyond what's been discussed here in some ways. And, and, [INAUDIBLE].

MOSER: It enables other things other than what we're talking about?

JOHN McCLURE: There's, there's a new phrase that's put in and a definition about public or private. And that goes on then, and public and private are related to generation, related to distribution facilities. And I don't know what the intent is there, but that's what lawyers end up arguing over in courtrooms.

MOSER: That's your business though.

JOHN McCLURE: I prefer fewer arguments.

MOSER: You'd prefer to have it--

JOHN McCLURE: Clarity.

MOSER: --clearer.

JOHN McCLURE: And we-- and you as a Legislature. I know you want clarity.

MOSER: You'd rather not fight, you rather have an agreement.

JOHN McCLURE: Yes.

BRANDT: OK. Other questions? Senator Raybould.

RAYBOULD: So I'm sorry, I apologize. I was late, but I am interested, and I believe you may have already mentioned it. So again, I apologize, but the SPP rules, Southwest Power Pool rules, what will they tell us about the process?

JOHN McCLURE: Well, I think they will go to market practices. SPP regulates the transmission grid, they regulate the interconnection of facilities, both load and in generation. And that's one of the challenges here is what is a battery? Is it a load? Certainly at times it is. Is it a generator? It's never a real generator, but it has characteristics of generation in that it takes generation, stores it, and can discharge that into the system. So we have to understand how does all that work, how is it accounted for in terms of, of-- and we're talking large-scale wholesale. What if you plop one of these down at a retail level behind a, a business that wants ten, ten megawatt units to back up its power. Is that now a retail thing? We haven't even talked about that. So there's a lot of fundamental public policy to be discussed before we just quickly move forward with this language.

RAYBOULD: Thank you.

BRANDT: Senator Moser.

MOSER: So could this how-- somehow scramble up the way that power is bought and sold? I mean, some of your big customers can buy power on the open market, and then the utilities get paid to deliver it. So would somehow this battery storage scramble that situation?

BRANDT: Well, in, in SPP and in Nebraska we have a concept called resource adequacy. Every load serving entity needs to be able to

demonstrate that it has the capacity to serve the load. And then you get the energy. I'm going to be real curious to see the report that Dr. Goss did. When I heard some of the numbers, remember, this is only a resource that typically can produce for four hours and then needs to be recharged. And another thing I would point out is my understanding of batteries is they degrade over time, maybe as high as 2.5% a year. So if you start out with 100 megawatts worth of batteries, and there was a question earlier about the size of these, I think these containers, and the Eolian folks are experts, they can clarify this, but maybe two and a half, three megawatts in one of those containers. So you put a bunch together. You can't go out and buy a 200 megawatt single battery, that just doesn't exist. So if those are degrading over time, you know, what do you have if you have, in the aggregate, 100 megawatts of batteries in year one, how much is that worth in year ten?

MOSER: Well, that's--

JOHN McCLURE: It's, it's, it's--

MOSER: That may be at their risk though. You're not going to assume their risk and guarantee them a profit.

JOHN McCLURE: But if, if we're contracting for it, it's going to be an asset that will have less capacity.

MOSER: Oh, you're talking about what it can be relied upon to produce.

JOHN McCLURE: Yes.

MOSER: In an emergency or whatever.

JOHN McCLURE: Yes. That, that will degrade over time.

MOSER: 2.5% slippage in the real world probably isn't--

JOHN McCLURE: Well.

MOSER: I know, I got more than 2.5% slippage myself

JOHN McCLURE: Think about this another way, if you gain two and a half pounds a year, and you do that for ten years, all of a you've changed suit sizes.

MOSER: 2.5% per year. I might only have ten years left.

BRANDT: All right. I don't see any more questions.

MOSER: Not serious ones.

BRANDT: Yeah. Thank you. Next opponent. Are there any more opponents? Seeing none, anyone in the neutral capacity? Welcome.

TIM TEXEL: Chairman Brandt, members of the committee. My name is Tim Texel, T-i-m, last name is T-e-x-e-l. And I'm the executive director and general counsel for the Nebraska Power Review Board. You've heard us referenced a number of times today. As you know, the board is the agency with primary jurisdiction over electric utilities in Nebraska, and the board is responsible for approving generation and transmission facilities in the state of Nebraska. The introduced green copy version of LB349 would define electric storage resources, or I'll commonly refer to them as battery storage. Would-- to be privately developed renewable energy generation facilities. I call them PDREGFs for short. That means battery storage would be defined as a renewable resource when they're really not a renewable resource, as you've heard. They just capture whatever's on the grid; some renewables, but then coal and nuclear and diesel, anything else, natural gas is out there too. Even when battery storage is associated with a wind or solar facility, the majority comes from whatever's available on the grid at that particular time. As a result of this, private entities could, could very easily-- the private entities could build battery storage with virtually no board or state oversight because they make certifications to me under the PDREGF process, but they don't ever go to my board for review or approval. Certainly the Legislature can define them to be renewable and change that. My board has some concerns about that. On the proposed amendment, I have a number of issues, but I'm going to limit them quite a bit with the three minutes. But on the proposed amendment, I have seen it, or at least I saw the draft I was given it. I assume that was the same as what was put out this morning. I have not had time to compare them. But the board is concerned the amendment seems to also exempt battery storage facilities from eminent domain proceedings. That's not in our guidance documents. So to the extent this is characterized as a codification of what's in Guidance Document 14, it doesn't do that directly. It does other things and goes beyond that. Since I have limited time I'm going to make one point. The definition of private electric supplier in the amendment appears to effectively still make battery storage facilities a PDREGF. So whether a separate facility or associated with another generation source, that would be true. That would remove, again, Power Review Board approval for these facilities, and simply they would make certain certifications to me that they're going to work with Game and Parks and things like that. And then I send them a letter within ten days if they did the certifications and signed it, and they basically are

exempt from our review and approval process where we hold a hearing. So that's, that's not the same at all under what Guidance Document 14 says, where we have jurisdiction over it and they can come to us now and apply to us just like public power does if they wanted to put a battery storage in. And we have a mechanism for that with the guidance document, we have how we will treat it and that we have jurisdiction over it.

BRANDT: So do--

TIM TEXEL: Red light went on.

BRANDT: Do you have several more points you'd like to make for the record? You can go ahead and do that.

TIM TEXEL: Thank you. The definition of associated electric energy storage resource does not limit battery storage to the capacity of the associated generator. So that's a major departure from what's in Guidance Document 14 also. Essentially, it would allow a large battery facility to be placed with a wind farm that could be larger than the wind farm in capacity. So, you know, theoretically, a developer could build a five megawatt solar facility and later come in and say this is an associated facility, and we're putting in a 100 megawatt battery storage. That isn't what our guidance document allows. Our guidance document limits it to be the same capacity as the underlying associated facility. So we consider that a major departure from what we did in our guidance document. So although I appreciate that this is intended to codify what we have in Guidance Document 14, my board has some concerns that it's not the same, and goes much further on some important areas that weren't intended. So with that, I think that's the main points that I wanted to make. And, you know, I would just add that the Southwest Power Pool has been dealing with this for several years. We worked on our guidance document for 5 or 6 months with the private developers and utilities back and forth, and we're, you know, we're looking at approving this in, in a couple of weeks. My board's kind of concerned about how thoughtful and deliberate we're going to be on this important issue.

BRANDT: OK. Let's see what we've got for questions. Senator Moser.

MOSER: So does the Power Review Board need time to write rules to cover the operation of this kind of facility?

TIM TEXEL: Well, Guidance Document 14 handles it right now. I mean, Eolian or any other company could bring a guidance document to us, or

I'm sorry, a battery storage to us now, an ESR, energy storage resource, and we would have a hearing and we could review it. I mean, we have a mechanism to do that. We've clarified-- we interpret state law to give us jurisdiction. As Mr. McClure said, it's, it's not technically a generation source because it doesn't create energy, but it's the functional equivalent, equivalent when it injects energy into the grid system because it's doing the same exact thing. And that's-- our guidance document allows it to be treated as either transmission, for like voltage support, or as a generation source, or as a multi-use, which means it can do both. And we let the applicant tell us which they want it to be, or multi-use, and then we call it a hybrid facility if it's associated with another facility. And if they would put that in, let's say they come in and want to build a wind farm, a PDREGF currently, and they want to put a battery storage with it, they can do that, and we consider it part of the underlying facility. And we're OK with that.

MOSER: If this can be done now, and it's in-- under your purview, purview, why do we need-- what does this bill change that worries you?

TIM TEXEL: Well, they're basically saying instead of coming before us for battery storage, they're making all of it-- like if it's standalone? As I read it, they're just making it all considered to be renewable and therefore a PDREGF. And it therefore avoids our review and approval. So they could come to us now, they'd have a hearing and we'd have to apply the statutory criteria to approve it. This bill would basically make it so all they do is some certifications. My board would never actually see it. They would never hold a hearing, they would never examine it, never have to approve it. So it essentially exempts them from direct regulation and just has a certification process. That's a huge difference. Nobody likes to be regulated. That's kind of what I see this as doing.

MOSER: Their, their power that they're going to buy is going to be bought on the open market. And it could be, it could be supplied by coal, nuclear, wind, hydro. And not all of those are considered renewable. Well I suppose coal is renewable, but it's a pretty long time.

TIM TEXEL: If you give it enough millions of years?

MOSER: If you give it enough million years. And it is organic, don't forget.

TIM TEXEL: Yes, I agree, it's, it's-- there's a lot of what normally would not be called renewable on the grid that would be going into a battery storage.

MOSER: You don't see a, a benefit to the power industry to be able to shave some of those crazy--

TIM TEXEL: I think wind-- I, or rather, I think that battery storage is a useful--

MOSER: Tool?

TIM TEXEL: --tool. I --it shaves off the peaks and fills in the valleys. I think when you put it with a wind or solar facility, I think it works great that way because it can be used to bolster it so that the capacity output is more level. I think they're very useful. My board has no concerns about battery storage. I, I-- you know, my board doesn't take a position to advocate or not for them, but I can see a great use for them. It's how you go through the regulatory process that this bill deals with what my board has some concerns about.

MOSER: Are you worried that they would create battery storage facilities and that they would be not regulated to the point that you'd like to see them regulated?

TIM TEXEL: Yes. I mean, they have the possibility of locating a very large generator, you know, calling it renewable, and they don't have any direct oversight. And, you know, that big of a facility would, you know, affect the transmission grid and the congestion in that area and such as that, and it doesn't have the normal review and approval process where we look at duplication of facilities and things like that for that purpose. And it would just avoid all that. And my board has some concerns. I mean, that's a policy decision, but we want to make sure you're aware of what the bill would do and that it doesn't do exactly what Guidance Document 14 does.

MOSER: You're not saying it's not within our authority to screw things up. You just told us--

TIM TEXEL: The policy is within your authority. And, you know, I'm always happy to work with anybody that comes to me on a bill. We're just concerned if this is characterized as codifying Guidance Document 14, I wouldn't characterize it that way. It has elements of it. It does some of it, takes some of the language directly from our guidance document, but not all of it.

MOSER: Refresh my memory. Are you on the Southwest Power Pool board?

TIM TEXEL: My board chairman, Chuck Hutchison, is a member of the Regional State Committee, which is the regulators group that's part of the-- associated with the Southwest Power Pool. The utilities are the actual members of the Southwest Power Pool. We're-- it's the regulators deal with issues related to cost allocation and things like that. So--

MOSER: Policy.

TIM TEXEL: Yeah, policy in the cost allocation, which of course, when you're talking about billions of dollars, transmission is a very big deal on the Southwest Power Pool. But we're not members of the Power Pool. No regulatory body is. It's just the Regional State Committee.

MOSER: OK. Thank you.

BRANDT: Any other-- Senator Juarez.

JUAREZ: OK. I'm sort of confused, I'll admit up front, OK? I'm trying to understand. Are you saying that this bill needs to have some language changes so that it's not escaping oversight from the Power Review Board? Or do you guys need to change things on the Review Board side, Review Board side?

TIM TEXEL: We can't change anything on our side. We have the guidance document and it handles what we need. If you want to change policy, you could do what the bill wants. If-- as long as you know that it basically takes this out of the regulatory process and just has a certification process, and my board never reviews and approves it, and we want to make you aware of that as we read it. So we have what we need if somebody came to us and filed an application for an energy storage resource now. If you want to change that process or codify it, codification would need to be different than what they're saying, I think, because this doesn't do exactly what our guidance document does. It does some of it, and does a lot more, and some differently. And so that's what we want to clarify. If you want to say it should be a PDREGF, then that's your call as senators. We just want you aware of what it would do.

JUAREZ: OK, so my next question is, and I hope this doesn't come across dumb, but if we had this entity and we approved it for them to build, wouldn't this entity be paying property taxes?

TIM TEXEL: I imagine they would.

JUAREZ: Right?

TIM TEXEL: I-- if the, if the storage container would be considered equivalent real estate, I'm not terribly familiar with that, but I'm sure they'd be paying taxes. Whether it's considered real property or not, I'm not sure how the Department of Revenue deals with that.

JUAREZ: OK. Thank you.

BRANDT: Senator Moser.

MOSER: It could be personal property, it could be the same category as real estate. Probably it would be like equipment.

TIM TEXEL: That might be. I'm not familiar. I'd be gue-- I'd be speculating that-- it would, it would either be personal or real property, I don't know which. But I'm sure they'd be paying some taxes on it, yes.

MOSER: But that would go down as it depreciates, probably.

TIM TEXEL: Yeah. And you're asking questions that are out of my wheelhouse when we're talking--

MOSER: Yeah, me too, I'm not a--

TIM TEXEL: --about taxes, and the Department of Revenue would probably be better to, to deal with that. I would assume you're right that there's a depreciation like on autos, but I don't know how they treat it.

BRANDT: OK, I do not see any other questions. Thank you. Anyone else in the neutral capacity?

JUAREZ: I think that's an important issue to resolve.

BRANDT: No one in the neutral capacity. Senator Prokop, you're welcome to close.

PROKOP: Thank you. I promise to keep this brief, because I know I'm next up in the queue, too. And hopefully there's a question on Jeopardy! tonight about battery storage, because I think we'll all get it right. Just a couple of things I want to, touch on in closing here to address some of the things that, that got brought up. I mean, first on the Moss Landing fire, because I know that got referenced because I know our, our thoughts are always to the safety of this. I knew that

was old technology that was used in that, and I don't think it would ever cut the mustard with the review by the Power Review Board today. So I just wanted to point that out. I did reach out to LES about-- for the amendment. I know it addressed several other concerns. I don't want to speak for them fully, but there were things in there that I tried to work with them on. And also, I think to the point made by the gentleman from the Power Review Board, I'd be happy to work with them on making any improvements to the bill that they'd like to, to see. I understand there might be things that we can improve upon. And then the last thing, as far as the public powers are concerned, you know, it's something that I've tried to have discussions with them about this bill. Essentially the conversations start and began at it's-- outside our model, and that, that , that was the end of it, so. But I, I rem-- that, that invitation remains open, I just wanted to point out. You know, just in closing, you know the point of me bringing this bill, I support public power, I understand the long history that public power has in this state and how we operate it and how it serves customers. And, and really the goal is to make sure we're meeting the needs of Nebraska, because I don't want to be in a position where we're either able not-- we're not able to meet the needs of our residents because we are a state that's just exceeded that 2 million population, or turn away businesses because we have done that. So what this bill does is this allows for private investment, it's taking the risk, it's creating some opportunities, creating tax revenue, and that's my, my, my goals with the bill. So with that I'll close and happy to answer any final questions.

BRANDT: Let's see what we've got. Any questions?

JUAREZ: I have one more please.

BRANDT: Senator Juarez.

JUAREZ: So I don't know if you could answer this one, but another one that came to my mind is that if got approved, about how long does it take to construct this, these batteries. What is the time frame on the project?

PROKOP: I, I could not answer that question for you, but I'm sure I could, I have someone that I can talk to about it and get back to you on that.

JUAREZ: Thank you.

BRANDT: Yes. Can he get back to the whole committee on that?

PROKOP: Absolutely.

BRANDT: That would be good.

PROKOP: Yeah.

BRANDT: I do not see any other questions. Before we close, online, we had three proponents, one opponent, no one in the neutral capacity. And that will close our hearing on LB349. If you would like to leave, now's your chance, it's a small hearing room. We will, we will take a five minute break. We're going to start at 20, 20 after. OK. OK, we're ready to go. Welcome, Senator Prokop. LB595, right?

PROKOP: Thank you very much, Mr. Chairman, and thank you again to members of the Natural Resources Committee. For the record, my name is Jason Prokop, spelled J-a-s-o-n P-r-o-k-o-p, and I represent Legislative District 27, west Lincoln and Lancaster County. Today I'm here to talk about LB595, which creates the Research Excellence Cash Fund. This bill aims to provide support for vital research and data driven initiatives that are essential to Nebraska's economy and future growth. As we know, research is a cornerstone of innovation and progress. LB595 establishes a fund that would be administered by the University of Nebraska, with the goal of supporting ongoing research efforts and investments in data collection that are crucial for addressing both current and emerging challenges in our state. I would just note this fund is not just a one-time solution. It's an investment in Nebraska's research capacity. While the bill is designed to be flexible, it will ensure that we are prepared to invest in the kinds of research that can make a real difference in the lives of Nebraskans. One such example, and what's going to be the focus of the testifiers behind me is the Nebraska Mesonet System, which is a initiative which I know members of this committee have heard from folks before in the past. So while that's going to be the focus of the testifiers, this research fund could be used for things beyond that. I would say the, the challenges we face today do require a data driven approach. Whether it's providing farmers with accurate weather information, enhancing public safety efforts, or improving our state's ability to respond to disasters, the Research Excellence Cash Fund will provide the resources we need to strengthen those efforts. So in closing, I would say LB595 is an investment in Nebraska's future. It will help us maintain a strong research infrastructure that supports our agriculture, economy, and quality of life. And I would be happy to answer any questions that the committee might have.

BRANDT: OK. Senator Hughes.

HUGHES: Thank you, Chairman Brandt. Thanks for bringing this, Senator Prokop. And we've talked about this before. I, I guess, why do we-- does it-- if I would donate money to the University of Nebraska and say I want it for the Mesonet System first. I can do that and make it a restricted donation. Correct? Or maybe I need to ask a Nebraska--

PROKOP: Yeah. But through the-- I mean, if you're talking about through the foundation, I'm not exactly sure how those agreements work. So that, that probably would be better directed there.

HUGHES: OK. I'll do that.

PROKOP: I wouldn't want to misspeak on that. So.

BRANDT: Other questions? Senator Raybould.

RAYBOULD: Thank you, Senator Prokop. You know, I, I feel like deja vu, that I-- Senator Dorn brought this bill and had a tremendous amount of support. Could you help refresh our understanding of what Senator Dorn's bill did? Did he create the structure, or--

PROKOP: Yeah. Yeah, I believe it had funding attached to support the Mesonet System, if I have that correctly. I'm looking at the chairman. I know he's, he's been very interested in, in the Mesonet System as well. But it had funding to support it. Right now we have, and you're going to hear a lot about the Mesonet System here shortly, but we have the weather stations that are in place are quite frankly, getting kind of to, to end of life, and they are not of the highest capabilities, I think, that we could be using to draw that data and inform agriculture and, and other items. So that's what that, that bill did.

RAYBOULD: OK. Thank you.

BRANDT: I see no other questions. And for information to the hearing, we're going to take things out of order and go with neutral testimony first because we have an individual that has to drive across the state. So anyone in the neutral capacity.

CLOUSE: That's across the state? That's halfway home for me.

BRANDT: Yeah. Yeah. Halfway home for-- yeah. OK. Welcome.

MATT BLOMSTEDT: Hey. Good afternoon, Chairman Brandt, members of the Natural Resources Committee. Thank you for the opportunity to testify before you today on, on LB595. My name is Matt Blomstedt, M-a-t-t B-l-o-m-s-t-e-d-t, and I serve as the associate vice president for

government relations for the university. Thank you for accommodating me. And I appreciate Senator Prokop introducing this bill. I don't know what the weather's going to be like, but actually one of the things where Mesonet System is really important is being able to keep track of those things. So that's a nice little theory at least for this. I, I appear before you offering neutral testimony. And I want to try to explain a little bit as this, as this goes forward. Certainly as we look at the importance of research across the university system, and kind of the approaches that are taken in the Appropriations Committee overall and how the university has interacted with appropriations. Typically, we're looking at a, an appropriation, and we're looking at the big numbers and looking at the, the, the approach that we take and just kind of moving that through. There's not necessarily a great way-- and maybe to Senator Hugh's point about, it's really also about kind of building a relationship with this legislative body about the important things that might come before you as far as important research that takes place. So, as, as Senator Prokop in, in-- you know, kind of described, we do have an opportunity to start shaping a future budget that really talks about almost committee by committee around this, you know, around this body, thinking about what research needs to be accomplished for natural resources, what research needs to be accomplished in, in, you know, other, other areas as well. So when this came forward from, from Mesonet having a particular interest in looking for ways to do this, it was before our-- I mean it was after our priorities were set for the university, right? And so this exchange between folks that are interested on this particular front and lots of good reasons to do that, which I could get into. And also when I started the conversations with Senator Prokop early on, the importance of trying to not just plus up the overall budget for the university, what types of approaches could be made to actually create a fund and be able to identify that going forward. What I would also say to you is that was all before what we've experienced on, on federal funding and research. And I will tell you, just from our perspective, looking across the country and where universities are somewhat scrambling around the issue of how federal funding is going to come to play. Normally I would have imagined this fund also going, hey, the state could contribute some, we'll look for federal resources to do some of this important work and be able to blend those types of things together. I think it's going to be really important in the future that the state is able to step up and identify areas that are critical for research, for the state of Nebraska, for economic development, for the very things like Mesonet that describes. And I think that's at least the opportunity before us, and really do appreciate it. I know that the

light's going to hit a red any moment, but I really do appreciate you hearing this today. And I know, Senator Brandt, we had a chance at the beginning of the session kind of to be able to walk through this and appreciate you taking this up today.

BRANDT: OK. Let's see what we've got for questions. Senator Hughes.

HUGHES: Thank you, Chairman Brandt. Thank you for coming in. Does-- do we have to set up this fund or why can't the Board of Regents create this fund?

MATT BLOMSTEDT: Yeah, there are different ways that it could be done. I think, and again, you're talking about Matt Blomstedt in his rookie year with the university. But the, the, the reality I think for us is there are certain kind of restrictions or perceived restrictions on how that would be crea-- be done or be created. And I think in part, it's like this opportunity for folks to kind of be able to set particular funds apart. We had a line item within our budget request that was around research excellence. And so I, I was probably imagining this was going to show up in front of Appropriations and maybe that would make, made some sense. But it also, I think topically, you're right, we can create a fund that does that. We could ac-- actually ask for folks to be able to do that. But there might be certain things where the state says, use these funds for this purpose, and that might be part of that, that, that reasoning.

HUGHES: Then I guess that leads to, does the Board of Regents want this?

MATT BLOMSTEDT: That's why I'm in neutral testimony today. So we haven't actually had that particular conversation about advocating for this particular approach.

BRANDT: Other questions? I see none.

MATT BLOMSTEDT: All right. Thank you.

BRANDT: Have a nice trip.

MATT BLOMSTEDT: Hey, thanks.

BRANDT: Well, we're on neutral. Is there anyone else in neutral? OK. We'll do neutral, and then we'll do proponents. Welcome.

LARKIN POWELL: Thanks. Good afternoon, Chairman Brandt, it's good to see you again, and distinguished members of the Natural Resources

Committee. My name is Larkin Powell, it's L-a-r-k-i-n P-o-w-e-l-l. I'm the director of the School of Natural Resources on East Campus and The Institute of Agriculture and Natural Resources at UNL. And today, I'm speaking on my own accord, and not on behalf of the University of Nebraska, so I'm testifying in this neutral position. As Matt just said, there's many ways that science-based research at the University of Nebraska can inform the work and decisions of the Nebraska Legislature and beyond in Nebraska, and the creation of this cash fund has many possible uses. One of the uses of that is to provide support to the Nebraska Mesonet that's mentioned in the bill. The Nebraska Mesonet is a function of the Nebraska State Climate Office, and that office is housed in the School of Natural Resources, for which I serve as director. So that's why I'm here. A mesonet refers to a regional or mesoscale network of weather stations, so that's where the name comes from. In this case, the network is 74 current stations in the state of Nebraska. On the handout I provided, on page 2, the current stations are in red dots. You'll see that those are largely distributed in eastern Nebraska and throughout the Platte River Valley. The other colors of dots in the queue-- indicate future of sites of stations funded mostly through current federal contracts. On page 3, you'll see images of mesonet stations. There are simpler stations on the top that have been used in the past and you can see the data that those stations collect. We're now building stations with a ten meter tower that allows for more sensors to be attached, and more data to be collected. And so the magic happens when each one of these stations sends all their data back to the university. The last page of the handout shows our new website that provides live feeds of that data. Users can also request live connections or data downloads as they need for various projects and needs. There's a page in your packet that reviews the uses of mesonet data, and I think you'll hear quite a bit of that from the people behind me. But it is from agriculture to urban areas. Oklahoma has an exceptional mesonet,and using their information found in the packet, there's a return on investment section. The Nebraska Mesonet could be worth $180 million per year in profits just to crop farmers alone. So we can confidently estimate an annual return on investment of over 100 to 1, and it could easily be much higher. And we can discuss that if you'd like. Our long-term goals are to have everyone in the state within 12 to 15 miles of a station, just because weather varies so much from east to west and north to south in Nebraska. So the need for the future for that Mesonet is for funds to support operation and maintenance. And I appreciate the opportunity to be in front of you today.

BRANDT: OK. This is the guy to ask the questions to. Senator Conrad.

CONRAD: Thank you, Chair. Thank you for being here, Director. I just wanted to let you know that I had an opportunity to visit East Campus, as I do almost every day, since we're neighbors and I have lived just on the other side of the street from there. But I had a briefing on this system from Eric and Ruben--

LARKIN POWELL: Oh sure.

CONRAD: --in your department, and it was incredibly extensive, impressive, and they are brilliant, talented researchers who really did a great job of making the case for the, this system and helped to make a lot of connections for me with the different applications. So I just wanted to, to let you know that and, and to thank them for the time that they spent briefing me on the, the matter.

LARKIN POWELL: Good. No, it's an incredibly simple concept, but a very complex system when you think about all the different sensors at every station in the state, and then pulling that data back and serving it out to people so it, it takes people like them.

CONRAD: Thank you.

BRANDT: Other questions? Senator DeKay.

DeKAY: Thank you. How many of these weather stations are-- did you say are in use now?

LARKIN POWELL: There's 74 current, and that includes the red dots. And there's-- I believe that includes about 10 to 15 of the yellow dots that are up on top that are in the process of being built under Army Corps of Engineers funding.

DeKAY: What's the life cycle on those stations?

LARKIN POWELL: So the, the-- so the, the, the thing that runs out first, each of those sensors of course is outside constantly. And so that on average, each one of the sensors that measures the different things we can say has about a 10 year, 10 to 12 year life cycle. So every ten years, essentially we're replacing every sensor on that system. The structure, the gates that keep the cows out, the, the poles and everything, those last a lot longer. But, but those sensors have every 10 to 12 years.

DeKAY: So the station really doesn't become obsolete, you can keep--

LARKIN POWELL: That's correct. And there's-- as one of the things that we're seeing because of this new, taller tower, one of the things that happens is that people have new ideas for sensors, and some of this may include private industry testing different sensors and things. So there's new air quality sensors that are being considered now for addition, for example, that were not a part of the previous systems.

DeKAY: Is there a backup system of energy? I see these have got solar panels on them.

LARKIN POWELL: Yeah, that doesn't have anything to do with the previous bill. No, I just-- But there is, there is, there are small batteries there with, with solar power and batteries to, to keep it. So like for example, if snow falls on that solar panel, the batteries are there to hopefully keep it going for--

DeKAY: Well, I would just say if, if it, if the panel's not up, if it's cloudy for a few days or--

LARKIN POWELL: Yeah.

DeKAY: --covered with snow, the tower is not going to do you a lot of good.

LARKIN POWELL: Yeah. No. So that's, that's all measured into how big that panel is, but also how, how many, how much battery storage there is there.

DeKAY: All right, thank you.

BRANDT: I guess I've got a couple of questions. What's the total cost to finish our system? How many million do we need?

LARKIN POWELL: To--

BRANDT: To finish it.

LARKIN POWELL: To finish it? Well, so right now we have-- there's a-- I'm going to grab some round numbers. There is about $5 million in construction at the moment that we have gotten for future federal contracts. That's in addition to the Army Corps contract that's-- we have in progress. There is another $10 million that our director, Ruben Behnke, is submitting through the, with help, through the Nebraska Forest Service, that-- if that's successful, we'll actually complete the system. So I guess our commitment is to work with grants that are available to, to, to build the system up. That's with, with

infrastructure grants that are available. And we've been pretty successful at that recently. The, the key that is that once it's built then we need people and we need the operation and maintenance, like Senator DeKay asked about for the-- what-- as those sensors go in and out. And so people are less likely to have grants available for that. And so that's where we're looking for strategies for the future.

BRANDT: So basically what this bill does, it establishes an exclusive fund for the Mesonet so that if I as an individual or corporation wanted to give money to support this, it would be used exclusively for that purpose.

LARKIN POWELL: My understanding of the bill could be used for some other things as well, that it's not just exclusively for Mesonet.

BRANDT: OK. And I guess the last question I have, do you know how many annual users or hits that we get on this, or daily hits?

LARKIN POWELL: I do not have that information here, but I can sure get back to you on that.

BRANDT: If you could.

LARKIN POWELL: Yep. Yep.

BRANDT: Senator DeKay.

DeKAY: Thank you. Real quick. Is there federal grants available, like through the National Weather Service or anything that help out with this type of program?

LARKIN POWELL: Yeah. So we, so we've been getting some infrastructure grants recently. The, the Weather Service provides some funding for specific stations. NOAA, the federal agency, actually gives us $2,500 for each one of those stations. So if on average every year we need just for station maintenance, about $4,000 to $5,000 to replace the sensorsthat are needed that year, we've got about half the money from NOAA on a regular basis to, to provide that. So we, we do have some federal funding to, to support the system. So we're not starting with zero.

DeKAY: Thank you.

BRANDT: OK. I do not see any other questions. Thank you.

LARKIN POWELL: Thanks.

BRANDT: Is there anybody else in the neutral capacity? Come on up. Welcome.

JOHN ERIXSON: Thank you. Good afternoon, Senator Brandt, distinguished members of the Natural Resource Committee. My name is John Erixson, J-o-h-n E-r-i-x-s-o-n, and I am the State Forester and the director of the Nebraska Forest Service. I am here speaking on my accord and not on behalf of the University of Nebraska, and I am testifying in a neutral position. I'm here to speak today about the critical role that the Nebraska Mesonet system can play in the early detection and management of wildfires in our states. As demonstrated last week. Nebraska's landscapes are vulerable to wildfires. The threat these fires pose grows each year, as we've seen the trends in our fire seasons move from a fire season to almost a fire year. The Mesonet will provide an opportunity to use artificial intelligence and high resolution cameras to detect wildfires in their earliest stages. These strategically spaced, spaced stations can be used to identify smoke plumes or the orange glow that's typically associated with wildland fire. This even works at night. Early detection is critical because it gives authorities more time and opportunity to suppress those fires before they become large fires, which can threaten life and property. Beyond just detecting the fire, we can use a Mesonet System to triangulate the data from the different stations to identify the location of those fires. With the capability, the first respond-- responders can get to the fires more effectively and efficiently. The Mesonet System also provides critical soil data at various levels which is invaluable for not only agricultural purposes, but also from the wildland fire standpoint. Dry vegetation is more prone to ignition, while wet soil can provide a natural barrier in some cases. Another critical component is the ability of the Mesonet System is to utilize real-time data for weather. Firefighters use this data to make decisions about how to suppress a fire, and to utilize that information to make decisions about what they need to do next. By combining early fire detection, triangulation, soils data, and real-time weather conditions, the Nebraska Mesonet offers a comprehensive, data driven approach to wildland management. It enables agencies to respond more quickly, allocate resources more effectively, and anticipate potential fire outbreaks before they escalate. This type of, of informed response is critical in making and mitigating the devastating impacts of wildfire. With that, I would entertain any questions.

BRANDT: And we can read your conclusion on here. It's pretty well written. Questions? Any questions of the Forest Service? I guess I

don't see any. Let's hope we don't have a wild wildfire season this year.

JOHN ERIXSON: Me too.

BRANDT: Yep. Thank you. Thank you for testimony. Anyone else in the neutral capacity? We're going to proponents. Who's a proponent? Come on up. Welcome.

RUSSELL CALLAN: Thank you. Chairman Brandt, members of the natural Resource Committee, thanks for allowing me to, to be here today. My name is Russell Callan. It's R-u-s-s-e-l-l C-a-l-l-a-n, and I'm general manager of the Lower Loupe Natural Resources District. I am here today representing the Nebraska Association of Resource Districts. This testimony is in support of LB595; to be more direct, specifically the Nebraska Mesonet System. The Nebraska Association of Resource Districts recognizes the importance-- the important role of the Mesonet System in weather monitoring and data collection. The information collected provides valuable historical records while also serving immediate, real-time applications for producers, water managers, and researchers. One of the most significant uses of the Mesonet data is in the agricultural water management. Throughout the growing season, crop water use reports rely on weather data to estimate the daily water needs of crops. Irrigators use this information to make informed decisions about water application, promoting efficient irrigation practices that conserve water and help mitigate nitrogen contamination, an issue of increasing concern. Despite the importance, the cost of maintaining and expanding the Mesonet System continues to rise. There is also a growing need for additional weather stations across the state. For example, the Lower Loupe, which covers approximately 1.2 million irrigated acres, currently has two weather stations available to support producers' irrigation decisions. The gap highlights the need for greater investment in the system. Beyond agriculture, the data collected through the Mesonet System is essential for tracking long term weather trends, improving flood forecasting, and enhancing water modeling management efforts. These applications demonstrate the widespread reliance on the system by NRDs and other stakeholders across the state. Support for LB959-- LB595 is vital to ensure the continued operation, expansion, and enhancement of the Nebraska Mesonet System, providing essential data that benefits Ag, water conservation, and resource management statewide. I will stop there, and I would be glad to answer any questions.

BRANDT: OK. Let's see what we've got. Senator Juarez.

JUAREZ: Thank you. So you mentioned how many acres have only two stations?

RUSSELL CALLAN: That would be within my district alone, which is basically the central part of the state, it's a 10th of the state, there's, there's two weather stations in my district boundaries.

JUAREZ: OK. So how many more stations do you think would be sufficient for that area you mentioned?

RUSSELL CALLAN: I would, I would go back to our previous presenter who talked, you know, 12 to 14 miles between sites, something like that, I think is what he said.

JUAREZ: OK.

RUSSELL CALLAN: Currently the two that are in my district are about 50 miles apart.

JUAREZ: Oh. OK. Thank you.

BRANDT: Other questions? That's certainly not enough weather stations, is it?

RUSSELL CALLAN: Not enough. Letting me off pretty easy.

BRANDT: Yeah. OK.

RUSSELL CALLAN: Thank you.

BRANDT: Next proponent? Welcome.

JOHN McCLURE: Thank you. Good afternoon, Chairman Brandt and members of the committee. I'm going to be very brief. I'm John McClure, J-o-h-n M-c-C-l-u-r-e, and I'm here in support today for LB595 on behalf of the Nebraska Public Power District. You've heard from other witnesses about the value of the Mesonet System. The bill itself, I really appreciate the way it focuses on the opportunity to get funds to address data-driven needs at the university, including the Mesonet System. You might ask, why is NPPD interested in this? Weather drives our business. So having good weather data helps us forecast. But we also have a surface water irrigation system. And we have a water system that helps operate our power plants. Having the data in a real-time basis helps us with surface water irrigation deliveries. It also helps us manage the operation of those water flows that go to cool power plants and produce hydropower. So again, I appreciate, I

appreciate this being brought forward and we support this. I'd be happy to answer any questions.

BRANDT: OK. Let's see. I don't see any. Thank you for your testimony. Next proponent? Any more proponents? There we go. Welcome.

LORRIE BENSON: Thank you, Senator Brandt, members of the committee. My name is Lorrie Benson, L-o-r-r-i-e B-e-n-s-o-n. I'm here today as chair of and on behalf of the Climate Action Team at First Plymouth Congregational Church in Lincoln. And we support LB595 because it recognizes the need to fund the Mesonet. We would prefer that it actually funded the Mesonet rather than simply setting up a fund. I echo the comments of previous testifiers, but would like to talk about the importance of a robust, robust Mesonet to the University of Nebraska faculty and students and why that matters to all Nebraskans. For several years, I was assistant director of the University of Nebraska Water Center and worked with researchers, extension faculty, administrators, and students. I don't claim to be an expert on the Mesonet, and I'm not speaking for the university, but I can tell you what I observed. When potential faculty and students consider where to work or study, they look closely at the facilities and infrastructure that will support them. We have no trouble understanding how up-to-date laboratories or field sites, such as the ag facility at Clay Center are attractive to potential faculty and students. We need to think about the Mesonet the same way. Attracting and retaining talented, educated young people has been a constant topic the three decades that I've been back in Nebraska. If we can attract students, we can improve the chances they'll stay in Nebraska. This is particularly critical, in my opinion, for master's students, because increasingly we need the additional education and experience they can bring to jobs in the state. One of the things I learned when my daughter was doing her training to become a physician was that after they complete training, doctors go into practice on average within 100 miles of where they completed residency. I looked for similar statistics for other disciplines and couldn't find them, but it's not hard to imagine that we're a lot more likely to keep graduates, and especially master's program graduates, if they attend school here. And if we want good students, we need to start by attracting and retaining quality faculty who are also attracted to great research tools. We need to stabilize the funding for the Mesonet, first for researchers and students, and then for the ripple effects that benefit all Nebraskans. This network may become especially critical if federal level funding cuts and program cuts continue. The Mesonet couldn't replace the expertise and services related to weather and climate conditions provided to Nebraskans by the National Weather Service, the

National Oceanic and Atmospheric Administration, the Federal Emergency Management Administration, and the U.S. Geological Survey, The US Department of Agriculture, and likely more. But the Mesonet may be the best resource we have if federal cuts stand, and maintaining the network we have may allow us to ramp up monitoring if needed. Finally, you may wonder why a church group cares about this. We believe in science and using it in a changing climate to protect God's people and planet. Thank you for considering our comments.

BRANDT: All right. Let's see if we have any questions. I don't see any, but yeah, I think it's kind of cool that the church is doing that.

JUAREZ: Yeah. Thanks for coming.

BRANDT: Next proponent.

MOSER: It's getting more testimony than the other.

BRANDT: It's going too fast.

BRUCE JOHNSON: Good afternoon.

BRANDT: Good afternoon.

BRUCE JOHNSON: Committee, my name is Bruce Johnson, B-r-u-c-e J-o-h-n-s-o-n. I'm speaking on my own account. I testify, really, as a proponent in a conditional support for LB595. I have no qualms. I totally support this, the comments made earlier as far as what it has provided for production agriculture specifically, but also for all residents in the state, because we are all susceptible to Nebraska's weird weather that's getting wetter. Weirder, let's say it that way. And, and as a result, I think we, we can appreciate comments as, as about wildfires and that sort of thing. And just realizing, too, that they happen anywhere. Two years ago, we could have seen a pretty devastating fire hit southwest Lincoln. And, and with that, totally for this kind of a system as a state based and state supported system. It's a huge infrastructure component that we really need to have. And it started out to be kind of the model for the rest of the country in terms of other states application. We've fallen behind because we've not seen that consistent state support coming down the pike, in fact, four or five years ago, the $250,000 that was coming every year for maintenance and, and so forth of the system just disappeared. And, and actually decisions had to be made to close down some of the stations. So that's our-- the condition is that this bill is still very non-committal in terms of addressing the funding. OK? And, and I would

hope that this could even go forward to, to say it does need fiscal note because it carries such an importance for the rest of the state. We are not a premier designate weather station system anymore. Oklahoma, as mentioned, is that. They have 120 stations across their 77 counties. And we're, we're at 74 stations across 93 counties. Some counties don't have any. There are individuals, and even in southeast Nebraska that are no closer than 30 miles away from, from that station. Comes time for dealing with insurance claims in terms of weather damages and so forth, that gets to be a, a costly thing, aside from the, the, the over-- the management of, of our resources and so forth. So I think there's really a key for even taking this to the floor with even a fiscal note. There's no reason why the state Legislature should not be putting on a line item for a system like this. And yes, we can--

BRANDT: Mr. Johnson.

BRUCE JOHNSON: --count on some folks-- I guess I'm out of time.

BRANDT: Well, let's see, let's see what questions we've got.

BRUCE JOHNSON: Sure. You bet.

BRANDT: Maybe there's a question. And I guess in regards to the fiscal, we got a little bit of bad news this morning that there's another $90 million that the Appropriations Committee found that we're going to have to fund. And I, I, I know we've had some meetings before, and the-- I think the intent here is to, to keep the Mesonet in front of everybody in some way, shape or form.

BRUCE JOHNSON: Yeah. Yeah.

BRANDT: So I don't know if you have any comment on the fiscal anymore.

BRUCE JOHNSON: As mentioned, two years ago, we heard this same bill and it never did get out of committee at that point. And the comment was, you know, go back, form a study committee and come up with a plan which has been noted here. But even the O&M and the staffing to maintain this once it's in place takes year by year dollar funding. And that's the role, I see, as the state, not the university. That was once a, a little bit of a qualm two years ago. So in spite of that budget deficit, which I personally believe was self-imposed by tax cuts that have worsened that situation, this is an investment for the future. It's really critical.

BRANDT: So OK. All right. Thank you. Next proponent. Welcome.

AL DAVIS: Good afternoon, Senator Brandt, members of the Natural Resources Committee. I'm named Al Davis, A-l D-a-v-i-s. I'm speaking here today on behalf of the-- as the contract lobbyist for the 3,000 members of Nebraska Chapter of the Sierra Club, and also for the Independent Cattlemen of Nebraska, which is an organization of ranching families located in the northern part of the state. So a lot of things have been said, and I think a lot of good testimony has come, and I'm not going to try to verbatim read what I have, but I just think it's really important. This is a-- I agree with Sen-- with Mr. Johnson that this is a piece that the state should definitely fund. So I've started working on this with Ruben Behnke and some other people a couple of years ago because this is an important tool for Nebraska. Unfortunately, the bill didn't move from the Appropriations Committee, which is where it was last time. We thought it was more appropriate to be here. But through discussions with the university and some other developments, the decision was made that we should just at least get a niche established for where the Mesonet could be funded, could be located. And so with that, you know, contributions can come in or maybe hopefully when we have a little better news here with the state, the state will step up and fund the Mesonet System, because I do think it's one of the most important things we can do for our farm and ranch families and for public health and for public safety. And, and for business, because you, you've heard Mr. Johnson refer to the insurance industry. Obviously, some of you who are, who are engaged in agriculture and know that you have crops and you have crop insurance. And so this will help the insurance industry, too. I don't think I have much more to say about it, I guess. From my perspective, I would certainly encourage you to move this bill forward and if there's any possibility of funding for it, great. But let's always keep the ball rolling and keep moving so that we can do this when the time comes. One more thing I would say is Ruben Behnke has done a really great job trying to bring federal money into the state, so I think you heard reference to it earlier. But NRCS is putting in some in, in the central part of the state, all along on the north part of the state. That's being done as part of the Missouri River Flood Protection program following the 2019 flood. So, you know, we got a lot of federal money coming in. We need a little bit of money to go ahead and patch up the system that we've got, bring it into the next century. Thank you.

BRANDT: All right. Any questions? Yes, Senator Raybould.

RAYBOULD: Thank you, Mr. Davis. Do you know, does the state of Oklahoma fund their system?

AL DAVIS: Oklahoma has a line item in their budget for the Mesonet System, and I would say this, we certainly don't want to lose to Oklahoma. That would be a bad blow.

BRANDT: All right. Anything else? Seeing none.

AL DAVIS: Thank you.

BRANDT: Thank you. Any more proponents? Any opponents? You're welcome to close, Senator Prokop.

PROKOP: Thank you very much. Thank you, Mr. Chairman and members of the committee. I appreciate all the time this afternoon on these couple of bills. Just in closing, a couple, couple of things I would mention. One, you know, a lot of discussion about cash fund versus actually appropriating for it, and I think the chairman hit the nail on the head with that we knew going into this session we were going to have a very tough budget climate. And, and if things looked different, this might be a different bill and then a different committee. But needless to say, this bill was brought because I think in the belief that the Mesonet System is an important thing that we do need to make some investments in, and this creates the mechanism to potentially do that in the future when there's a brighter fiscal picture. And then, you know, also, I think just kind of my closing comment on it is, is with the data that this collects, and if we're able to set up the network, I think that folks that work on this every single day would really like to see that dat-- with better data, we can make better decisions. And as you've heard from all the testifiers, there's just so many ripple effects from the types of things that it could impact. So again, I appreciate your consideration of this, of this bill, and happy to answer any final questions you might have.

BRANDT: All right. Questions? Senator Juarez.

JUAREZ: So since I'm new, I wanted to know, are you aware of how they make decisions about the lottery funds and whether or not we could have some of those funds go for this project?

PROKOP: I'm, I'm not an expert on how exactly they make the, the lottery funds. I know in, in law there were some things that were set aside, but I don't, I don't know how that exactly all works, so.

JUAREZ: Yeah, we got-- I'm curious to find that out.

PROKOP: Yeah. Yeah. I know they go to, goes to education and the Trust and some other-- Environmental Trust and some others. But I don't know all of the, all the different pieces. But it's, it's involved. Yes.

BRANDT: And, and I believe-- I can get you that information after, after the hearing, Senator. OK. Senator Clouse.

CLOUSE: Yes. Thank you, Senator Brandt. I, I do have a question, and I don't know if you're interested in this, or maybe it's just me. Everything I heard was about the Mesonet System, but it says in here critical to the Nebraska economy, including but not limited to--

BRANDT: Yeah.

CLOUSE: Should we redirect that just to say this is for the Mesonet System? We could, and I think if you put it in a, in a line item, the intention was to make it broader so that if there-- it was additional things that we could use this cash fund for to do research. But you know, to be very straightforward with, yeah, we did not have any place to, to put funds for the Mesonet, so that-- I think that was the, the seed and the germination of the idea. But other things could be used for this.

CLOUSE: It says it's also administered by the University of Nebraska--

PROKOP: Right.

CLOUSE: --so as I look--

PROKOP: Right.

CLOUSE: --at this, they control it, but they can do anything they want.

PROKOP: Right.

CLOUSE: And everything I heard was Mesonet

PROKOP: That's-- yeah. It was purposely broad for that purpose. But yeah, you know, certainly we could, we could narrow it with funds that became available.

CLOUSE: [INAUDIBLE] if the rest of the--

BRANDT: OK. Other questions? Senator Hughes.

HUGHES: Thank you, Chair Brandt. If this wouldn't get through this year, do you think the Regents would just go ahead and do it? Or--

PROKOP: You know, I would never, I would never, I would never speak for the Regents.

HUGHES: I guess would, would the group pursue that route next? Or is it kind of we want it in here [INAUDIBLE]?

PROKOP: You would have, you would have to ask those that, that, that work with the Mesonet every single day at the, at the university and, and those at the, at the college. But, but yeah, I mean, a lot of it, I mean, we have a, we have a Mesonet System right now. They said the funding that they're looking for is to make the upgrades to the existing network and then add on to, so we have that connectivity that we're, that we're looking for. But I, I don't know about any type of priorities that the Regents may make later, or could speak to that. So.

HUGHES: Yeah, that's great. Thank you.

BRANDT: Any other questions? OK, I've got one, and I'm sure you aren't going to be able to answer this, I'll get this on the record and somebody can send this to us later. So where are the sensors made? And this question is asked in the context of being within ten miles of a military installation. In this committee, particularly on the energy side, we've dealt with this a lot. We can't use components from China, for example. And you've heard this too, on our Telecommunications, and also out in the missile fields in western Nebraska and anywhere close to Offutt. So I don't know if, if that's even a concern on these stations. Is that something you can answer or maybe get us the information?

PROKOP: It's not. I can certainly follow up with you on that issue.

BRANDT: All right. I appreciate that. I see no other questions. Before we close the hearing, online, we had 21 proponents, 0 opponents, 0 people in the neutral. We're going to close the hearing on LB595 and ask everybody to leave. We've got to go unto a real quick exec here.

PROKOP: Thank you.

BRANDT: And I appreciate everybody coming today.