

DISCUSSION

ITEMS

AGRICULTURE DISTRICT

WIND & SOLAR ENERGY ZONING ORDINANCE DISCUSSION

Scott Harmstead (Consultant, SRF Consulting): Scott Harmstead, SRF Consulting, hired by the county to help with the zoning ordinance update. I want to provide a preface before I get into [s]ome details here and I'll focus on some of the bigger changes that we are proposing. The first one Article Three. It says Article One in the in the draft you got because [we're] doing this in different pieces and then we'll bring it all together at the end. [Y]our current Article 3 is where all your different zoning districts are located. [T]he major change that we'll be talking about with Article Three is the Ag District, and we talked about that a bit back in March, and then we'll touch on some other changes after we get through agriculture in terms of the zoning districts. Then we'll be looking at the wind energy standards after that and then we'll be looking at the solar energy standards. The county currently does have wind standards. The county does not currently have solar standards. Any questions on that before I get into Article Three of the Ag district.

Butch Fleck (Planning and Zoning Board Chair): Anybody have any questions? I'm glad to see a lot of participation here. Does anybody in the audience have questions before we go any further?

Scott Harmstead: I know that there's folks that might want to speak here on the solar item. Starting with the Ag districts, what we have in front of you are 2 different alternatives, and I think the first one I'll hit on is [the one we] talked about in March with this group. [T]hat would be to still have one Ag district like you have today, but have the minimum lot size go down to five acres.

You would also limit that to three dwelling units or three lots per quarter-quarter. You would have the same standards you have today, you would just be going down to a five-acre minimum and limiting the amount of lots you can have to three per quarter-quarter.

That's the first alternative. The next alternative would be to create two different agricultural districts. One would be your Ag-40, like what you have today, but that really would be the minimum. A forty-acre minimum to allow for much larger parcels and areas with larger parcels, and the other standards would be similar to what you have: conditional uses, allowed [uses], and things like that. Then there would be another district called Ag-5, actually called Agricultural Residential, [with a] five-acre minimum that would allow subdivision down to five acre lots. Under that alternative, there would be no restriction on how many lots you could have per quarter-quarter or per 40 acres. The benefit of having that Ag-residential five acre minimum is [that] you could start to see those areas where there's more pressure for people to want to have that much smaller lot size down to five acres. Then, when the county updates its comprehensive plan, those areas could be looked at a little bit more closely.

Kathy Skarda (Planning and Zoning Board Member): With that, it can be like you're saying you would create a subdivision from all of those 40 acres.

Scott Harmstead: Essentially, you could have a subdivision, yes. Once you come and do a subdivision, and it could be five lots at a time, four lots at a time. Or you could just naturally over time have what

would essentially be a subdivision. Someone does a five-acre lot and five years later, another five-acre lot next to it. Five years later, another five-acre lot.

Kathy Skarda: Well, how many subdivisions do we have in McKenzie County right now?

Andrew Steck (Code Enforcement Officer): 22.

Kathy Skarda: And how many homes do they have, and are they full?

Sandee Kimpel: I don't know the number of homes, but are they full? No.

Kathy Skarda: I'm just going to say from my perspective, I'm not a real fan of creating more potential subdivisions when we have not filled the existing subdivisions.

Scott Harmstead: The intent, though, I think of this Agricultural Residential option, Ag-5, would not be for subdivisions. It would simply be for families wanting to easily go down to 5 acres. There would be no restriction though on how many lots you could have per quarter-quarter. They could do as many five acre lots as they want. The difference in that alternative, the Ag-40 and Ag-5, the difference between those two districts [is that in] Ag-5 you would not be able to allow a lot of the conditional uses because it allows such small parcels.

The big significant uses, like gravel mining or scoria mining, you would not be able to do in the Ag-5. You'd have to do that in Ag-40.

John Irwin (Planning and Zoning Board Member): Ag-5 isn't really protecting agriculture like we were kind of hoping we were going to when we started this.

Scott Harmstead: Yeah, but that's that scenario. We wanted to give you alternatives, right? We wanted to give you 1 extreme over here for splitting-off lots, that's the Ag-5. Then the softer approach is going down to 5-acre minimum, but restricting that to three lots per quarter-quarter.

Matt Beard (Planning and Zoning Board Member): If you went with Ag-40, Ag-5, would you see all our Ag start off under the Ag-40 classification and then as the five-acre thing comes up, that's when they get rezoned to Ag-5?

Scott Harmstead: It would just happen organically over time, as people propose to subdivide their lots and some areas might have more subdivision than others.

Kathy Skarda: How would you control that?

Matt Beard: Well, that's what I'm asking. It's all Ag right now, so if you went with this plan, it'd have to be classified as something. Then it would really only change to the five[-acre rule] unless you did [rezone the lot].

Scott Harmstead: They'd have to apply for the rezone and that's where there's no real equivalent comp plan designation for that right now. That's why I was referring to the comprehensive plan. If you did decide to go with this Ag-5 option, you'd want to address that with the comprehensive plan as well. Look at what areas [would we] be OK with the five acre minimum lot size. It's not just address it and zone it and leave it. You'd want to follow up with some type of some type of mapping change with your comprehensive plan.

Butch Fleck: And I have a question to clarify. I had a person ask me, we have to clarify that as long as it's an Ag district, the Ag rules still apply. You can't put a business in one of those five-acre lots.

Scott Harmstead: That's correct. It would really be the same standards, except you just wouldn't be allowed to do some of those larger conditional use.

Butch Fleck: Yeah, because people were worried about buy[ing] 5 acres and somebody put[ting] some kind business right next to them.

Scott Harmstead: No, no, this doesn't change the standard.

In the copy of the draft, page 1-9 has a dimensional standard table and that's where it lays out the minimum lot sizes for setbacks. That's a bit different than what you have today, instead of each district having all these different standards, it's just in one table.

That's the first item I'm looking for the board's input on- preference towards either alternative scenario.

Kathy Skarda: It's up to the people to take in, read it, and to come back to us as well. We need to listen to what their input is.

Butch Fleck: Do we have any comments from the audience?

Kathy Skarda: I would for me myself, I need more time to study this, but that's just me. Well, how about you?

Butch Fleck: I didn't know what was going on after the last one, so that's why I want to know what anybody else had to say out there, what they thought of the last one. Some of you were here.

Matt Beard: But to clarify, if we didn't have lists, if you didn't have this Ag-40 and Ag-5 separate classification, if you kept it together, the other proposal or idea is that you would limit three 5-acre divisions to the quarter-quarter to forty acres.

Scott Harmstead: That's correct.

Matt Beard: You would say a 40-acre [parcel] couldn't be divided more than four times.

Craig Hystad: You could only have three separate houses on 40 acres.

Matt Beard: That'd be your guidance, OK.

Scott Harmstead: That's correct. It's just trying to limit density so you can maintain the agricultural use throughout those areas.

Scott Harmstead: At some point, you know there's a limit.

Matt Beard: Because we have a lot of parcels out there that are less than five acres. So then what do those get classified as?

Scott Harmstead: The ones that are less than five acres, those just become grandfathered in or non-conforming as what we call it.

Matt Beard: Those are still Ag?

Scott Harmstead: They're still Ag, but non-conforming. They can't do anything, can't split them anymore, they just are.

Kathy Skarda: I guess I prefer alternative one, but that would be me.

Butch Fleck: That's the five acre one.

John Irwin: The three and 40.

Tim Transtrom (Planning and Zoning Board Member): Would that still require a CUP? The three and 40 plan?

Scott Harmstead: Good question, and no, the plan would be to remove that requirement so there's less paperwork for everybody involved.

Tim Transtrom: That would be great.

Craig Hystad: Just three lots, three per forty [acres]. Three on forty [acres] is all it could be, unless they come in first to get a CUP and go through the subdivision then. It can be done, but it's got to go through a CUP. So Sandee could allow three houses to be built on 40 acres.

Andrew Steck: Butch, the easiest example to give you would be that this way the Lundeens, that we just spent all that time talking to, they could just come in for a lot split that can be approved administratively. There's no CUP involved.

Kathy Skarda: Just be done.

Butch Fleck: Okay, that's what I understand. That's what I understood with the eight 5-acre ones too on 40 acres.

Craig Hystad: If you do it, you could put eight houses on there without a CUP if we do the Ag-40. The most they can have is 3 [residences] on a 40 acre [lot], unless they come in and do permits to break it down more.

Audience Member: Hi, I'm Patsy Murray, and I don't know anything that's going on, but I'm curious what is his (*gesturing to Scott Harmstead*) title? What's this guy? What are you, an engineer of land kind of thing? Do you live here?

Scott Harmstead: I am a consultant that was brought in by the county. I work for SRF Consulting Group and so I've been involved with planning in the county since 2015 with the comprehensive plan. I'm a planner, I study that, and that's my profession.

Audience Member (Patsy Murray): Like, are you talking here about, we farm up north, does this have anything to do with our property out there?

Tim Transtrom: Yeah, if your grandkids want to come back and build on your property. Right now, the way it stands it's difficult to put multiple houses on a farmstead.

Butch Fleck: And if you're non-family, it's really hard.

Audience Member (Patsy Murray): So we're going to lose some privileges.

Tim Transtrom: No, you're going to gain some.

Kathy Skarda: You're going to gain some privileges. Right now, you lost them.

Audience Member (Patsy Murray): Okay, so this is the full McKenzie County.

Kathy Skarda: Yeah, and we're doing this discussion now because in 2025 our comprehensive plan for the planning and zoning guidelines is due to be updated. We want to get public input now, so we make sure we get what the people want and not rush through it [at the] end of 2024 or 2025, whatever magical month it is and get it done without your input. We're trying to get more input and get people more knowledgeable so that we know what our residents want and need.

Craig Hystad: We're trying to regulate so somebody don't come next door to you and build a big industrial something that you don't [want].

Audience Member: Jacqui Skadberg. I just want to make sure, I'm understanding. If I wanted to buy land, I'd have to buy 40 acres, is that correct? If I want to build a house?

Butch Fleck: You can go 5.

Tim Transtrom: With a CUP, with a conditional use permit. Don't just go buy 5 acres, expecting that you can build on it. You have to go through, get the conditional use permit first, and then you could potentially purchase.

Audience Member (Jacqui Skadberg): So currently then, if someone wanted to buy land, they get a permit to still build, so that's not a problem. So what are we looking at? Is it in the future, making sure that 40 acres of land isn't completely used up or it's made to where people can't ever purchase land, is that it? Is that what I'm understanding about this discussion?

Tim Transtrom: It's so we don't have such high concentrations. If I got a big place and there's a 40 [acre parcel] next to me that I don't own and somebody wants to come in there with the Ag-5 [rule], somebody could buy that 40 acres and put eight houses on there, which is basically a subdivision. Most people that move to the country, want to live in the country, right? So if you go and buy 5 acres, thinking I'm living in the country, but then that guy sells seven other lots all around you. Now you're living in town with no amenities. We're just saying on forty acres- this isn't the rule yet, this is what will be voted on- we can only have three houses.

Audience Member (Jacqui Skadberg): Currently, the three houses right now is only if they're family members?

Craig Hystad: Yeah, yeah.

Kathy Skarda: We still have to get approval from them.

Audience Member (Jacqui Skadberg): This would open it up to non-family members, but still try to keep it to where we don't have subdivisions in the middle of the country?

Kathy Skarda: Yeah, without any city amenities cause a lot of people when they move to the country and there's ten of you or eight of you there, then all of a sudden they're going 'I want city amenities. I want pavement. I want this. I want that.'

John Irwin: Not too long ago- was it 2-3 years ago- it was forty acres. We just knocked it down to 5 acres.

Audience Member (Jacqui Skadberg): My question is, my parents are in the septic tank pumping business, so I understand that anything less than an acre is a huge disaster for septic systems. Generally, 2 to 3 acres is, you know, a better deal, but in the community where I came from, they've got some really stupid people now in planning and zoning, and there's septic issues like crazy, and they can't even fix it because they didn't stick to that 2.5 to 3 acres.

Kathy Skarda: Five acres was a challenge to make sure and get, but that was my opinion and that's where I'm at.

Scott Harmstead: Current Ag requirements does say 40-acre minimum, but there's an allowance to go to five acres if you get a special permit called the conditional use permit. Correct me if I'm wrong, staff, but it also has to be a related family member, which gets a little tricky sometimes. One of the objectives is amending and changing the zoning ordinance to make it simpler, while still trying to preserve agriculture [so that] the country doesn't become the city. The change discussed in March is to go down to a 5-acre minimum, but only to allow three 5-acre lots in 40 acres. Then that special permit requirement would go away, the family member requirement would go away. That would make things a little bit simpler, but there would still be a limit to how many five acre lots you could have in that quarter-quarter here.

Butch Fleck: One of our problems was if you only had family members and say one of them got divorced and left, and what do you do with that house? It's no longer a family, so we're trying to clear this up.

Scott Harmstead: I have a couple more comments on the districts real quick. There's a use table and we talked about this in March [that has] all the things you could do in a zoning district. It's all in one table instead of these separate lists.

We are proposing to remove 2 zoning districts, one has not even been used. That's called RU, residential urban. I think that was created like 7 or 8 years ago. Basically like city-type development in areas where the comp plan says it would be okay. Well, that really has not come to fruition at all or anything close to it. I think the message we're hearing is that should be accommodated in the cities, not in the county, so the plan would be to remove that district. The other one we'll be removing is the R-10A, which essentially is a 10-acre minimum for like rural-residential subdivisions. Well, the idea was just to rely upon the R-5A, so to do a rural residential subdivision, go down to five-acre minimum for a larger subdivision right? You do have some, not a lot in recent years.

Sandee Kimpel: We have one within the entire county.

Scott Harmstead: So that would be reverted to R-5A.

Sandee Kimpel: Reverting it to R-5A would not hurt the people. I'd have to actually look at that exact piece, but I think there's other stuff on there. I don't think that would change actually from what it is right now.

Scott Harmstead: So again, the idea is simplifying things. Getting rid of the stuff you don't really use.

And that's really it for the Article 3 all the districts, those are the big highlights I wanted to mention. The next section is standards for wind energy.

Some things on this before I get into it. The county does currently have wind energy standards. The county has nothing very extensive when you compare the county's wind energy standards to other counties. We particularly looked at Mountrail county, we looked at Morton County, and we looked at Stark County. They all have fairly recent wind energy standards that are a bit more extensive than McKenzie. The other goal when we do any zoning changes to the zoning regulations for the entire county, we want to make sure that the standards are reasonable and that you're not essentially taking away all of the value of a property. You must be careful when you prohibit something, because that could take away the property owner's ability to create value and to develop something. We want to be careful that we're not so restrictive that you are prohibiting or almost prohibiting something. We've got to be careful legally when we're looking at zoning restrictions to make sure that someone can still reasonably develop something. So that's one of our goals as well when we do any changes with zoning. [It's] the same with wind. I mentioned we reviewed other county regulations for wind. Of course, we did look at the state requirements as well.

Did also get a comment and I'll read that. From the Hartels. It says 'in regards to the meeting held tonight we are unable to leave the ranch to attend. If this meeting is concerning putting in wind towers, we are totally against it. It is disheartening when the county is so concerned about appearances in all other avenues of our lives that we deal with that they would consider letting this come to fruition.' After reading that, that's likely a misunderstanding without seeing the information that we're presenting. We'll get the information out before the next meeting, but definitely comment noted. There's concern about wind energy for sure.

The first thing we look at in the wind energy section here, there's two different kinds. There are small systems, which is essentially you want a turbine on your farm to power your well or power your shop or something. That's a lot different than a utility scale, which is connected to the grid. It's commercial, it's powering the grid. There are two different things we're talking about here and they both have much different requirements. The small systems attached to a ranch or a farmstead, that's essentially like an accessory and we would look at that as an accessory use, right? It would be relatively easy to do that. Any questions on the small systems before I get to the large commercial utility scale?

Kathy Skarda: The small systems that also require CUP.

Scott Harmstead: The approach there would be they would require only building permits. It would be like a singular windmill. It would just require a building permit, no conditional use permit. I've got one near my house. It's actually nice to look at it, you can see how fast the wind's blowing.

So then the other is the utility scale. It's essentially wholesale sale of power, right? Andrew created a map of the current what the current requirement is, so the current requirement is one mile from a habitable structure.

Andrew Steck: One mile from any [active residential] address point in the county.

Scott Harmstead: Andrew mapped that out, what that does. These [spaces marked in green] are all the occupied homes with an address. This is what it leaves, right? It's essentially the white areas, the grey areas are all federal land, which would require a completely different permitting process, not under the

control of the county at all. I haven't looked into that, I'm not even sure if the grasslands would allow that or not. I have no idea. It's the white areas and this just shows that that one set back requirement. It doesn't show any other restrictions, like say topography, water, or any other restrictions there might be. That's just the one-mile setback from homes. That's the gist of the current standards, and then of course if someone applied, they'd also have to comply with the state Public Service Commission. They have a host of standards the legislature has been tweaking over the last several years constantly, so there's a lot of different state requirements there. Just so everyone in the public also understand[s] how a wind project would work today, you have to get local approvals. You'd have to get county approval and you'd also have to get state approval as well. Both would have to happen for a project to go through.

Kathy Skarda: Can you please tell us about the decommissioning of wind turbines? How do they reach their end of life cycle and what is done?

Scott Harmstead: I can give you a very high-level summary. I don't have the state decommissioning requirements in front of me right now. They require it be bonded to a certain amount. [The turbine would] be removed to a certain depth and I don't have that in front of me, but essentially it has to be returned to the natural grade before the project has to be returned.

Butch Fleck: We did go through this back in 2015 I think. The removal part, they have to go clear to the bottom. They have to remove the whole thing. The cement, everything.

Kathy Skarda: The reason why I'm asking Scott is that item number H says that within six months of termination or abandonment of leases or easements for wind energy in McKenzie County, the Permittee shall at its expense remove all structures to a depth of four feet below pre-construction grade. We have requirements for pipeline and for rural water that goes six feet and seven feet to the top of the pipeline so four feet doesn't even begin to touch where they need to go because this never decomposes, it's always there and it's there for the life of the world.

Scott Harmstead: Sandee, I believe it is complete removal? The current requirement is the depth of four feet. That's the current reclamation requirement that the county has on the books now.

I want to talk about the setbacks. Our professional concern is the one-mile setback from homes. My concern is it would make it just about prohibitive to do any kind of wind projects. That's the concern from a professional opinion. Our proposed setbacks are actually not based off of straight distance, they're based off of tower height. It's kind of like a sliding scale and this is again very similar to the other counties. If it's a participating occupied home, [meaning that] they're getting paid, it's 1.1 times the tower height and that about the same as the state requirement right now. If they're not participating [meaning not being paid], it's three times the tower height.

I'll give you an example being in Mountrail County about a year ago, some towers are now getting up to about 600 feet high. In some cases, so let's just take 600 feet as an example. If you're a participating home, you would have to be set back a little over 600 feet. If you are not participating, you're not part of that project or not within the boundaries, it would be 1800 feet.

This [indicating a different map] would be a half-mile set back. This changes the equation quite a bit and I think it makes it much more reasonable to do a project if someone wanted to identify an area to do that, you can start to see potential areas where that could potentially happen. If I remember right, I think a half-mile is close to what Mountrail County had recently adopted.

Butch Fleck: We got a question from the audience.

Audience Member: My name is Laurie Johanson. My question is, so we're talking about this utility stuff, do we have projects that are trying to come here? I mean, I'm just curious like, why are you even bothering?

Kathy Skarda: They might be in the audience, they might not. We're trying to have something documented that will be a working plan that we can accept, in my opinion, for our 2025 comprehensive plan.

Butch Fleck: We're trying to get ahead of it, just like the zoning we should have been ahead of what happened [in the 2010s].

Audience Member (Laurie Johanson): OK, so we're trying to make sure we have the regulations in place when someone wants to come in with the utility windmills we'll already have [them]. OK, I'm just curious.

John Irwin: Now, will our plan have any teeth in it, Scott? I mean, you know the NDIC kind of trumps anything that the county wants or says. You know what the state wants, they kinda seem to push through.

Scott Harmstead: Good question. That's a really important question. To rephrase it again, so everyone can hear if they didn't. Is there a risk of the state preempting the county requirements? I think when you talk about power systems like wind energy, it's a lot different than oil and gas with the North Dakota Industrial Commission. Through several legislative sessions, they have continued to allow local control, which has been, I think, a blessing. Counties, cities still have local control. You still have to get approval from the local jurisdiction, the county in this case. I don't think the danger is there personally, like it is with oil and gas types of project, where the NDIC has stepped in and preempted local control.

Butch Fleck: Sorry Scott, we got another question here. I hope we're not interrupting you too much.

Audience Member (Jacqui Skadberg): I'm hoping I can give you some ideas, information, research I've gathered. Just on the situation of wind farms, so that can maybe help you make a decision whether you're going to go one mile or half mile or 600 foot type thing. Number one is they're finding out that the turbines are causing echolocation issues. If you have read the recent news about all the problems with the whales along the coastline because of echolocation problems, and right now the bat population in the world is greatly diminished because of wind farms, and I don't know about you guys, but I really hate mosquito bites. More than that, I hate being poisoned by those sprays we have to put out because our bats are being depopulated. Bats [also] do a lot with fertilizer and guano. They're the seed dispersal. There are used in so many different things for [ideas related to] drones and airplanes and jumpsuits and base jumpers and things for technology. And they also provide prey and their pollinators. If we just look at the bat problem alone because of having wind turbines, it's \$3.7 billion of pest control a year.

Think about the cost of a turbine, and I've been doing research on this just for about 5 hours today. So it's not a lot so far, but the cost of one turbine if I'm correct, is about \$2.6 to \$4 million and if we take in the cost of maintenance for that per year, with your leases and insurance and so forth, that's \$48,000 on top of it. If we take out that their life expectancy is 20 years and we do the math about how much

money they can bring in, and because wind is inconsistent, they're only 30% efficient, which gives us four megawatts per year and that comes out to a profit of about \$245,280 a year. You have a profit of \$4,905,600. Take out the cost of a \$4 million turbine, you're breaking even at 20 years. Warren Buffett replaces his turbine blades every 10 years. So now you're looking at being in debt after ten years if you have to replace your blades.

What's it going to do for transportation to get the equipment here? To build one is 140 trains, 650 truckloads. 8 ships. That's not talking about the cost of permits and traveling to get them here? And then obviously, when they have to be decommissioned, moving them plus the drivers for the trucks, it takes very special skill and those drivers are aging out. We're going to have to train people to handle the moving of transporting blades and turbines to installation and to take it apart. [W]hen you're going to deconstruct it what are you going to do? Let's do that to Wyoming, the closest graveyard, so out of sight, out of mind. It doesn't breakdown, so then we have to go put [them] in a landfill, which takes up more land. So now you're losing farm land. You've got to do something with these windmill blades, or you can send them to some of the places that are learning to deconstruct them and take them apart, right? But the problem is it doesn't work very well. They try to run over with tractors and the blades are too smooth, so the tractors aren't working. They're trying to bend them. So now the thought is, well, what if we made them into a border wall. We need a lot of them, right? But then they look at melting it down and that costs so much money to melt it down. Plus, the air pollution and the contamination, it's just not very profitable. On top of, you know, putting them in here, right? We also have to think about what it [would] cost to get it here. What's it going to cost to take it down, what's going to cost to maintain it? Are we going to break even? And if you have your little land tracks of five acres, you're talking commercial property. So you can have up to five to eight windmills per acre if you mix.

OK, so what is our plan? You're looking at community. But then if we got county, are we going to totally lose our county and our farmland to all of this? We have natural gas so much that we're burning it up. Why don't we look at add on to your agenda a natural gas plant or pipeline? Some way we can actually use our current resources in a better way than having to deal with 30% efficiency and all of the loss and all the damage and what it looks like to birds and animals. Those propellers [a]re not slow, they look slow, but they move very fast. Another problem to bats and birds and things in the air, so I just want you guys to think about all of that before you decide to go with half-mile. I really think we need to say no and protect our community.

Scott Harmstead: There's a number of other new proposed requirements that I wanted to mention as well beyond setbacks. I'll hit on the ones that are, I think probably the most important to handle. I think one is electromagnetic interference, so making sure there's no interference or limited interference with other communication cell towers: so it says it shall not interfere with microwave, television, radio and telecommunications. I believe that's a state requirement too. Also, public safety plan standards, I know that that would be important for the emergency manager here. This is a bit different than other counties, Mountrail County does [this], but visual impact assessment. I think when we going thinking back to the comprehensive plan and the comments we got back then is the importance of preserving a lot of the views that you have in the county, especially 85 by the National Park and along the lake, the river in particular. A visual impact assessment is actually what you [would] do if you had to get federal permits and go through the federal process.

Kathy Skarda: Scott, you're talking about the impacts of your visual like with the Little Missouri with Lake Sakakawea or whatever, I'm going to say I cherish looking out my front window and seeing the property that I have, or I don't have and my neighbor has.

Scott Harmstead: And that's exactly what this is saying. You have to look at the five-mile radius in the entire project area, whatever that is, and then basically evaluate the impact that that would have and show visualizations of what that would look like and that would be something for this board and the county board to consider.

Scott Harmstead: I think those are the main items I wanted to highlight. I think these requirements are more robust than other counties in the state. Then I think it sounds like it comes down to the setbacks, so we could we could come back with a new draft two meetings from now [the July meeting].

Audience Member (Patsy Murray): Now, they're telling you, twenty-five years is about the span of the [wind turbine], [but I think] it's more like 10 to 12. The other thing that they are really pushing is that the land owner is going to bury those blades. Craig [her son] said, if you're going to do something like this, be sure that you have all your bases covered, because if you want a farmer to bury the blades, they've got to go real deep and it's like 40 feet down for those cement things. It really goes down there a long ways and I don't understand the highway regulations and stuff, but he said that's what they're pushing. They want the land owners to bury them. The country of Ireland, you know, they're trying to figure out what to do with these blades. It's a big fat mess. Craig said what they're pushing is that the land owner has to sign that they will be responsible [for] bury[ing] the blade.

And to think about the money, you know what? If it's rich guys coming in to build this, are they going to be the ones that are maintaining? Craig said they're astronomically expensive and he was giving me a quote on what it costs to cut out a 6 by 6 chunk of cement. But you're going to have a lot of money to dig those out a lot.

Butch Fleck: We're kind of getting away from the topic. We're not so concerned about the cost- that's the companies. We want to know how to deal with it in the county before they come and what to do if we have to decommission them. The cost part, that's not our problem. Go ahead.

Scott Harmstead: You've got good comments here on [wind power], so we can revise this and bring it back in July.

Then the last section we looked at, which the county does not have, is for solar energy.

Craig Hystad: We've got people looking to come in though I think.

Scott Harmstead: This is where there has been some interest expressed. Other counties also have run into some interest as well. With solar, there's two different types of solar energy systems. There's a small system here, again, like just having a windmill at a farmstead or something. The idea is that you could have a standalone set of panels or something on your roof that would be a small system. Something to power your own house or provide some supplemental power or out in the field to power a pump or something. So that's a small system and like a windmill, it would be an accessory use that would not require a conditional use permit, but there's some standards in terms of the height of it, etc. So that's small.

Then again, there's a utility-scale system. Not to get into this too much, but generally speaking, there's two different kinds of these utility-scale commercial sized systems: photovoltaic panels are what you typically see, just the panels tilted at a certain angle. Then there's also what they call power towers, [which are] where you have all these mirrors surrounding a big tower [that] reflect light into this tower and that tower heats up liquid water or some other type of liquid, and that spins a turbine to create power. They have these huge things in the desert. If you've ever driven near Las Vegas or some of those out there, but there's these power towers, which do have pretty significant [environmental] impacts. I know that they can have significant impacts on wildlife, for example, with the beams of light that they shoot back into the tower.

Typically, what you see in this part of the country, it's not the power towers, it's the photovoltaic panels. Talking about these larger systems, we have some different standards. Typically, there would be more glare from a lake than there would be from solar panels, so typically glare isn't an issue but we still have a standard in there to make sure that that glare is minimized. By the way, there [are] representatives from a company here, [who] can speak to some of this from their experience. There's height requirements, the small systems is 15 feet. I'll get to the to the height for the large systems in a little bit. They have to [have] ground clearance of four feet to allow for maintenance of the ground underneath. We have setback standards here- a table on page 1-3. If you're participating in the project within the project boundaries, your occupied building is a 25-foot setback. If you're not participating, it's 250 feet. Non-participating property line 100 feet. Federal, state, county roads, 250 feet, I believe that's from center line. Township roads, 150 feet and section line is 133 feet. Can't build on septic fields. Similar construction requirements to wind, all the roads that you build during construction have to be completely removed and everything has to be returned to the way it was before. The ground cover between the panels has to be maintained. There has to be a seeding plan for all that.

Kathy Skarda: You said the power and communication lines running between the banks of solar arrays may be placed above the ground. What happens if I have my communication, my telephone line and [other things]?

Scott Harmstead: Provided they do not extend above the solar panels, so they can't go higher than 20 feet.

Agro-voltaics means they're encouraged to have compatible AG uses. It's limited, but there can be limited grazing going on. I know some of them have done it across the world. We've done with sheep, as an example. Definitely discouraging large scale tree removal. As part of this too, and it's the same with wind, we're making sure there's environmental review just like if it was a federal project [with] federal environmental review. They evaluate impacts on wildlife, for example, and if there's any issues that they mitigate those issues or change the project to minimize or mitigate those issues. Security for solar is important to note, need to have a security fence around those. A safety plan as well, similar to wind. There's also decommissioning here as well, also a proposed four-foot removal below grade.

Kathy Skarda: The company who is developing it I think should take [the panels] away with it when [the solar farm] is decommissioned. I don't think it should be the land owners.

Scott Harmstead: This requires the permittee, so the applicant, to remove, not the landowner.

Tim Transtrom: But four feet [is] still not deep enough, because if you come 20 years down the road and want to put in power, house, water, whatever it may be, dig a basement, you know, maybe didn't even know it was there. I would say a minimum of 10 feet.

Craig Hystad: It should be removal of whatever they put. If they go 20 foot deep, they take it out.

Scott Harmstead: Sorry, I should mention, if you did get a proposal, the state would also be involved like with wind, they would have to get state Public Service Commission approval as well.

Craig Hystad: In the wind, you had the visual, five miles for scenery. Is there anything on this?

Scott Harmstead: We did not put that in there. We could look at something like that as well. I know that in my own experience, when I worked for a county, the company that was applying for solar projects included some photos or some visualizations of what it would look like.

I think the industry folks could speak to that better, but again, I think there's a big difference between the two types. I explained before that one can definitely have significant impacts. The power tower requires more resources, some type of liquid. And then there's the ones that are just the panels, sort of the paint panels, those don't require liquid. I don't know about if they generate heat adjacent to them.

Another reason that we're looking at this as well is that the cost of panels continues to decline. It has been for the last many, many years. It's becoming more and more viable for the developments and the size required is going down. [It's] getting more efficient so it's more likely to get a proposal.

And just like with wind as well. This would require conditional use permit and you could also add additional conditions to mitigate certain impacts. For example, if there's a property owner who maybe wants a hedge row or a tree row between the project and his house, that's something you could add.

Audience Member (Steve Rolla): My name is Steve Rolla and I want to reflect on what you're talking about decommissioning these units as far as the wind turbines and solar panels. I have heard reports of these companies just walking away, leaving it to the landowner to dispose of it, to topple these towers down there. They claim their cost was three times of what the input was to build it. What you guys have said, you brought it in, you take it all out. But let's go back a little bit. How many oil companies have we had just walk away? This wellpad become state issue to clean up and that companies made millions off of it. Same way for this power company or whoever's building these.

Steven Link: Good evening. My name is Steven Link with ibV Energy and we will talk a little bit about utility scale solar. Answer some of your questions and some of the concerns we hear there today. There's some good comments. We're here because there's interest in McKenzie County. We only do utility-scale solar. We don't do wind turbines and we don't do concentrated solar.

It's just larger acreage and our ground coverage ratio is usually about 33%. You have to have these rows and, as Scott mentioned, we would pursue agrivoltaics and we pursue plants for pollinators for bees. We have to widen these [rows] enough to make sure that we can do the proper maintenance in there. We can watch these panels every so often when we need to and just to make sure people get in to mow. If we get grass or weeds growing up too high, we don't generate the power we said we're going to generate. We're losing money by not generating power needs, so we maintain these farms well. We have the [partial] backing of a German group. There's not a millionaire in New York anywhere here.

These are investors [and] banks who are looking at decent rate of return. Nobody's getting super rich off these. These are mostly U.S. banks that invest in these renewable energy sources.

These are these banks are managing probably retiree funds long term. They want a steady rate of return and with these renewable sources, there's a long-term contract, so 20 years, 25 years of a known price is a real solid look for investors. So that's why people and well-known, established banks, will invest in renewable resources once that power purchase agreement is signed with the utility and offtake. Right now, we have about 600 megawatts of photovoltaic. As Scott mentioned, we have developments throughout the United States and what's common is the ordinances at the local level. So far, there's only a couple of states where the state level has usurped counties' authority on that, but we prefer to work with the counties. Perform complete tier guidance and, if possible, shed some light on ordinance establishment.

Some things may make a lot of sense. The farms we build are bifacial tracking systems, so the sun hits the bottom of the ground, reflects up, and you get an actual uplift from the sunlight underneath. The top is collecting all the energy it can, the bottom is actually collecting it too. On a nice snowy day, it collects the albedo. Reflectivity is up quite high and you get an uplift on this. You might think solar should be in the desert, but solar works well just about anywhere you have good irradiance, you could capture that reflectivity, and you're close to a grid that you can sell that power to.

A strong demand for a renewable energy basin actually has an IRP where they want so much of their base load to be renewables. One commentator mentioned spending reserves- the reliability of the grid is based on the spending reserves. Solar has the power to ramp up and ramp down almost immediately, and it's one of the purest energies that you can put on the grid. So, any generating facility falls off, those spending reserves have to kick in and that's a requirement for greater grid reliability. Another part of it is the battery storage. We collect some of that energy from it, put it in battery storage and use that for any ramp up and down. If sudden big cloud cover comes over its panels, it drops down and the battery could push in, but these panels are getting more and more efficient. Three or four years ago, the wattage on each panel was about 380, now we're looking at 650-watt panels. As Scott mentioned, the technology is advancing and we're making better use of the available ground and acreage we can get.

Kathy Skarda: What is the number of panels that you would have to put up to get like 10 acres? Like, so how many panels would it [take]?

Steven Link: It depends on the wattage of the panel, but our rule of thumb is we need 5 acres of land for one MW.

Kathy Skarda: So how many panels is that? I mean, I mean seriously, I want to know how many panels that would cover that and how many would be.

Steven Link: To answer that, we would have to see what our ground coverage ratio would be, [how much of the terrain is usable], how long the strings are on the trackers. So there's a lot of variables in there. I can answer your question with a little more research, but I'll get you exactly how many panels are going there.

Butch Fleck: How many acres are you talking about one of these?

Steven Link: I have roughly 800 acres for a 150 MW project.

Butch Fleck: What do you do with March and February? March we had no sun.

Steven Link: The panel still collects sunlight even in this overcast heavy cloud cover. It's still not as efficient, but it's still collecting DC power.

We came out here a couple of times over the winter. We saw the amount of rain and how overcast it was. We factored in a 20-year average of what the sunlight and irradiation has been when we start making our design for these projects. There are several different companies, nation- and worldwide, who maintain this database. They have these collector stations out there to know how much sun, how much radiance a given area will get, and most of them are airports. For [Watford City], the closest place might be Bismarck. So, we kind of know the ups and downs, and when we do propose a generating facility, we use what they call a P-50, the 50% probability of what this will generate and sometimes it goes as high as P-95. You have days where it's really high and you have days where it's not as effective. All that is averaged out long-term and that's the basis for the generation of product.

Butch Fleck: What is the longevity of one of these when you put?

Steven Link: The manufacturer themselves warranty these panels for 30 years, but these panels are advancing so fast there's a chance after 15 years you could take these down and put a 900-Watt panel up. The Tier 1, the bankable panels, are warranted for 30 to 35 years. We enter into long-term leases and we don't take up the whole farm. We would rather have large land owners where they want to diversify some of their production. They have cattle, they have wheat, they have a portion set aside for solar. That is a hedge against any other factors that can happen in there.

We record every lease agreement and it's for 30-35 years with some options to extend. Land owners themselves can tell you 'hey, I'm getting paid this.' If we need, say, two separate landlords to make that acreage, we have to pay them the same thing. It's a really great rate of return, if it's not more than what a farmer makes, they have no incentive to sign it.

John Irwin: Are you wanting 800-acre plots or do you do them smaller?

Steven Link: Smaller. That baseline was for 150 megawatts of injection. There are some long-term studies that we have to do on the grid to see how much would fit on there. When I said 800 acres, that's because we are saying a 150 MW project will need around [800 acres] with the fencing, with the collector substation, and giving the engineers some leeway to avoid gas pipelines or transmission lines and have the setbacks that the county requires. That's why we're saying roughly 800 acres if we wanted to build a 150 MW project.

John Irwin: But is the target one that big or are you trying to do smaller ones?

Steven Link: Yeah, economy of scale makes a big difference here. The price of power gets more competitive the larger the project is. Around 100 megawatts is where it needs to be to use that economy of scale and get a good competitive price in front of the off-taker, in front of the utility, or who's off-taking. It could be one of the larger tech companies, could be larger manufacturing or industrial based customers. So they enter into that based on what that initial price is, so 100 megawatts about where it's at. There's a lot of smaller companies that do smaller ones. We have really high costs and just to get the panels for just say a 10 or 20 MW project, their price of power would be a lot more expensive.

Butch Fleck: So how hazardous is this stuff? What do you do with the batteries or hazardous material? And the panels, what do you how do you get rid of that stuff?

Steven Link: The panels are made of 95% silicone. There's some lead. There are concerns about cadmium, the amount of cadmium in there is minute. There's probably more in the ground than on these panels. These panels are rated for probably golf-ball size hail hitting them without damage. There's no liquid to leak out or leach out at the end of life. By the end of life on these projects, there will be recycling. The price to generate pure silicon, which is needed for these panel is very high, so the recycling part is there. Copper is recyclable. Most of the elements in here are recyclable, and if they're still usable, they get sold to probably third World countries who can use that generation there.

Kathy Skarda: Does your company take care of that problem? Don't leave it to the landowner. Your company would take care of that properly.

Steven Link: Our agreement strictly states that we will decommission fully and reclaim that land. We understand the four-foot depth down. There are no foundations. These are these are just I-beams driven into the ground. Federal regulation requires four feet down to a minimum, so that's why we're staying in that four feet level because we'll pull those I-beams out, we'll pull out that copper wiring out the panels, the trackers, everything has a value. The decommissioning bond does not include the salvage value of us removing that, but in other counties you've worked, every five years, the county engineer and the developer have a licensed engineer from the state review that reclamation bond to make sure that it can recover.

They can cover the cost of removing that from the ground, and that's written into our leases and in any kind of permitting pathway for the county, if it so chooses. We would have that bond make sure to cover [reclamation].

We are not proposing any batteries right now, but right now the most available batteries are lithium ion. I know if you Google lithium ion, you'll see some fires that happen down in Arizona. The first responders were not trained, so they had lithium battery run off and they allowed air to get in there. Of course, that saw that fire flare up, so part of our engagement in communities is to make sure those first responders are trained, make sure they have the proper protective equipment, and know how to react if there is any issue with those. So, we always provide an emergency management plan, have that reviewed by Emergency Management personnel, fire marshal all the way up to the state level. So that is part of our diligence.

Butch Fleck: Is there some way to have the batteries in a containment?

Steven Link: The batteries are in large containers, like conexes. Right now, we're just talking about this specific solar ordinance, but if the battery technology keeps coming along, we can fill those gaps. When everybody gets home in the evening, turns all that power on, the sun is going down, and then that battery can replace the solar for the next two hours. Give that utility company a lot lower cost of power since that battery is releasing that energy, that generation that it had.

Kathy Skarda: But your backup battery generator, if I understand you, is only for two hours.

Pat Ripa: They're typically 4-hour batteries.

Steven Link: A battery storage facility looks like 5-acre pads with containers on it. You never want to see 800 acres of batteries. We need 5 acres per MW for PV photovoltaic generation, but for battery storage we just need that small space to put that power into those batteries, so we don't need a lot of space for batteries and they can have the same the same MW hour capacity as that entire field on 35 acres.

Audience Member (Jacqui Skadberg): According to this article I just pulled up, natural gas versus solar costs, it's \$56.63 per MW hour with the solar power assuming solar power 15 hours a day and 9 battery hours. Calculate it out so that we can find apples to apples. The cost for natural gas is \$2.00. This is \$193.23.

Steven Link: I would like to comment right now that solar is the cheapest for of energy to be on the grid. I'll talk with the commentator back there, see what her source is, but if battery costs \$193.00 a MW hour, nobody would be building it. You can get gas, you can get coal, you can get everything else for less than that. [Solar] is not ridiculously profitable. Someone did mention some subsidies, but these projects are long-term diversifying grid and providing grid reliability. Patrick might want to talk some specifics on the technical part of it. He's an engineer, so he can answer all your questions.

Tim Transtrom: I do have a question for you. With you guys coming into McKenzie County, would it lower our electrical costs. Would my electric bill go down?

Steven Link: Not immediately, it depends what the offer takes. Basin takes it or whatever local utility co-op takes it, eventually you see a reduction in your in your price of power.

Kathy Skarda: Eventually is how long?

Steven Link: So, it depends how much of that spinning reserve and how much of that really expensive power the utility uses. Like I mentioned at 6:00 o'clock in the evening, everybody flips their light on and the active generation that's online cannot produce that, so they have to fire up gas turbines and their price of power goes sky high. Solar provides that gap so you don't have to hit that high gap, so the amount of time it takes depends on how utility use it. As one gentleman mentioned, there is a day-ahead market where to say hey, we want 100 megawatts today we're going to take it from here, here and here. If solar is factored into that, it will, it will provide a gradual reduction in your electricity bill, but it depends on how the utility is using that solar power.

So, we'd have to get into the actual use of solar by the utility co-op. I'm not trying to circumvent an answer here, I'm just saying it depends how it is used and what that spending reserve costs.

Pat Ripa: Pat Ripa with ibV. I'm in our engineering department. I'm just going to take a step back here and walk through how we look at a site, do all of our due diligence, make sure that we account for any actual environmental concerns, any changes or zoning concerns or anything like that. When we first start looking at a site, we're using publicly available information. Best of our knowledge that we can assess, look at the topography, look at the well and impacts, look at the floodplain impacts, look at everything that could be on this potential site right at that point. We're also looking at the transmission grid, seeing where there's potential capacity, making sure that we have a viable project, right? Then we go and we engage with the landowner that we think that this land is viable for [a solar farm]. At that point, we'll start to conduct all of the federal and state studies that need to occur. We're going to do a LIDAR survey, we're going to get a very accurate topography, we're going to get a boundary survey, we're going to do right-of-way agreements, going to get all that in place. We're going to do our

environmental studies, we're going to do phase one. We're going to do a threat and endangered species. We're going to do a wetland study. We're going to do our cultural and natural resources studies. We are going to go out and do all of our full due diligence on this site, make sure that we don't have any contamination issues, any other potential issues on the site.

Then, in addition to that, we'll bring it to the next stage where we're going to do a geotechnical assessment. We're going to look at what the soils are on site. We're going to know all the types of soils that we could encounter on the site where bedrock could be, where groundwater could be, anything that has to do soils, and we're going to understand how strong those soils are. In addition to that, we'll engage with a civil engineer, who will then help us design this land, and when we design these solar farms, we're using a tracker system, so they are typically running north and south. They rotate about 60 degrees in each direction, following the sun throughout the day, and they have panels. We can get into how the electric design for them works, but essentially they're going to rotate throughout the day and one of the comments that that we did have about the ordinance to get into specifics was just that ground clearance. The ground clearance that that we typically like to see is about 1.5 feet at full tilt. That means, typically, at night or in a rain event, these panels are going to be stowed at zero degrees or on a slight tilt, and the reason why they might be at a slight tilt is, here in North Dakota, for example, there could be a snow load. We don't want that snow sitting on those panels. We want it to run off, but a lot of that's vendor and equipment specific.

When they're flat at night, that's typically going to be about that 4-foot height and that's when your mowing is going to occur. They're going to be coming into the site in the morning or in the evening, and making sure that they take care of the site. If mowing is the method of choice for O&M procedures, but we're looking to use agrivoltaics as we had mentioned earlier. We engage with the civil engineer, we really want to do as minimal ground disturbance as possible. We do not want to go in and just open, excavate, and completely tear open the farmland. We want to keep that as natural as possible. It's just an added cost to us and we don't want to bear that cost. When it comes to construction, we are going to try to utilize the topography as much as possible. The tracker systems today are really making advancements. I mean, there's even a company out right now that that can go to 33% slopes, which is essentially the three-on-one slope. That's very steep when it comes to topography. No civil engineers really going to design much more than that, so that's it's great to see the advancements in the technology. The output from that is obviously getting much better. In addition to doing those studies, we're also going to do a stormwater analysis. We're going to get a SWPPP. We're going to have our hydro studies done, we're going to make sure that there's no downstream impacts, no adverse impacts on neighbors. They're going to account for all of that.

That brings us into permitting and that's when we're going to come before you to talk through potential issues. A couple of the comments that I wanted to answer from earlier was the decommissioning. You have steel pile foundations that are going to typically be driven into the ground. These steel piles, we want to completely remove. Then when we when we leave the site, we're not going to leave them behind. There's really nothing on the site that's going to be buried below 4 feet. There really is not, other than the piles and the piles, there's no way that we could get them out at a four-foot height. We're going to pull them right out, so those piles are the one thing that could be below that 4-feet. Other than that, conduits typically are going to be 3 feet in the ground, four feet in the ground. That's where it's going to be, we're not going to leave that behind. There's too much of value in conduit, cabling, copper. There's just a lot of value to that. As for foundations, what's known as inverters, those

are typically slabs on grade, they're going to be maybe a foot into the ground and not going to be very much deeper than that.

Kathy Skarda: And can they be removed?

Pat Ripa: Oh yeah, they will be, yes. Other than that, there may be a couple of structural components as part of what's known as a collector substation, where all of this power gets brought to, and I guess I can explain this a little bit too. There are going to be rows of panels of solar and there this is all in in DC power. That cabling is typically going to be fastened to the back of the panels, or it could be buried in some specific locations, but typically will be fixed to the back and brought to a combiner box, and that combiner box will then go below grade. This is all DC cabling. Once it gets to the inverter, it's now going to be converted from DC to AC and that is going to be all buried conduit, cabling, direct-buried conduits in wetlands, or anything that it needs to go through to deal with any of those potential hazards from water. That will then be routed to what's known as a collector substation and this will be a smaller substation where that power will be put up into the grid. That is the one area where there could be potential structures that are a little bit deeper than four feet and that is just dealing with some of the structural components for getting up to the transmission line.

Butch Fleck: Evidently, you're going to be pretty close to a power line to put take the power here, so you're as close to them as you can get.

Pat Ripa: Ideally, we want to be as close as we can to make these products feasible for us from a financial perspective. I mean the further we are from the grid, the more expensive the project. To make it work we try to be as close as possible, yes.

Matt Beard: Is there kind of a rule of thumb? You have your map here and you show transmission lines down to 69 kilovolts, can you be 3 miles away or do you have to be a mile or less?

Pat Ripa: On a 69 kV the project is going to be pretty small, so we would probably need to be within about 2.5 miles on that size. For all our projects where we're typically targeting above 100 MW. On that, the rule of thumb would probably be about 5 miles for us. But again, it's somewhat dependent on the size of the project and what we're connecting to. There are additional network upgrade fees that you could trip. If we're sending power and we have a small line that we could tap into downstream, there could be network upgrades that we would have to accommodate. Again, trying to make the project financially feasible doesn't always work.

John Irwin: Is there noise involved with this?

Steven Link: These converters usually have about a 45 decibel within 100 meters- that's less than a normal conversation at that distance. With setbacks, there will not be humming or anything like that. That's the baseline there, 45 decibels at probably 100 meters.

One last thing, years ago there used to be really high reflectivity of these solar panels and then solar manufacturers figured out that we need to collect all this energy, not push it out. We do a glare analysis on it, but right now, the FAA's directive is that a lake has more reflectivity than solar panels, depending on angle. If there is a glare, it's really quick, but we will do that analysis and provide that as part of the permitting pathway. Secondly, that reflectivity used to cause what they call a heat sink, where there was a build-up of heat around it. Now we're capturing all that heat, putting it into DC wires, so we don't

want to reflect too much power to the underpass. That used to be a big issue they call the heat sink, but we bring in independent consultants to verify and we provide information to the permitting officials.

Pat Ripa: I just also want to follow up with Steve was mentioning earlier about the medial data as well. That data will look at all the airports around the entire world and basically interpolates. It really is impressive how much [data] there is and it interpolates on a grid format, which basically gives you accurate data to the exact coordinate.

I wanted to talk about panel height. I'm guessing there was a method to the madness for the four-foot height, but there's a reason why we would like it reduced. There's two major impacts for us. Steel is expensive, but what drives up that cost is the windload. Everybody knows there's wind here. We're doing structural calculations on the panels to make sure that they're going to be fixed to the ground and as you raise that up, wind becomes more of a factor. In addition to that, if we keep them lower to the ground, the visual impacts are going to be less, so you're not going to be able to see them from as far the distance. So ideally for us, we want to try to keep them at that lower height.

Butch Fleck: What kind of setback do you have?

Craig Hystad: 25. For participating, 250 feet.

John Irwin: How do you mow under these?

Pat Ripa: We want to go the agrivoltaics route and use either sheep or some sort of cattle to help breeze through this. The reason why 2 feet is that's full tilt. These panels rotate throughout the day. They are on an axle, they rotate up to 60 degrees. Typically, they're going to be stowed in the evenings or potentially raining, they're going to be horizontal. For you to be mowing at the exact time that they'd be two feet down is very slim and there are potential opportunities for an O&M facility to take a specific area and change it so that they're perfectly horizontal.

I didn't hit on this when we were talking decommissioning earlier. We would ask to clarify, in the decommissioning code section, that you would like the work to commence within six months. I think to be able to accomplish all of that in six months is somewhat difficult. Say that the project went offline in January. There could be snow on the ground and we're going to lose a lot of time. So as long as we commence [reclamation] in that six-month time frame and then we will finish that

Butch Fleck: How do they with fires? We've had fires here that are faster than you can drive a truck. What happens if a fire comes along? Will they just burn them up?

Kathy Skarda: We had a Halloween fire that burned up over 300,000 acres here in a short amount of time, so your solar panels would be gone.

Steven Link: These products are insured fully and [might be] a big insurance hit, but it will be rebuilt, the value is in interconnection.

Butch Fleck: But what [contaminants] does it leave for us?

Steven Link: There's no liquid, there's a minimum of lead. There is a small portion of cadmium, but it's mostly lead, copper, and just some trace minerals for getting that DC power down in there. But it's majority silicon really highly crucial.

Pat Ripa: If there is a fire, the idea is to contain it, that's the whole thought. We understand that there's fire and we do not want to endanger anybody else. We want to make sure that that is contained to its location and that's it

Steven Link: But it would be standard electrical firefighting, not like a wildfire fighting. We work directly with the Emergency Management in the county to make sure they're properly trained and PPE for dealing with that type of fire.

Pat Ripa: Once we do have a project that's becoming real, we are going to sit down with the fire departments and emergency services. We're going to talk through all of the potential concerns, make sure they have secondary access where they need it, show them all their access points. There's a security fence and there's going to be a Knox box for them to be able to get anywhere throughout the site, make sure they understand where the substation is. We're going to walk through every component of this project with them and at the end of the day, per IFC codes, they do have final say over a lot of the site layout. We want to make sure we engage with them, want to make sure that they understand the layout of the facility, where it's going to be split up into zones so that if there is an event in a specific zone, not only just a fire, but maybe something else happens like somebody falls over [during construction], they're going to know exactly where that zone is on the facility and be able to accommodate that.

Craig Hystad: I guess most of our fire departments, their main thing is water.

Pat Ripa: We'll get into that with the fire department and we'll take an inventory of what type of equipment they have because we're bound by IFC-NFPA regulations for firefighting protection. If we're in a facility that doesn't have a surface water body, we have to engage with the fire department to see if they potentially have a tanker truck and have that opportunity to bring water to the facility, use that to put out the fire. If they don't have that and we have a surface water body on site, we've been able to use what's known as a dry hydrant or a standpipe to pull from and there'd be calculations done to accommodate that. There's a lot of solutions out there and we will get into that when the time comes.