BPA Customer Meeting - BPA Public Safety Power Shut-Off (PSPS)

Participants: Michelle Cathcart, Meg Albright, Dan Nuñez, Erik Pytlak, Troy Simpson, Doug Johnson
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(Begins in progress, introductory remarks by Michelle not recorded.)

(Set-up/tech discussion omitted.)

MEG ALBRIGHT: We are presently on slide number 2. So, for the purpose of today's meeting, we really do want to share information where we are at in developing our PSPS and get some feedback from you on what kind of communications preferences you may have. For those of you that have end-use customers, how you might want to have BPA's communications mesh with the communications that you are doing with your end-use customers.

Move to slide 3, please.

This slide gives a sense of some of the people that have been working on this, basically, our core team that's been working on this. Several of us are on the call today and will be speaking.

Next slide. We're on slide 4.

We will start with some background and talk through how this fits into our wildfire mitigation program. As Michelle mentioned in her opening comments, this is a layered approach. PSPS is part of our overall wildfire mitigation program. We'll talk about communications. Again, wanting to have conversation around how those communications will go, then questions. Again, please feel free to enter your questions into the chat box. Sean will be monitoring, and we welcome verbal questions as well.

Moving to slide 5.

Okay, so as we've been working toward this – as Michelle noted – we wanted to have something in place for this wildfire season. So, we've been working based on what we learned from last year so that we're better prepared for this year. There has been a lot going on trying to get ready for this season, but at the same time wanting to be very focused on having additional tools in place for the fire season, which is roughly May to October, that does vary a bit and is dependent on the actual weather that we see.

Any questions so far? I don't see any in the chat, so let's move to slide 6.

So, we'll move into how the PSPS fits into the wildfire mitigation plan. And slide 7 has a nice graphic that shows sort of this tiered approach in that we really want to have the system hardened so that we have a robust system that's going to withstand wildfires, and then have situational awareness as wildfire season approaches that we employ and only as a last resort would we get to activating the PSPS. We'll go through each of these slides of the pyramid in the next set of slides.

Moving to slide 8, and I'll hand it off to Dan Nuñez.

DAN NUÑEZ: Good afternoon, everyone. So, Michelle and Meg indicated the wildfire mitigation approach is holistic and part of that first proactive layer is system hardening. For folks that don't know, Bonneville adopted the Strategic Asset Management in 2016. And in that, we put together a Strategic Asset Management plan where the emerging threat and volatility of wildfires was identified, and BPA recognized the need to build and stand up its risk-based analytics to be able to prioritize and scale investments based on regional risk and the velocity of wildfires that we're seeing.

You'll see a common theme throughout the slides as well as within the wildfire mitigation plan that is trying to be able to have decision structures that are data informed, recognizing the challenges that we're all facing. So, this competency has gone so far as to inform a whole new lens of resiliency metrics that expand historic design standards and build in system hardening resiliency into our assets decisions. That includes looking at access roads, (inaudible) management strategy to serve as firebreaks in high-ignition areas.

We're looking at our hardware redundancy for line hardware. We may have high ignition potential and coupling that with guard structures, where historically we may not have done that.

Taking this proactive approach, integrating it to the asset management plan, long-term planning model, both to identify capital allocation of resources and rate projection knowing the – again, as Michelle indicated – the climate change speed that this is moving at and how it's going to impact the prioritization of capital that's happening in real time. Though we look at many risk dimensions and value streams to the region, wildfire absolutely is at the top of the priority list of informing where we're allocating and prioritizing resources for line rebuilds. But also going so far as to identify emergency maintenance correctives. Again, both arms of the asset management side working hand-in-glove to tackle this.

Somewhat related is this idea that there may be questions on is, you know, is BPA going to share – identify critical list of the most vulnerable lines? At this time, BPA does not intend to share that due to the sensitivity of the critical infrastructure information that's inherent in that analysis. Just to make sure that we're protecting the system and region.

With that, I'll hand it over to Eric.

FACILITATOR: We have a question from the chat. The Oregon PUC is asking if we can share or will share the resiliency metrics.

DAN NUÑEZ: Absolutely. That's a great question. Yes, we can share those. We intend to update our wildfire mitigation plan biannually to align with our asset management and IPR process – Integrated Program Review process. I will pass that on to Sean and get that information out.

ERIK PYTLAK: Great. Let's go ahead and go to slide number 9.

So, BPA, as Michelle mentioned, we've known for some time that wildfire is a common occurrence in the Pacific Northwest. Certainly not like it is down south, and certainly not for the entire length of the year that some of the fire seasons are down in Southern California. But we have been noticing our fire seasons getting longer. And the longer those fire seasons get, the greater the chance that you're going to have a red flag situation – very dangerously low humidity, very, very dry fuels, and maybe even lightning combined with a high wind event.

Historically, those tend to be separate events. But with climate change with the fire season getting longer, the chance of having an event like we had this past September or even if you remember, that wasn't the first time we've had such an event. The 2017 Eagle Creek fire was also a similar situation, where the fire season was very long and we had a high wind event come in late in the season, where those two incidents overlapped.

We monitor fire and weather conditions in the Weather and Streamflow group at BPA for a number of years now, but now that we're seeing this, what we realized is that there are days that we have typical fire conditions – you know, hot, dry, breezy conditions. Those are the typical red flag warnings that you'll hear about from the National Weather Service, and this is not that. This is when those dangerous fire conditions overlap with wind gusts that are so high – in our estimate, over 60 miles an hour – where the risk of a line coming down and starting a new fire starts increasing, or debris flies into a line, sparks come down on the ground and start a new fire. So, that's the reason why we address this as the criteria, at least for now, in this first iteration on what would not necessarily say, yes, a line's going to be shut down, but trigger the analysis to start looking more intently on the possibility of needing to do this.

DAN NUÑEZ: Thank you, Erik. Another thing I would add anecdotally to support Erik's comment there about the high gusts is BPA did exhaustive benchmarking looking at different trigger conditions within California and thanks to the credit of the fact BPA has spent a significant amount of resources in its line design standards, we're able to get away with a much higher trigger threshold than our peers south of us due to the fact that the physics of our failure modes, we don't have the same issues they have in many cases. That's, again, a credit to our Engineering and Standards organization.

The second bullet there is tied to my previous slide that, again, going back to understanding risk, we've overlaid every single asset on the system through our GIS systems and our asset registry to understand asset criticality, health, and risk, coupled with the awareness triggers that Erik just touched on. We can't have the visibility and granularity to look at everything, so it needs to be risk based. And that risk-based situational awareness allows us to be better set up for material preparation, outage planning, patrol prioritization, etc. It all goes back to that idea of trying to have an analytics-driven situational awareness capability.

With that, I'll hand it over to the next slide.

MEG ALBRIGHT: Okay, so, I will talk about the fire season operational activities. This aligns with what we have already been doing. So, during fire season, we do disable reclosing on certain lines to lower the risk of wildfire ignition. Then, we do use more patrols before reenergizing lines and less use of manual testing. Again, all designed to minimize the risk of wildfire ignition.

I will look and see if there are any questions on that – that being slide 10. Not seeing any. Let's move to slide 11.

Okay, so, extreme risk days. As Erik talked about –

FACILITATOR: Meg?

MEG ALBRIGHT: Yes?

FACILITATOR: Sorry, a couple questions just came in.

MEG ALBRIGHT: Thank you.

FACILITATOR: One: Will you patrol lines if they trip prior to reenergizing?

MEG ALBRIGHT: Michelle or Brent, would you like to opine on that one?

MICHELLE CATHCART: All right, so, when you're talking about if patrols trip prior to reenergization. So, you're saying that if they trip from normal operation, will we patrol prior to reenergization? And in the risky areas of our system, that is the plan to patrol those lines prior to reenergization.

FACILITATOR: Okay, and then, thank you, Michelle. We have one more: Do you communicate to interconnected entities when disabling reclosing?

MEG ALBRIGHT: Brent, I will say that operations to operations, we do share operational practices. Brent, is there anything you want to add to that?

BRENT: Yeah. Dispatch coordinates with our neighboring utilities to ensure that we're operating the lines in a similar manner. If we were to disable reclosing, we would obviously talk with our neighbors about making sure that they were aware of that and did the same on their terminal.

MEG ALBRIGHT: Thanks, Brent.

FACILITATOR: All right, that's it for now, thanks, guys.

MEG ALBRIGHT: Yeah, thanks for getting that pause in for us, Sean. Okay, let's move on to slide 11. Okay, so, as Erik was mentioning, his group is monitoring the system and will let us know if there is a condition where we're at that extreme risk. That allows us to then stand up our PSPS decision team and to have other preparations going on out in the field.

Dan or anybody, do you want to comment on the field preparations?

DAN NUÑEZ: (inaudible) situation awareness comment that having a fluid understanding of where the most vulnerable areas are allows us to have the field crews know what materials are likely to be needed if they do find patrol and some repairs as required. (Inaudible) there.

MEG ALBRIGHT: Thanks, Dan. Again, I'll pause to see if there's anything that pops up in the chat or from the audio.

Okay, so, moving on to slide 12.

So, the decision considerations that we will be making will include the weather conditions, the confidence we have in that forecast, load and generation impacts, path impacts. I think I want to really emphasize the last bullet – the wildfire risk presented by the particular BPA asset in the impacted area. Drawing back to Michelle's opening comments, we do have 500 kV assets that have a different risk profile than our 115 kV assets. We would not – just because we have received that indication that we have a high-risk area, each asset is going to have evaluated distinctly based on its risk profile.

Okay, I'm going to look over in the comments.

FACILITATOR: So, Meg, we had a question from the previous slide.

MEG ALBRIGHT: Okay, good.

FACILITATOR: Do we have a formal process set up with the U.S. Forest Service?

MEG ALBRIGHT: I think, Dan, you or Erik might be best equipped to answer that question.

DAN NUÑEZ: I'll take a stab at it. Erik, please add anything that I miss. We do have a formal MOU with the Forest Service and we've been working exhaustively with them and DNR to establish an internal control during and after trigger that would yield a test from peer to peer. Hey, is our (inaudible) accurate based on what their fire physicists are seeing? And so that shows a lot of promise – sort of quality check from fire management teams in the Forest Service. Of course, over time, that will mature to a very formal process. This year it's more limited to discovery and what we can do, so it does have a partnership with us.

MEG ALBRIGHT: Erik, I think you're on mute.

ERIK PYTLAK: Thanks, and on the weather side, I'll share that we participate on the daily coordination calls between all fire weather meteorologists that's routed through the Geographical Area Coordination Centers – or the GACCs. So, we participate in those calls. We may not necessarily let them know what we're doing or considering in terms of PSPS, because that would be a different communication channel, but we're certainly sharing weather information and discussing uncertainties in the forecast. We already do that, and then this would be just a natural extension of what we've already been doing with the Forest Service.

MEG ALBRIGHT: Does that answer your question?

FACILITATOR: It did. Thank you, Meg. We have a few more questions, and I think I'm here on the right slide. You ready, Meg?

MEG ALBRIGHT: I'm ready.

FACILITATOR: Okay, let's see here. The first one is: Can you briefly describe the different risk profiles between 115 kV and 500 kV lines? For example, is it vegetation?

MEG ALBRIGHT: I'm going to have Dan take the first cut at that one as well. I'm so glad you're on the call.

DAN NUÑEZ: Thanks, Meg. No, it's a great question. And it's (inaudible) trying to pull myself up out of the weeds. Vegetation strategy definitely goes into it, and the right-of-way width is a significant factor. However, it's also the line hardware, itself, has different normal expected (inaudible) with the higher voltage, and we typically have double insulators or double redundancy in our hardware.

So, we look at all those different (inaudible) right-of-way width and type of vegetation. And there is a correlation between the right-of-way width and how much (inaudible) by voltage class. But there's a lot of nuance that goes into that, and I think from the line perspective – to Meg's earlier point – the 500 line load impact has such a high reliability criticality that it does offset some of the wildfire risk because of the redundancy in hardware. So, I'll pause there and see if that's what you're asking about.

MEG ALBRIGHT: Yes, thank you.

DAN NUÑEZ: Okay, no problem.

FACILITATOR: All right, we have another question from Joe Lucas (ph.) What input would the affected utility have on the decision to deenergize a line, causing them to take a forced outage? This sounds like a unilateral decision, but the slide implies some sort of check-in with the local utility before a PSPS.

MEG ALBRIGHT: Okay, I'll take a first cut at this, and Michelle, I might ask you to weigh in as well. So, for operations to operations, we're going to need to understand the impact of all of the potential PSPS actions in a given geographic area. So, BPA being only one of the utilities. So, for the local utility or utilities in the area, they could very well – they will have the same weather conditions that they will be looking at and will very likely be considering PSPS of their own. So, we will want to talk operations to operations to understand that collective PSPS picture so that we're understanding how our decisions and their decisions are playing together. Michelle, do you want to elaborate on that?

MICHELLE CATHCART: Yes. I'll just add a couple of things to that. First of all, I think it's important to recognize that a PSPS doesn't necessarily mean that load or generation is lost when we deenergize a line given the configuration of our system.

That said, there can be, obviously, cases where there would be that direct impact. We do intend to coordinate with the customer. Ultimately, it will be Bonneville's decision on whether or not we will deenergize a specific facility, but as Meg said, understanding the impact of that will be important. We've already heard from several of our utility customers that they're also developing PSPS programs, so to the extent that a customer has already deenergized part of their system, that may weigh into our decision-making process as well and we will also want to understand the impact on those loads as we're making that decision.

The standards of conduct will be a consideration that we have. So, as Meg said, it is operations to operations discussions that we would be having on those issues.

FACILITATOR: So, hopefully, Joe – sorry – yeah, Joe, does that answer your question? Folks, as we – the chat is starting to get really long. Feel free to unmute yourself as we get to your question to either ask for clarification or confirm that we have satisfactorily responded to make it more efficient.

PARTICIPANT: Yes, Michelle's response did answer my question. It sounds like it's, ultimately, a unilateral decision with some level of consultation and coordination.

FACILITATOR: Thank you, Joe. The next question comes from Todd Simmons. Can you communicate the activation of your PSPS decision team to all utilities?

MEG ALBRIGHT: That's a question we can take back for consideration.

TODD SIMMONS: Yeah, thank you, this is Todd. It would help us if we knew that you were activating. It would just give us more time to, you know, think about what we'd do. So, we'd appreciate it.

FACILITATOR: Thank you, Todd.

MICHELLE CATHCART: I guess I'll just add that one of the asks that we had in the beginning of the slide deck was the level of communication that customers are wanting and the recognition that we certainly don't want to cry wolf and make sure that we're communicating the right amount, but certainly, we can talk about communicating that activation.

FACILITATOR: The next question comes from Ben Brower (ph.): Do you have a plan for notifying ESF12 energy emergency managers at state agencies ahead of a PSPS?

MEG ALBRIGHT: Do we have something from Continuity on the group chat from BPA? Would they be the best person to answer that?

MICHELLE CATHCART: It doesn't look like we do have anyone from Continuity on today, but our Continuity Group has heavily been involved in this process. Certainly, they are part of the team that will be at play once we've activated the analysis. So, we can bring that question back to them to make sure that the appropriate communications are happening with those sorts of agencies.

PARTICIPANT: Michelle. Dominic's here from Continuity. What was the question, again?

MICHELLE CATHCART: The question was: Do you have a plan for notifying ESF12 emergency managers at stage agencies ahead of a PSPS?

PARTICIPANT: Not ahead of a PSPS, no. We're working on our specific internal process and then how we're going to work with our partners first. Then, that was another piece after the fact that we're working on.

BEN BROWER: This is Ben Brower with the Montana Energy Office, asked the question, we'd sure appreciate that heads-up as soon as possible for those of us charged with managing energy emergencies so that we can better coordinate with our in-state utilities and keep our governor's office aware of any impact to energy supply. Thanks for taking that into consideration.

FACILITATOR: Thank you. The next question is from Kevin Black at Nespelem Valley Electric Co-Op. Kevin, I don't know if you want to take yourself off mute and go ahead and ask the question. You provide a lot of context here. Go ahead.

KEVIN BLACK: Yeah, what I'm concerned about is, you know, I understand where you guys coming from. Believe me, I've been through that – having to make that decision many times, you know, during hurricanes and stuff. Like, oh, the wind's blowing and, you know, let's turn this off. But there are, you know, there are a couple of things I'm concerned with here.

What I saw at the Cold Springs fire in the town of Bridgeport, where all the orchards are, is basically they had the ability to irrigate right up until year line dropped out, because we didn't kill that area. Then, once they stopped irrigating, they lost basically their fire protection. That area saved – in my estimation,

and what I viewed out in the field, it saved that orchard and cherries area that Gebbers has, and Arrowhead and Apache prevented a huge disaster similar to Mansfield.

I just want to say, you know, I mean, that will have a huge impact on us if – you know, if something is turned off without consulting with them, because they, you know, I'm not sure if it was probably a – just a benefit of having them there that prevented that fire from sweeping across the river in multiple spots, you know, it can only go into areas that weren't irrigated, so it kind of limited the amount of damage on the south side of the river. So, I just caution you know the – you know, whatever the criteria you have for it, I mean, I would like us to be consulted because our customers, you know, probably prevented a fire, you know, that could have wiped out, you know, two whole towns, and they weren't because they had power for, you know, for a considerable amount of time during the fire, itself. I just – you know, I just caution, you know, caution when you make that decision, we've got to be kept in the loop because they may be doing something that could save a whole region. And if you shut the power off, they lose irrigation water, any ability to keep that clean buffer before it takes off. So, that's pretty much it. That's what I was trying to get across and what I wrote.

MICHELLE CATHCART: Thank you, Kevin. I think that's really important feedback. I'll say we have experience working with fire departments as well in terms of lines that are – even that they have asked to be taken out of service when they realize that it would cut off their water pumps, then you know, we decided to leave the facility energized. So, I think it is an important consideration. That's why there is no just black-and-white criteria that we have. You know, we have the 50-mile-per-hour winds and red flag areas that are going to be the start of our analysis, but it will really be facility specific. We do intend to coordinate with the operations team of any impacted customers and so we do intend to do that to the extent that time is permitting. Again, making sure that those conversations are operations to operations.

KEVIN BLACK: But just so you're aware, it's not – in our area, we don't even have the fire hydrants and stuff. These growers are, you know, it's a natural break because, you know, they water their crops, they keep those fields green, and the green stuff doesn't burn. I just want you to be aware of that. Like sometimes you may be talking about Mt. Tolman, but those growers saved so much – a huge part of this region. That's, you know, that's pretty important. I mean, just Gebbers alone, a phone call to us or to him and, you know, he may say, "Hey, wait, we're watering right now and, you know, the fire's coming in this direction. So, you know, wait, you know, for another two hours." I don't know.

All I'm saying is what I saw, it would have been an epic disaster if the power went off sooner, because those guys, you know, watered and that, you know, kept the, you know, it kind of went around the city of Bridgeport. That could have wiped out that whole city or town, whatever you want to call it. And it was kind of spared because it went around, you know, the orchards and then it crossed the river, you know, by Chief Joseph, versus going across right down, you know, right down through the orchards. So, all I'm saying is just, you know, before you make that decision, you know, that – they're like the biggest fire department I know of in this area. I mean, Mt. Tolman uses, you know, planes to drop stuff but, you know, during that fire, Mt. Tolman really couldn't do anything, you know, it was the orchard areas that saved it. You know. So– that's all I have.

MICHELLE CATHCART: Thank you, Kevin. I do appreciate that. Like I said, we do intend to coordinate with the local utilities and understand the local conditions of the areas that we're looking at. Thank you for that.

KEVIN BLACK: Thank you.

FACILITATOR: All right, thank you. So, Meg, I want to check in with you. We've got about four more questions being asked here. Are we still good on time and everything?

(Break for direction.)

FACILITATOR: (Inaudible) Engstrom (ph.) is asking: What are the weather condition thresholds for enabling PSPS? Will it be an IFPL rating of 4 plus greater than 60 mph winds?

ERIK PYTLAK: Yeah, so, IFPL is a really old measure for fire conditions. The problem we have here in the BPA service territory, and you probably already know this, is that an extreme fire situation in (EWEB's?) district is going to look very different than one in Redmond, which is also very different than in Idaho Falls. So, luckily, the National Weather Service has done a lot of that footwork already by setting red flag conditions based on the area that they forecast. Red flag warnings, for example, in southern or southwest Oregon have different criteria for humidity, fuels, and even lightning activity level than western Montana, which has a very different fuel type, very different fire conditions, and even different relative humidity thresholds, where 40% humidity on the west side is very dangerous for new fires to start in conifer type of trees or Doug firs, versus eastern Montana, where 15% relative humidity is needed before you would have to worry about serious fire spread.

So, what we did there is we are setting the criteria based on the – you have to have a red flag condition – so very low humidity, very dry fuels, etc., for that particular area on top of 60-mile-an-hour winds, because red flag warnings could be issued for wind speeds much lower than 60. I hope that answers that question.

Are we using IFPL? No. But we are using the criteria that's been specified by the National Weather Service based on the fuel types and fire weather conditions in their specific areas.

FACILITATOR: Okay, we will see. Go ahead. Thank you, Erik. The next question are a couple from Eric at (PAC?) how much warning will transmission customers have prior to deenergizing?

MEG ALBRIGHT: I'll take a start at this. So, Erik, I think the weather group is hoping – and it will vary, but we're hoping that we'll have 48 hours or so notice?

ERIK PYTLAK: That's one of the things that we've struggled with as were putting the plan together, to be quite honest. Because weather conditions, as you all know, change. What we've backed out from this is how long would it take to do the analysis that would be needed to make a decision on deenergizing a line or not. So, we backed that up and about 48 hours notice is generally needed to do all that work.

The weather conditions, we can sometimes see those fire weather conditions coming even farther in advance, like what happened with the event here this last September. You all were getting warnings just like we were that we were going to have an extreme fire event four or five days in advance. In that case, we would give that alert to our internal folks saying, "Hey, we see these conditions coming," then maybe the PSPS would be activated even farther in advance.

Other times, we mainly see it 48 hours or maybe even less in advance. So, it will really be dependent on the weather conditions. That's the thing about PSPS is that we can't anticipate every weather scenario

that is going to require us to look at do we need to deenergize the line or not, but what we figure is that about 48 hours in advance, about that, we should have enough information to at least know that we are facing a significant risk of, again, the red flag conditions coinciding with the high winds.

The decision itself, though, that's a different matter.

MEG ALBRIGHT: Yes. So, once we get that alert from our weather group, then we will have pedal to the metal to make a decision that is a well-informed decision as quickly as possible. As the conversation has indicated today, we would want to have those operations-to-operations conversations to understand the impact so that we have that information to include in the decision.

Michelle, do you want to add anything to that?

MICHELLE CATHCART: No, I think you covered that well.

MEG ALBRIGHT: Yes, it really is going to depend on how far in advance we're able to be alerted to the need to make a PSPS decision and how quickly we can get the information from the other operations groups of the other entities in the area so that we can make that decision.

Sean, you ready for the next one? Please check in and see if we answered that question.

FACILITATOR: Yes, Eric, did that satisfy your question? I'm going to assume yes. Let's go ahead and go to the next one. Will BPA be taking the lead to work with local emergency services when deenergizing and dropping load?

MEG ALBRIGHT: Let's see. I'm thinking that might be part of the question that we want to – if it's not our load, we would probably want to understand how we are working together on that. I invite others from the BPA core team to pipe in here.

MICHELLE CATHCART: I think that we would take the lead with the fire departments. We do typically coordinate in the field with emergency services, but like Meg said, I think that there would need to be coordination with the local utility as well if there is load drop, again, noting that not every PSPS we do would result in a load drop.

FACILITATOR: Eric, hopefully those have been responsive to your questions. If not, there is a way to ask more questions at the end as well as submit questions.

Our next one, Meg and team, is from Brian Grundmeier (ph.). For DR aggregators that would benefit from having a few hours extra warning to prepare devices like pre-charging electric vehicles, running AC, are you planning on any automated computer protocols to publish an upcoming PSPS event and the affected locations, even just at the county level? California was a bad example of this. Any query based on individual customer account numbers to disperse city-wide or county-level PSPS events? I think just from the get-go, I think at least at the county level, to identify upcoming PSPS event affected locations in an automated computer protocol to support that. Meg, that's kind of the question.

MEG ALBRIGHT: Yeah, so, I'm going to see if Troy, maybe you have any information. This isn't something that I would be familiar with. Troy? Doug? I'll turn that one over to you.

TROY SIMPSON: Yeah, this is Troy, I'll start. Doug can chime in, too, if he wants to. Yeah, I don't think we have – well, I know we don't have the infrastructure for any automated communication in that regard like we're talking about. I think our intention and the reason why we asked the question the way we did is to provide as much advanced notice as we can to the local utilities with the hopes of using infrastructure potentially they have available to them to send out to end user customers. This really is one of the central questions that we're asking is: Given what we have, what can we give you to help you as a local utility communicate with your end-use customers?

MEG ALBRIGHT: Doug, did you have anything to add?

DOUG JOHNSON: No, that covers it. Thanks, Troy.

FACILITATOR: All right, Brian, hopefully that response – okay, thank you, Brian. Brian is going to follow up offline, guys.

The last question here from Joe, and then let's go ahead and get to the last three slides, Meg, or at least the next slide. From Joe Lucas: Has BPA conducted an analysis of historical meteorological and fire information to estimate how often the conditions identified to consider a PSPS would have been triggered in the past? This would be helpful to create better understanding about how rare the PSPS would or would not be for various fire-prone areas.

MEG ALBRIGHT: I will –

DAN NUÑEZ: Is that me?

MEG ALBRIGHT: Thank you, Dan.

DAN NUÑEZ: That's a great question, Joe. The direct answer to your question is, no, not in the sense we've compared, hey, if we have this decision criteria and model, what would be the end result of that looking at historical years?

However, on the flip side, we do rely heavily on the Rocky Mountain fire physicists in Colorado, who do look at the meteorological and fire frequency and fire physics piece and provide us that data, but the comparison piece for PSPS has not been looked at. I'd say no, but in the sense of how we've incorporated that historical fire element, yes, it is a variable that's brought in.

PARTICIPANT: Thank you for that. I think many of us are just trying to figure out – and when Michelle introduced it, talking about that the ability to do this has been in place in the past and it's been used in the past. So, I think many of us are trying to figure out, is BPA formalizing past practice or creating a whole new program that's more aggressive and preemptive? Thanks.

MICHELLE CATHCART: I can take a shot at that. I think that it is, largely, that it's more formalized and we have clearer criteria. I don't think we were necessarily meaning for it to be more aggressive, but just having a clearer idea and a process for getting better information for the decision-making process.

So, that's really where we're focusing it. And, again, so, a couple points to make is that even when the weather conditions would activate the PSPS analysis, that is the only thing that will result in a PSPS, and further, even with a PSPS, it may not impact load.

So, hopefully, that helps answer. I do also want to give Erik Pytlak – who, by the way, I don't know that we did introductions. Erik is our supervisor of our Weather and Streamflow organization. So, I'll let Erik talk a little bit more about the historical weather also.

ERIK PYTLAK: Sure. So, Joe, that's an excellent question. When we had – the one thing that we have is we had this happen last September with isolate 70 mph winds, widespread 50 mph winds on active wildfires. Then, basically, it was a higher-end event.

It turns out, though, that 2020 was not unprecedented. We had a 2017 event. Again, Eagle Creek fire in the Gorge, that also had wind gusts in excess of 50 mph on active fire in a very, very dry situation.

We also can go look further back in time here west of the Cascades, and there is historical evidence, but there's not a lot of people living here at the time, that we've had large wildfire events occurring with high winds and dry, very low humidity in September or in May even west of the Cascades. So, it's not unprecedented. The problem with trying to do a historical meteorological analysis with this goes back to the climate change question, where even if we were to do a historical analysis, the climate is changing underneath our feet. The problem would then be historical analysis may not be applicable now. And one of the bigger concerns – and I brought this up earlier – is that our fire seasons are getting longer. So, the longer the fire seasons get, you don't even have to have stronger winds, you're just increasing the chance that the occasional high-wind events that we sometimes do get in the spring and summer are going to coincide with already dry fuels – grasses ready to go, trees are already dried out. Even if we were to do that historical analysis, the problem is that may not be very meaningful going forward because of the lengthening fire season. But we did look at this. It's rare, but not unprecedented. We've got two fairly recent examples of high winds coinciding – 60-70 mph winds coinciding with these red flag conditions.

MEG ALBRIGHT: The last piece that I would add, for me, we're trying to get better at this. So, being able to make more timeline decisions, having more advanced notice – as good of advanced notice as we can get. And all the data that we can get to make an informed decision. So, getting more organized and being better informed as we're making these decisions.

Okay, we do need to get back to the slides, so we get through them. Let's go to slide 13.

We've actually been talking about this quite a bit. We've been talking about this operations to operations communication. Reaching out to other entities in the same area that is experiencing those extreme weather conditions so that we understand their operation issues – their potential PSPSs and are talking about ours. Troy, do you want to talk about the non-operational communications?

TROY SIMPSON: Yes, absolutely. We've been hitting on this, Brian and Kevin's questions as well. You know, one of our – well, clearly, we want feedback on the whole program, but one of the clear areas that we want feedback on is the communication aspect of this. We understand that this is a new process, and we want to get that information out to affected utilities in a way that's meaningful for them and timely.

A couple things that we're asking specifically for feedback on is what do you want to be communicated about? I think Kevin indicated the earlier the better, right? So that when we're standing up a team, even though we don't know whether we're going to shut off – do a PSPS event, you know, do you want to

know about that? Or would it be better to wait and, you know, have more information or better information, wait until after the team is assembled and decided to do a PSPS event or not. That's one aspect of the communication is when do you want to know?

Then, the second aspect – well, I guess there's three, maybe. The second aspect is what do you want to know, and then thirdly, how do you want to know it? You know, we have – as I mentioned earlier, we have the tools available to us, which are all of our existing tools. We're planning on leveraging relationships that we already have, so transmission account executives will be reaching out to general managers and those types of folks. We're going to have our district managers and substation – well, we'll have our district managers or districts reaching out to their peers as well. We're also informing our tribal account executives and public relations in those groups. So, we're going to have the information spread out fairly broadly within BPA as early as we can, and then we want to use those folks to disseminate the information back out to the group.

So, essentially, the tools we have at our disposal are phone and e-mail but also public affairs has access to updating, you know, the website and using social media aspects. So, you know, one of the things that we want to hear from you all is what would be most meaningful for you?

Then, I just have a note here. You know, it's vital that we have current contact information. It might not be the contact information that I would use as a transmission account executive for day-to-day type of things, you know? If there's someone else we need to communicating with in your organization, then let us know that as well.

MEG ALBRIGHT: Thanks, Troy. Let's move to slide 14. Okay, so, after a PSPS has occurred, so this is the scenario where we did make the decision to activate a PSPS, once the weather has abated and it's time to bring equipment back into service, because there will have been hopefully and wildfire, hopefully the PSPS did prevent the wildfire, we would still want to patrol lines. There would have been heavy winds in the area, so it very likely will need to clear the vegetation, may need to fix damage to our equipment. All of that stuff would need to happen before we can reenergize, which is just part of good operational practice. Then, we'll be communicating out when we're ready to reenergize.

Slide 15. Troy, I believe you were going to cover this.

TROY SIMPSON: Yes, I will. So, as far as next steps go, we're opening this up to a two-week comment period. So, you have until May 11th to comment on it. We'll direct those to the teams, and we'll be replying to the comments. On May 22nd, we tend to publish the response to comments as well as the PSPS section of the Wildfire Mitigation Plan. I will note that we're trying to get that out earlier, trying to get that out even during the comment period so that if there are items within the PSPS plan that you will have an opportunity to comment on that as well. We're working diligently to try and get that out, but it's not quite ready for prime time yet. So, we're doing our best there.

Then, June 1st, we'll have the PSPS plan in place. So, we hope to have everything locked down by then or everything – all we can have now, we hope to have known by then.

FACILITATOR: We have a question from Ben Felize (ph.) Do you plan to leverage mutual aid for patrols prior to reenergizing? I think this is in reference to the prior slide, Meg, sorry.

MEG ALBRIGHT: Totally fine. So, I know that we have mutual aid agreements in place. Michelle or Brent, do you want to address that?

MICHELLE CATHCART: Sure. I guess the way I would answer it is that we don't currently have a plan to necessarily do that, but I think that's a good question to raise and something that we'll discuss further internally if there are areas where that may be helpful to do.

FACILITATOR: Ben, did that respond to your query?

PARTICIPANT: Yes. I just know from experiences in the south, because of the prolonged outages, it takes a long time to patrol those lines. So, having that mutual aid available in the region certainly would help.

FACILITATOR: Actually, right before Ben asked that question, Paul reminded us that the districts are here to help as well. Meg, I don't know if you saw that one, too, and Troy.

We have a query from Andy Halwell (ph.), I don't know if it's a query or shameless plug in regards to system hardening. Bridger (inaudible) National Forest is still plugging along with fuels reduction activities directly adjacent to the BPA line along Teton Pass. Teton (inaudible) state fuels management project. Funding to help support these efforts is always welcome in any amount. Okay, so that's – sorry.

But Ed Orcutt (ph.) has a question.

PARTICIPANT: Thanks. My question is: I'm trying to figure out how this – as a state representative and an end-use customer, trying to figure out what this all means for people having power when one of these happens. I know sometimes when you shut a line down, you can reroute power in other directions so that people don't lose power. I guess what I'm trying to find out is how we are going to know when you're announcing that you're shutting down a line what impact that's going to have on who and for how long?

MEG ALBRIGHT: Yes, that's a great question. Michelle, I'll let you take the first crack at that one, again.

MICHELLE CATHCART: Sure. Yeah, so I think that – so, first of all, you're right that a lot of times we can reroute power. That's why I keep reiterating that when we do this, it may or may not result in load or generation loss. That's why we have to coordinate so closely with the local utilities. So, I think that we're going to need to rely to some degree on that coordination with the local utilities to make sure that the word gets out to end-use customers.

Certainly, we don't have contact information in any way for end-use customers, so we're going to have to partner with those local utilities as we go through this. We're also talking with our Public Affairs group about the best way to get messages out. It is going to be unique to the situation. So, there's not one clear answer to that, but we will be working with the local utilities on it.

DAVID LUCAS: Michelle, this is David Lucas with PacifiCorp. I guess just to follow up on Ed's question and maybe to ask first a clarifying question on one of the bullets I think on slide 2 or 3 just to make sure I have an understanding. I believe BPA indicated that it does not intend to provide the list of assets that may be impacted by a PSPS to its end-use customers. Is that correct?

MEG ALBRIGHT: So, what we have right now is we do have a list of facilities that have a higher risk of ignition. We are not intending to share that list publicly because of the criticality of the information in the list. That said, we are talking about the best communication strategy with the local utilities and the impacted entities so that we can have a common understanding of the impact.

So, we're not sharing it publicly, but we may want to follow up further with individual organizations.

DAVID LUCAS: I appreciate that and appreciate BPA holding this informational meeting today and giving an opportunity to comment. I think it would be critical for us in order to provide beneficial comment to understand more about that decision-making process, to understand – and recognizing there certainly is a difference between load drop and non-load drop when BPA takes out a path. But having that understanding so that we can review potential protocols around communication and coordination will be absolutely critical in order for us to be able to provide comments.

MICHELLE CATHCART: That makes sense.

FACILITATOR: Ed, you wanted to follow up?

PARTICIPANT: Yes. I got the impression this was supposed to be a little more geared toward legislators. But what I heard today was a lot of technical discussion. I'm just wondering, what's your plan for communicating to the media when you're about to do one of these events so that laymen can understand what's coming, why it's coming, how it's coming, what the effect is going to be.

DOUG JOHNSON: I'll take that one, Meg and Michelle, this is Doug Johnson.

MEG ALBRIGHT: Thank you.

DOUG JOHNSON: We fully intend to be in touch with local papers. If the place where we're doing this is large enough to have TV stations, get in touch with them, and boil this down into very basic language that people understand – especially if it is going to be result in the power being cut off. But we really intend to try and do that through the local utility. We know that those guys have relationships with the media. Some of them have their own communications and public affairs staff, some don't. So, we'll be working with each of these utilities, depending on their size, to get the right information to them so that 24 hours in advance of this happening, hopefully, people know what the consequences will be, how they need to prepare, and what we're going to do that will cause the power to be off and hopefully give them a good idea of how long the power will be shut off. But we're making plans for that as well.

MEG ALBRIGHT: Sean, are there other questions?

FACILITATOR: There are no other questions. Dan shared an anecdote. Ryan Kehr (ph.) has just asked a question around rolling blackout guidelines. Do we have anybody – would this be an appropriate forum to ask that question, Meg, or would that be an offline response?

MEG ALBRIGHT: What's the exact nature of the question?

FACILITATOR: Does BPA have rolling blackout guidelines that it can share? Will BPA request load shed blocks based on percentages of total loads? I ask this knowing this may not be the appropriate forum.

MEG ALBRIGHT: Yeah, that sounds like a different scenario.

FACILITATOR: Ryan, we have this – for everybody, we have this chat saved to ensure that we can go back and make sure that we got the appropriate responses to folks. Ryan, we will make sure that we take this question and see where it does belong to get a response back to you. If you can follow up with a message to techforum or with your AE, then we can make sure and get in contact with you.

MICHELLE CATHCART: We'll certainly follow up, as Sean indicated. I do want to say, I don't think that would really apply to a PSPS. A PSPS only the load that is directly impacted by that TSO – if it's a radial feed, then the load at the end of that feed, for example, would be out. I don't think that we would have an instance of using rolling blackouts for a PSPS.

FACILITATOR: After that, there are no other questions and nobody else has lined up to ask a question verbally. Just so everybody is aware, that is the end of the presentation.

MICHELLE CATHCART: I just want to call out that I know there are a number of people on the phone and not on the Webex. I do want to be clear that the analysis that we have was that less than 2% of our 15,000 circuit miles of transmission are on the high-risk list. It is a very small portion of our transmission system. I know that's been in the chat, but I just wanted to highlight that for anyone listening in.

FACILITATOR: Yes. Well played, excellent. Meg, we got one more that just came in here regarding benchmarking of PSPS trigger mechanisms, thresholds. Who, specifically, did you look at in California? The IOUs? CAISO? Who?

MEG ALBRIGHT: I know that we reached out to a couple of them. Troy, do you have the names handy? Is that something you're willing to share?

TROY SIMPSON: I'm not sure that's something we can share.

MEG ALBRIGHT: Okay.

MICHELLE CATHCART: Yeah, I'll note that some of the PSPS plans that we got from some of our partner utilities were under NDA or other protective mechanisms. In terms of the trigger piece of it and the note about the wind speed I think was where that came up. Really, what's important to take away from that is that we looked specifically at our design standards to determine that 60 mph threshold.

MEG ALBRIGHT: Fair enough. I appreciate that. Sean, anybody else trying to ask a question?

FACILITATOR: Nobody at this time. Obviously, if any questions come to the fore after the close of this meeting, you have the techforum@bpa.gov to submit to or your account executive. There are the dates there for getting in those comments. Any other closing comments from Meg, Michelle, anybody else on the team?

MEG ALBRIGHT: I will express appreciation for the questions and ideas that were expressed today. I think that was helpful. Michelle?

MICHELLE CATHCART: I appreciate everybody's engagement throughout this process. Certainly, we are, as Sean said, we have copied down all of the chat to be able to make sure that we are reflecting clarity on some of those questions through our plan and we'll follow up on that.

Again, we look forward to the comments that you submit over the next couple of weeks so that we can make our plan better for the region. Thank you.

FACILITATOR: All right. Thank you, everybody. Enjoy the rest of your afternoon.

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