BEFORE THE ARIZONA POWER PLANT

AND TRANSMISSION LINE SITING COMMITTEE

IN THE MATTER OF THE APPLICATION OF SOUTHLINE TRANSMISSION, L.L.C., IN CONFORMANCE WITH THE REQUIREMENTS OF ARIZONA REVISED STATUTES 40-360, ET SEQ., FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AUTHORIZING CONSTRUCTION OF THE NON-WAPA-OWNED ARIZONA PORTIONS OF THE SOUTHLINE TRANSMISSION PROJECT, INCLUDING A NEW APPROXIMATELY 66-MILE 345-KV TRANSMISSION LINE IN COCHISE COUNTY FROM THE ARIZONA-NEW MEXICO BORDER TO THE PROPOSED SOUTHLINE APACHE SUBSTATION, THE ASSOCIATED FACILITIES TO CONNECT THE SOUTHLINE APACHE SUBSTATION TO THE ADJACENT AEPCO APACHE SUBSTATION, AND APPROXIMATELY 5 MILES OF NEW 138-KV AND 230-KV TRANSMISSION LINES AND ASSOCIATED FACILITIES TO CONNECT THE EXISTING PANTANO, VAIL, DEMOSS PETRIE, AND TORTOLITA SUBSTATIONS TO THE UPGRADED WAPA-OWNED 230-KV APACHE-TUCSON AND TUCSON-SAGUARO TRANSMISSION LINES IN PIMA AND PINAL COUNTIES	DOCKET NO. L-00000AAA-16-0370-00173 CASE NO. 173 AMENDMENT TO DECISION NO. 75978 At: Tucson, Arizona Date: December 2, 2020 Filed:December 8, 2020

REPORTER'S TRANSCRIPT OF PROCEEDINGS

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BE IT REMEMBERED that the above-entitled and numbered matter came on regularly to be heard before the Arizona Power Plant and Transmission Line Siting Committee at the DoubleTree Hotel, 445 South Alvernon Way, Tucson, Arizona, commencing at 9:17 a.m. on the 2nd of December, 2020.

BEFORE: THOMAS K. CHENAL, Chairman

PATRICIA NOLAND, Public Member
JACK HAENICHEN, Public Member
JAMES PALMER, Agriculture
LEONARD DRAGO, Department of Environmental Quality
MARY HAMWAY, Cities and Towns (Videoconference)
ZACHARY BRANUM, Arizona Corporation Commission (Videoconference)
JOHN RIGGINS, Arizona Department of Water Resources (Videoconference)
KARL GENTLES, Public Member

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CHMN. CHENAL: Good morning, everyone. This is the time set to begin the morning session of the application to amend CEC 173. Do we need to discuss anything before we get back to the witnesses and Mr. Beck's testimony?

MR. DERSTINE: Well, I guess the question -- when we left off yesterday with the hearing portion, before public comment, we completed the flyover. I think we may have had a conversation at a break or off the record about whether or not you wanted to do that again. Do you want to do it now or do you want to do it at a later stage in the case? Whatever the Committee would like.

CHMN. CHENAL: I definitely think it's important to see it again, but I certainly would like to hear if the Committee would rather see it now.

MEMBER HAENICHEN: Fast, though.

CHMN. CHENAL: Fast?

MEMBER HAENICHEN: Yeah.

CHMN. CHENAL: Now? See it again now?

MEMBER NOLAND: I don't want to.

CHMN. CHENAL: Well, let's do it now and let's just do it fast without the commentary.

MR. DERSTINE: Well, I guess with your permission, we -- what we discussed -- we can

certainly -- I think we can. Can we speed it up? Can we drive it at a faster rate, Eric?

MR. RAATZ: Well, we definitely will not pause during the flyover, so we'll just move through it. I don't know that we can actually speed it up.

MR. DERSTINE: Okay. And then our thought was, there was the morning public comment and we had the two members of the public who provided comment in the evening. I think Mr. Beck is prepared to pause at the appropriate location in order to maybe give some background and information concerning the comments that were raised and that the Committee heard at the end of the day.

CHMN. CHENAL: Very good. I think that makes sense.

Now, I understand that there's a member of the public who is here and wishes to provide public comment, Ms. Darling?

MS. DARLING: No, Chairman. He was with the Town of Marana regarding the Twin Peaks Road expansion, and I answered his question. He didn't want to make public comment.

CHMN. CHENAL: Okay. Thank you very much.

MEMBER NOLAND: Mr. Chairman.

CHMN. CHENAL: Member Noland.

MEMBER NOLAND: Do we have to watch it both ways? I mean, I'm just asking. It made me kind of ill, and maybe it's the angle I'm on. I'm not sure. But I'm just wondering if we have to do both ways.

CHMN. CHENAL: Well, one is kind of a high level, if I remember, and one is kind of a much more lower pass where you get a lot more detail.

MEMBER NOLAND: Okay.

MR. BECK: Mr. Chairman, we could, if you wanted to, we could slide the start point to the middle, which is the south end, and just run it from there.

CHMN. CHENAL: That's fine. That's fine. And that would still give you an opportunity, Mr. Beck, to comment on the public comment last night?

MR. BECK: Yes, and a couple of questions also that came up yesterday.

CHMN. CHENAL: That fine. Let's do that. That sounds like a good compromise.

MEMBER NOLAND: Can you put it on this screen too, Mr. Chairman? I might be able to see it if I'm not at such an angle.

MEMBER HAENICHEN: Yeah, it's a real oblique angle.

MEMBER NOLAND: Yeah.

MEMBER HAENICHEN: Why don't you move your chair over this way.

MEMBER NOLAND: Well, I don't want to sit by you.

MEMBER HAENICHEN: Oh, okay. I guess she told me.

(Virtual tour plays.)

MR. BECK: So again, this is the Vail substation right here.

And if we could pause the video and bring up the one slide that shows the land.

And this is to address Member Noland's question about land ownership. Again, the scale is a little bit tough to see, but right at the top of the screen, that is the Vail substation right there. Just below and to the right, there's one parcel of land; that ownership is El Paso Natural Gas, which was bought by Kinder Morgan. So the records haven't changed, but I assume it's Kinder Morgan ownership. And then everything else surrounding this, up until this property way off to the right, this is all State Land. So we would be dealing with State Land-, UNS-, or TEP-owned property for the substation, and we would be working with Kinder Morgan as we go along the edge of their property.

Okay. We can start the... .

So now we're going to leave the Vail substation, head in a southerly direction. We've got the two potential alignments for the right-of-way. And we'll come down into the existing WAPA right-of-way. You can kind of see it in the distance here.

Now, we're turning in a northwesterly direction, and we are now on the Western Area Power alignment, and we're depicting the new monopoles along this alignment.

Again, the state prison over here. The reroute to go up to Old Vail Road. Sonoran substation, which is TEP's. Again, some sand and gravel operations. Airport up in the upper right corner, that's the green, and Raytheon would be right in there. It's not real easy to see, but it is in there. This is -- the Raytheon complex is right up here.

Continuing in the northwesterly -- well, it will be in a westerly direction on the new alignment along Old Vail Road. This is the little development of Summit.

We'll keep moving ahead a little bit, Eric, until we can see the buildings here. Pause right about there.

So there was a question asked yesterday, what

are these buildings in here. I did get some Google screenshots last night. So I took shots from three locations. This here is a north/south road coming off of Old Vail Road and then two shots up along Old Vail Road.

Next slide.

So this is, again, that road that is this road here, so taking a look approximately just to the left edge of the screen of the movie flyover. Looking in a northwesterly direction, it's hard to see, but there's an H frame structure right there. The other one is down off of the screen.

Next slide.

So these are the -- the buildings that are represented here, these are mobile homes.

Next slide.

This shot is taken off of Old Vail Road looking in a southerly direction. Again, the existing alignment is through here.

Next slide.

Again, these are manufactured homes throughout this area.

Next slide.

One last look. This is kind of looking in a southeasterly direction back along the existing

alignment.

Next slide.

And again, these are all manufactured homes out there, and you can see the existing H frame structure.

So as I had indicated, I wasn't real comfortable with these representations, and you can see why.

CHMN. CHENAL: Looks like there needs to be an upgrade on the software.

MR. BECK: Yes, we need to work through that. And I will -- from our consultant's perspective, this was done very quickly to get it ready for this hearing, so this is one of the issues we would have dealt with if we hadn't been in such a hurry.

Again, here is the existing alignment, the proposed alignment along Old Vail Road. This, again, is a shot looking back to the east along Old Vail Road with the existing line off to the right.

Coming up, making a corner just before Old Nogales Highway, and then coming up and crossing Old Nogales Highway, and going through the Tohono O'odham reservation.

Recrossing I19 here. Again, little strip malls right up here through this whole area. This is

Pima College's campus, their southwesterly campus.

The alignment heads west. This is all existing WAPA right-of-way. As you can see, the houses have been built up and encroached upon the Western alignment. Western is fully aware of that and realize they need to work through those issues as they're doing the design for the new line. Parkland, the right-of-way comes up this way.

Pause there maybe.

So I believe this is the area that I believe it was the earliest commenter raised. And one of these roads, I'm not sure which one, is San Joaquin. I think it might be this one, but it's generally in that vicinity. So she was raising issues about the encroachments or the fact that there are some structures and so on through here, raising concerns about, I believe, the dust and construction activities and so on.

If there are existing underground utilities and other obstacles that are of concern, likely the poles will be topped, as opposed to actually pulled out of the ground, so that we don't disturb anything under the ground. We can top them at ground level or just below ground level, and we'll work with property owners on that.

As far as dust and mitigation issues, we have standard practices, as does Western, as well as some of the requirements through the PCEMs and just general environmental regulations and dust control that will be followed. We're not going to be causing a lot of particulate emissions. We will haul away -- any of the poles that come down will get hauled away and disposed of correctly. There are federal requirements regarding that.

So at least from our perspective, there is no issue there. I know the public isn't aware of that, but we do have methods and practices for that.

Again, the Tumamoc Hill relocation coming out over along the roadways just to get off of this middle part or more central part of the Tumamoc research area. This is Greasewood Road and then this one is Anklam, so heading north along the edge of Greasewood and then heading in kind of a northeasterly direction along Anklam until we rejoin the existing WAPA alignment, then we will head north along the existing alignment.

Looking back across Tumamoc Hill at that existing structure, which is the Western line today. Just to point out, that was a three-pole structure, which is a turning structure. That's why it was three poles versus the two typical H frame.

Coming along a park here. We come up and before we get to Grant it turns east and then crosses over Interstate 10. Again, coming into the Tucson station, which is Western's facility. So their circuit will come into here, still be operated at 115, but be capable of operation at 230 in the future when they put the correct transformation in.

We crossed over Interstate 10. That was some U of A farm property, Santa Cruz River. Little bit of development just to the south of the Western alignment. Again, Silver Bell Road here along the left, park and golf course along the edge, as well as crossing through the park and the edge of the golf course. This is the Pima Animal Care center. This is a TEP existing 138 substation.

MR. DERSTINE: Mr. Beck, I'm not sure this is the place, and maybe you're going to get to it, or possibly we passed it, but one of the commenters yesterday evening raised the question of the Winter Haven neighborhood and why this project should or shouldn't be placed in Winter Haven. I know that Winter Haven, that neighborhood, is a long ways away from this project, but can you just talk about that briefly?

MR. BECK: Yes. Winter Haven would not show

up at all in this strip of map that we have because it is quite a ways away. Winter Haven is located in the north central part of Tucson right along the Rillito -- well, just south of the Rillito River along Fort Lowell Road.

Winter Haven is an area that every year, typically every year, highly decorates all of their neighborhood with lots of lights and dioramas and so on in their yards. It's a big attraction in the city of Tucson. Lots of people go and see it. Used to have a drive through -- you used to be able to drive through almost every night. It got to be so congested and such a safety issue that it became mostly walking only. This year it happens to be canceled because of COVID. But it is a big event in the city and runs for three or four weeks during December, right up to the end of the year typically. And TEP donates time for stringing some of the lights on the trees that are along the streets as part of the city process, then each individual neighbor does their own decorating. So lots of lights.

I think his point was, there's a lot of electricity usage there; maybe they should suffer with a line in their neighborhood to support that. And it's an old, old neighborhood. It's been there since at

least the '50s, possibly back into the '40s; I'm not sure. It's nowhere near this project. It's not a place where -- typically, TEP doesn't look to put lines through neighborhoods. We'll try and stay on arterial streets. So even if we're going down in that area, we likely wouldn't be through the neighborhood.

But I think his point was, they use a lot of power. They have no lines in their neighborhood, so they should have the benefit of lines running through their neighborhood. I'm not sure if there's any overhead lines in their neighborhood. They may have been an area that they chose underground originally and paid for that. But that is what the Winter Haven comment was, and again, it has no proximity at all to this project.

MR. DERSTINE: And then I think the third gentleman who provided comment raised a question about an abandoned landfill and could that or should that have been considered as a route for this project. Have we passed that area or are we going to get to that?

MR. BECK: I think it's coming up. I'm not sure if we know -- we'll pause it when we get kind of in the general vicinity. But relative to use of that landfill, use of landfills for installation of lines has its own issues. We have had to put poles on the

edges of landfills in the past near our East Loop substation because there was a landfill directly outside of that old substation. And as we were drilling for foundations, we brought up parts of washing machines and who knows what else. There's the issue of methane gas coming out of the landfill and there's dangers, as you're excavating, with that.

We do have some underground facilities in that particular area that go on the edge of the landfill, and we have to be very careful when we send crews in. They do extra sniffing for gas and so on, because our underground facilities can actually potentially be a path for gas to come back into the manholes and fill them with gas. So it's a safety issue.

But specifically for this project, because it's existing right-of-way, there was no study or analysis done of use of the landfill as an alternative route, because the plan was all along for Western to use their existing alignment where possible and there were no reasons for not using the existing alignment.

MR. DERSTINE: Thank you.

MR. BECK: If we could move up to that area and kind of pause just in general.

So another interesting thing. The city, over

the years, its landfills were typically placed next to the riverbeds. And so we do have old landfills that are adjacent to the riverbeds, which cause their own problems relative to flooding, washout of material, and so on. So this is kind of a -- as I mentioned before, this area in here is all flood area and -- lots of flooding based on the river here. And we just happened to historically co-locate our landfills near those facilities because of the cost of land.

So Renee, did we just pass the --

MS. DARLING: I'm trying -- I thought it was north of Ina. This is Ina right here. One second.

MR. RAATZ: I can pull up Google Earth if that would help.

MR. BECK: Okay. Well, maybe we'll pull it up on Google Earth instead. We can do that as soon as we finish the flyover. We'll just continue on with this.

We had just crossed Ina Road just a little ways back. And again, we're heading kind of in a northwesterly direction up through the town of Marana. Again, a lot of encroachment into the Western right-of-way. Cell phone facility that happens to be in the foreground of this picture. Again, this is all town of Marana. We're coming up to the Twin Peaks Road

where Silver Bell becomes Twin Peaks as we go over this hill.

I think generally, this is the area that the Town of Marana has commented on relative to structures. And again, both we, as well as Western, will coordinate with the Town of Marana on structure development location relative to their future plans for roadway work.

Again, Rattlesnake sub, a Western sub, CAP alignment here.

This is, again, the deviation in route around near the Marana Regional Airport, yellow being the proposed route. So the purple line is generally running northwesterly and will head a little bit more west and then north on the realignment. Again, the green is the airport today.

Continuing to the northwest. Again, Marana Tap substation is a Western facility tied to the line, so that's got a tie into that substation.

Again, for the most part, these are single-family homes. The representation is not the best on the depiction of the structures.

Kind of turn to more of a northerly direction here. Somewhere through here we cross -- I believe we may cross into Pinal County or we're right at the

county line.

And now we're heading east towards Sahuaro/Tortolita substations. Here is the where the new alignment for the TEP connection deviates from the Western alignment, which was more of a straight line here. And this was part of Case 173 previously. This is the Sahuaro facilities and then this is TEP's Tortolita substation. And we'll have our 230 transformation right in this corner of that substation.

So can we bring the Google up and show where that landfill generally was?

MS. DARLING: That's what we're doing.

MEMBER NOLAND: Mr. Chairman.

CHMN. CHENAL: Member Noland.

MEMBER NOLAND: Ed, wasn't that landfill between the freeway and Silver Bell and between Ina and Camino Del Cerro, basically?

MR. BECK: Yes, I believe it's just north of El Camino Del Cerro.

MEMBER NOLAND: I thought they redeveloped it as a park and something else. Maybe not. Might have been another one along there.

MR. BECK: Yeah, I think the park might be just south of Camino Del Cerro on the south side, and I think the landfill, I believe, was on the north side.

Although there may have been -- there may have been two landfills. I'm not sure.

Well, on this one screen we are seeing a map. I don't know if that's -- you guys are looking at that or...

MS. DARLING: What?

MR. RAATZ: We're still showing the map on the Zoom.

MS. DARLING: Oh, sorry. I didn't realize we were still on the Zoom.

MR. BECK: So on the map on this screen that's over towards the witness table, that's what they're working on right now. It's also on the Zoom meeting.

MR. DERSTINE: Can we get it up to the front, please.

MEMBER NOLAND: Right there. Right there. On the other side of the wash too.

MR. BECK: So right now this is El Camino Del Cerro Road. On the north side of the road is some commercial activity. That's the wash, the river right there, the Santa Cruz River.

MR. DERSTINE: So for the purposes of the record, can you describe where the landfill that the public commenter suggested as a route for this project

in relation to the existing WAPA line, can you --

MR. BECK: So the landfill was on the east side of the Santa Cruz River and the north side of El Camino Del Cerro. The Western alignment is on the west side of the Santa Cruz River.

MS. DARLING: We were all off.

MEMBER NOLAND: You're off completely. That's Silver Bell Golf Course. You need to go further.

MR. BECK: You've got to be north.

MR. DERSTINE: And I guess while we're efforting on the Google Earth and trying to give the Committee a bird's eye view of this landfill, the bottom line, from what I understand, Mr. Beck, is that you have an understanding where that landfill is and, given that the purpose of this project is to stay within the existing WAPA right-of-way for as much of the project as possible and to only deviate from the WAPA right-of-way in those locations where it was found to be necessary or as developed through the NEPA EIS process, there was stakeholder and other input that pushed us out of the right-of-way, but just in four locations covering 12 miles, is that right?

MR. BECK: Right. So during the original NEPA process if someone had raised the question of

relocating at that point, it potentially would have been studied in the NEPA process. But because there was no public input or suggestion to relocate, and Western's plan was to use the existing alignment, nothing outside of the bounds of the strip that was covered by the EIS was analyzed. And we had no reason to suggest that any of this routing be relocated from that existing alignment but for the four areas that have already been covered as potential reroutes.

MR. DERSTINE: And I guess if this gentleman or someone else had suggested, hey, move the line out of the existing WAPA alignment, that would have been considered, but there had to be very, very good reasons to do that kind of given the purpose of keeping the project within the alignment wherever possible absent a good reason to deviate?

MR. BECK: Yes, that's correct.

MR. DERSTINE: So maybe -- does it make sense to just complete the flyover at this point?

MR. BECK: Well, I think we were done with the flyover.

MR. DERSTINE: Oh, we're done. Okay. And we did our best with the Google Earth driving in on the landfill. All right.

DOUG PATTERSON AND ED BECK,

called as witnesses on behalf of the Joint Applicant, having been previously sworn en masse by the Chairman to speak the truth and nothing but the truth, were examined and testified as follows:

CONTINUED DIRECT EXAMINATION

BY MR. DERSTINE:

Q. The next topic, Mr. Beck, that you were going to address was the need for the project. Where we left off with your direct testimony before we moved into and ran the flyover, the visual simulation for the Committee, was TEP's need for the project. But I think the segue for that was the discussion and the Chairman's question about is the 64-mile Vail to Tortolita segment contingent in any way on completion of the broader Southline project? And I think we addressed that and indicated your testimony is that it's a standalone project and serves a need for TEP and its customers as a standalone project.

I think Mr. Patterson wanted to maybe circle back on some of those issues from Southline's perspective. Is this the time you wanted to do that, Doug?

MS. GRABEL: I think we'll do that a little

later.

MR. DERSTINE: Very good.

BY MR. DERSTINE:

Q. So purpose and need. Let's get back to need and talk about why does TEP need the project.

A. (BY MR. BECK) So as was indicated back in Case 173 when I gave testimony about the value to TEP, and also recognized by Staff, which we'll touch on later, the Staff of the ACC, the project will provide voltage stability and support to the TEP system.

That 230 kV circuit parallel and adjacent to our existing 138 system, as well as the ability of that path to bring some of our remote resources from both Vail and Tortolita into more central part of Tucson, which is the DeMoss Petrie substation, provides that voltage stability and support to the system. And again, its being parallel to the system is what really brings the value.

It will also reduce TEP's dependence on our remedial action schemes. So we have systems in place operationally that look at line outages across our system, and we will arm for load tripping, is what we call it. And if you lose two lines in the system, we have the potential to drop load. What the system does, it will recognize, okay, we've lost line X, and kind of

puts a checkmark in the algorithm. If we lose, then, line Y, that triggers load drops. We have locations where the load is just automatically taken off the system to prevent damage, overloading, undervoltage across the whole area. This line will reduce our dependence on that load tripping. It gives us another path that provides the backup.

CHMN. CHENAL: And Mr. Beck, load dropping means like blackout for an area?

MR. BECK: Yes, individual areas. It won't be individual houses. It will be groups of houses in an area would be -- the breaker would be open, and it's effectively turning the light switch off for that area. There's a whole set of rules involved in that so we're not dropping hospitals and critical infrastructure, but we have identified the loads that are subject to load drop under certain contingencies. And it's not something we want to do, so anything we can do to eliminate that need is a big benefit to both TEP and its customers.

And in addition, this project will eliminate the need for additional projects that we have identified on our existing 138 system that would be required for us to meet NERC requirements. So we have identified some reconductoring projects that are no

longer needed with this project in place, upgrades of some of the facilities in other substations that are not needed if we get this project in place. So we're spending some money on this project, but it's also being offset by savings in other upgrades that would otherwise need to be done.

MEMBER HAENICHEN: Mr. Chairman.

CHMN. CHENAL: Yes, Member Haenichen.

MEMBER HAENICHEN: Mr. Beck, regarding what you just said, what about the timing, though, vis-a-vis these repairs you have to do if this project doesn't happen? Is it going to happen in time to obviate that?

MR. BECK: Based on the time schedule we have, yes, it will work to support removal of those projects or elimination of those additional projects. If the project were to get delayed too much, then some of those would probably have to come into play. But at this point, based on our projected schedules and our anticipated construction timelines, the majority of those projects will not be needed.

MEMBER HAENICHEN: Thank you.

CHMN. CHENAL: Mr. Beck, can you remind us again what the schedule is of this project?

MR. BECK: Well, our hope is that if we get approval in this process, you know, in the next several

months, we can finalize our agreement with Southline, get beyond that, get our agreement in place with Western, which we're targeting towards the end of this year, and then the actual design would start early next year. Long-lead-time items would be ordered, and then construction would begin probably a year and a half. So it would be mid-'22, and I think our target date right now is mid-'23 to be in service.

CHMN. CHENAL: Thank you.

BY MR. DERSTINE:

Q. Do you have a ballpark figure, I understand the final design hasn't been done, but a ballpark figure for the cost for the upgrade on the Vail to Tortolita segment?

A. (BY MR. BECK) Yeah. The estimate for the project is 119 million. That was included in the original filing for amendment as a cost estimate, so that is our current estimate of the cost.

Q. All right. And circling back to a discussion you had with Member Noland, she raised a question about is TEP paying for the cost for the WAPA facilities or is there some separation, WAPA is going to pay for its conductor and TEP is going to pay for its conductor and they're going to share the cost of the poles.

And you indicated, I think, your testimony

was that, in essence, TEP was paying the entire cost to rebuild the project. And I think -- and then at the break I pulled you aside and said, what are you talking about, Ed? And then you explained it to me.

Can you give a little more color in terms of why TEP is paying the cost and why that's appropriate and the cost savings involved?

A. (BY MR. BECK) Yes. From TEP's perspective, while we're paying for the complete rebuild of that Western alignment, the tradeoff or what we get in exchange for that is use of a right-of-way that's very good location-wise, a line location that really supports our system. The alternative for us would be to build a brand-new line, and we don't think we could get the right-of-way to build anywhere in this general area that Western exists today, and it would drive us out probably even to the west side of the Tucson Mountains. And there would be a lot longer construction involved in that, a longer line, additional costs with all the environmental work that would need to be done. That's one big plus for us is all of the environmental analysis has been completed on this project.

And if we were to start from scratch, there's a long lead time also. So the upgrades that get

eliminated by this project, they wouldn't be on the table, to Member Haenichen's point. The timing would be such that we'd have to do those interim upgrades.

So we'd incur the cost of all the interim upgrades, a larger cost for construction, the time delay for the environmental analysis, CEC process, all that's required to build a transmission line. And so even though on the face of it, none of us like the fact that we're paying for somebody else's system, what we get in exchange for paying for that system has a lot of value, and that's what offsets the fact that we are paying for their system upgrades.

MEMBER HAENICHEN: Mr. Chairman.

MR. BECK: And one additional point to make is both TEP and our sister company, UNS Electric, use the transmission system of Western. And in fact, our UNSE customers rely -- for our load up in the northwest part of Arizona, which we serve up in the Kingman area, we rely a hundred percent on this Western Area Power system for service to that area. The transmission is fully on their system and is part of the Parker-Davis system, which is what this project is on.

So while TEP is paying this cost, it also is reducing any potential cost increases to our UNSE sister company. So there's value from our corporate

perspective to this project also by not having -- seeing the rates for Western increase more than they would -- or, to the extent they would if they actually built that 230 line by themselves.

CHMN. CHENAL: Member Haenichen.

MEMBER HAENICHEN: One final point, Mr. Beck. If you did have to go that route and build the independent line, is it a true statement that it would be longer than the existing path, and therefore higher line, losses, and so forth?

MR. BECK: Yes, Member Haenichen, that's another valid point. Because it would be longer, we would also incur additional losses and operational costs associated with that. Plus, by being joint with Western, we're sharing the cost of maintenance and so on on this alignment. So right-of-way costs, even though we'll incur some cost as part of the joint venture we have with them -- and joint venture is probably not the right term, but our participation with them -- and the fact that we would share in the cost of any maintenance to structures means that TEP customers, in the longer term, aren't fully responsible for all of those costs. Those are being shared between us and Western. So even though we'd pay all of the up-front costs everything on an ongoing basis will be shared

according to our agreements.

MEMBER HAENICHEN: Thank you.

MEMBER NOLAND: Mr. Chairman.

CHMN. CHENAL: Member Noland.

MEMBER NOLAND: Thank you for that explanation. I agree with you that using this alignment and having the right-of-way is a real benefit. I just think WAPA is getting a hell of a deal.

MR. BECK: I would say there's no question about that.

BY MR. DERSTINE:

Q. While we're still on the topic of need and I guess the value of the project, let me have you direct your attention to TEP Exhibit 17, Mr. Beck, if you have that. And I think we'll -- I think we're able to pull it up on one of the screens. That's the Staff letter.

MS. DARLING: One second. We just got it.

MR. DERSTINE: And I apologize. Committee Members, if you're leafing through your binder, it's there. There's not a tab number for it, but it is there. It will come --

MR. BECK: It's actually 18, I believe.

MR. DERSTINE: Oh, is it 18? Oh, you're right, TEP-18. My apologies.

BY MR. DERSTINE:

Q. So it's the ACC Staff letter dated November 24, 2020?

A. (BY MR. BECK) Yes.

Q. And thank you for the correction. And if we're not able to pull it up, I think you're familiar with it. Why don't you -- is there a relevant portion you want to read into the record and then you want to talk a bit about it?

A. (BY MR. BECK) Well, yeah, go a little bit beyond that. So the letter from Staff was rather short and succinct. I think the one portion to point out in that letter is in their second paragraph, the last two sentences, where Staff says, "Staff believes that the proposed project has the potential to improve some aspects of reliability and safety of the grid, as well as improve the delivery of power in Arizona. There is also an opportunity to access renewable energy resources in New Mexico."

But earlier on in this letter they mention that they sent a letter November 22nd of 2016 that provided their position, and that's what I would like to read a few things into the record from that letter.

Q. Ed, we're having some feedback in the room. Hold on.

MS. DARLING: One second. We stopped broadcasting to Zoom, so hold on. Sorry.

Okay, we're back. Sorry.

MR. DERSTINE: All right. Let's try a test.

MR. BECK: Test, test.

MR. DERSTINE: All right. We're ready.

MR. BECK: Okay. So the letter that was referenced in the current Staff letter, I went back and looked at the November of 2016 letter, and in that letter comments were provided by Staff Engineer Zach Branum, who I believe now is a Committee Member. His position was based upon a response to data requests issued by Staff. And in that 2016 letter, Staff concluded the project may offer improvements of reliability to the grid and the delivery of power in Arizona, basically the same thing the current letter said, but there was a little bit more color to it.

And in that letter, the previous 2016 letter, it says, "For the delivery of power in Arizona, the study demonstrates that the project would increase the import capability of the region with an accepted path rating of a thousand megawatts east to west and 430 megawatts west to east in the upgrade section in Arizona." So just as a reminder, the upgrade section was the portion from Apache to Sahuaro, a subset of

what we're looking to build.

Staff goes further to say, "The project could potentially mitigate congestion concerns. WAPA lines are fully committed with near zero available transmission capacity. This provides an opportunity to increase the capacity of the line and deliver additional power, which could alleviate congestion. It will provide increased flexibility to the transmission system."

And then it goes on to say, "The project is adjacent to and electrically parallels TEP's extra-high-voltage transmission system and interconnects at 230 to TEP's system at Vail, DeMoss, and Tortolita substations. Due to the fact that the project is electrically parallel and adjacent to TEP's system and interconnects with the system at three substations, it reinforces TEP's system by providing alternate paths for power in the event that the TEP system suffers a transmission outage.

"There is a reliability benefit to the extent it permits TEP some increased operational reliability. Southline will improve TEP's flexibility to take lines out of service to perform maintenance, as well as provide an alternative means to transport power in the event of certain types of unplanned outages, for

example, to relieve overheated transmission lines.

"On November 22nd of 2016, Staff inquired whether any load-serving entity had expressed interest in acquiring capacity in the project. And in response to that, Staff reviewed responses from utilities, and Staff's understanding was that TEP submitted an expression of interest in the SU open solicitation process.

"Further, Staff concludes that the proposed project has the potential to improve some aspects of the reliability and safety of the grid, as well as improve the delivery of power in Arizona."

Now, granted, that letter was in the context of the overall Southline project, but there were some very specifics to the TEP system. And I've mentioned them, but I think Staff fully recognized that same issue that the parallel and adjacency and the interconnections to the TEP system, particularly what is in the Vail to Tortolita path, provides great reliability benefit to TEP and its customers.

BY MR. DERSTINE:

Q. All right. I don't know if Member Branum wanted to cross-examine you on your interpretation of his 2016 letter, but I'll leave that for now.

Anything else you wanted to say on need for

the project, Mr. Beck?

A. (BY MR. BECK) No, I think that covered it.

Q. So the next topic, the next chapter in your presentation is project design and construction. Why don't we move into that.

A. (BY MR. BECK) Yes. So as we've talked about, the existing Western line, for the most part, is wooden H frame poles, and they will all be replaced with steel monopoles. If you noticed, during the presentation so far you've seen two other type structures within the system. A three-pole structure, which I mentioned was for a turning structure on the Western system; of course, that also would be replaced with a monopole. And then Mr. Patterson had shown the one pole that had been replaced on their system already, which is an example of what that double-circuit steel pole will look like. So that replacement was done with the planned project design.

CHMN. CHENAL: Member Haenichen.

MEMBER HAENICHEN: Mr. Beck, while I'm thinking about it, what is the anticipated lifetime service time for the steel monopoles?

MR. BECK: I believe our depreciation schedules go beyond 50 years on transmission structures, but our expectation is they'll last 50, 60,

70 years without a problem.

MEMBER HAENICHEN: Thank you.

MR. BECK: The poles that will be replacing the existing structures will range in height from 100 to 135 feet, just depending on terrain and items that we would need to cross with the line, in particular other utilities and/or roadways.

Again, we plan to use the existing right-of-way, except for the 12 miles of reroutes, and then small areas along the route will need some additional right-of-way obtained by Western. They identified a few locations where I think they may have been down to 60-foot of right-of-way on their old line, and they want to bring that up to the standard hundred-foot right-of-way just so it's all consistent.

And TEP will be requesting corridor widths that vary from -- here it shows 100 to 300. But as I've mentioned, our largest corridor request will be 3,350 feet right at the Vail substation, and I know we will have some discussion about that.

BY MR. DERSTINE:

Q. Mr. Beck, let me just ask you. In terms of -- aside from the Vail substation, the corridor width, is the 100 to 300 accurate except for at Vail?

A. (BY MR. BECK) No. So at the time we were

first going through and we created these slides, that was our expectation. But as the -- as I mentioned, the Sonoran -- well, I will be talking more about it in coming slides, but the Sonoran corridor issue is something that caused us to look for a wider corridor right along Old Vail Road. So we're going to be proposing a 675-foot-wide corridor in that area, and we'll have slides that show that. The other two relocation areas are 300-foot requests, the one up by the airport. And Tumamoc Hill, actually, is 250 feet.

CHMN. CHENAL: Question, Mr. Beck. Other than where the line is going to be rerouted from the WAPA right-of-way, what is the -- well, what is the right-of-way width for the WAPA lines now?

MR. BECK: For the most part, the width of right-of-way is a hundred feet, but they do have some areas where they're under that. When they originally got their right-of-way for the 115 line, apparently they felt comfortable with something in the range of 60 feet. And my understanding, it's more out in the -- kind of that farmland area that's north of Marana, actually near the vicinity of the Marana Airport. So as part of this project, they will shoot for consistency and get all of their rights-of-way up to a hundred-foot width.

CHMN. CHENAL: So while you're -- the benefit, as you indicated previously, to using the WAPA right-of-way is it's already in existence and obviates the need to go elsewhere. But if your corridor is going to be 300 feet, that's going to extend past -- or, extend further than the hundred-foot WAPA line. So I guess I'm a little confused now as to how that's going to work. I mean, I can understand where if you're going to build within the existing right-of-way, that would be easy. But if you're going to extend past the existing right-of-way, how does that work?

MR. BECK: So maybe I wasn't clear in explanation. The corridors that we're requesting the wider width on are only in the areas where there either is no line at all or it will be a reroute. And just for our flexibility when we work with landowners, you know, being one of the conditions is that we work with landowners on placement of poles. And also, we've run into some issues on projects where, even in road right-of-way, we cut it too close and we had to do some things to get pole designs that are more costly than would otherwise be done.

And so that strictly is for the no line or reroute portion. Everything else, 62 miles, is going to be that hundred-foot-wide right-of-way corridor. I

mean, I don't know that we're even specifically asking for a corridor on that 62 miles.

CHMN. CHENAL: Okay. That explains -- that explains it. Maybe the language is a little confusing.

Member Noland.

MEMBER NOLAND: Thank you. Mr. Beck, I am going to surprise and shock you so you can relax the rest of your testimony. I don't have a problem with the 3,300-foot corridor. I think you're only dealing with two landowners, that's State Land Department and the gas line people, and you're going to need to work around both of those, and so I think that in this case it's perfectly reasonable. Did that shock you?

MR. BECK: I thought we'd get there in the end, but I appreciate that input.

MEMBER HAENICHEN: It shocked me.

CHMN. CHENAL: Well, just so we're clear, you're not there yet.

MR. BECK: True.

CHMN. CHENAL: Member Haenichen's question prompts to me to ask this question. If the depreciation of the service life of the steel frames are 50, 70 years, or so, what is it for the wood frames that are existing? That's my first question.

MR. BECK: You know, I'd have to check on

that, Mr. Chairman. I'm not sure. I can find that out at the break and we can get that back to you.

CHMN. CHENAL: I'm curious, but I'd like to know, and I guess that prompts a second question. What are the maintenance requirements for the wood versus the steel poles?

MR. BECK: So wood poles are very subjected -- or, the issue with wood poles is they will rot, basically, at the ground level and below. So of course, in our area, termites are a big issue for us. And poles are treated. I'm not sure the current treatments are as good as the ones from way back, as far as protecting the poles, so I think there's some question that the lives have been shortened a little bit by current treatment methodologies. But they're more environmentally friendly, so that's why it's done. So it's the ground rot issue, to a large degree, for wood poles.

Plus, wood poles don't have the flexibility that the steel does or the resistence to storm damage. And so wood poles have a lot more potential to snap off in a storm, whereas steel poles can kind of tend to bend and maybe they bend over a little bit but they're still standing and supporting the line.

CHMN. CHENAL: Does TEP use wood poles at all

anymore?

MR. BECK: We do use some; but for the most part, we've gone to steel as replacements for our poles. Because the price of steel poles versus wood got into a similar range, and then with the longer life of steel it just makes sense to do that, and they're more sturdy relative to storm damage.

CHMN. CHENAL: Thank you.

Member Noland.

MEMBER NOLAND: I just have one more question. I may have missed it, but how long has this WAPA line route, the existing WAPA line route, been in existence?

MR. BECK: It's over 50 years. It dates back into probably the '40s.

MEMBER NOLAND: Okay, thank you.

CHMN. CHENAL: And those poles are from the '40s, the existing H frames?

MR. BECK: A lot of them are, and that's why they're very prone to failure.

CHMN. CHENAL: Thank you.

MR. BECK: Okay. Moving on, just to give you another example of what the poles look like today, and this is one of the photo sims out of the EIS, this is the existing H frame structure. And when it gets

replaced, it will look like that with the steel pole. So it is taller, but the footprint, of course, is smaller.

Coloration of the poles is subject to determination. Again, TEP likes the Corten, the weathering steel, rusty-looking poles. From a maintenance standpoint, they're much better, and there's a little bit lower initial cost. Western does use a lot of galvanized poles. But within the requirements of the PCEMs and the EIS process, every pole is supposed to be looked at relative to the visual impact of each pole, and so the pole coloration will be determined through that process.

CHMN. CHENAL: Can you remind us, Mr. Beck, the height of the H frames versus the projected height of the tubular?

MR. BECK: I think the existing H frames are in the range of 75 feet. Yeah, Mr. Patterson indicates yes. And then, again, ours are -- we're proposing 100- to 135-foot.

CHMN. CHENAL: Thank you.

BY MR. DERSTINE:

Q. And Mr. Beck, let me refer you to -- and the Committee to the supplement, which is marked as -- Supplement to Joint Application to Amend, which is

marked as TEP-21, but it's not in the exhibit binder. It's the -- essentially, it's the document that serves as the CEC application for this case. And under Exhibit G, there's more information on the structures. And on Exhibit G-7 there's a comparison between the 75-foot existing wooden H frames and the 230 kV double-circuit tubular steel structure.

A. (BY MR. BECK) Yeah. So Exhibit G-7 is a very good representation of what that height comparison is between the proposed double-circuit and that existing wood H frame.

Q. And the structures that are shown on G-3, G-4, G-5, and G-6, those are -- depending on the location of the line and the angle or an end point, that will dictate which of those structures will be utilized?

A. (BY MR. BECK) That is correct. We can walk through that. The G-3 diagram is a typical double-circuit pole, what we call tangent, it's in a straight line, and it's direct embedded into the soil. There's no concrete foundation, per se. We likely would use some light concrete backfill when the pole is placed, but it's not a poured-in-place cast foundation with reinforcing and anchor bolts. On G-4 --

CHMN. CHENAL: Member Haenichen.

MEMBER HAENICHEN: Mr. Beck, quick question. Is the increased height of the steel poles vis-a-vis the existing structures due to the fact that at least one of the lines will be higher voltage or that the spans anticipated will be greater or both?

MR. BECK: To a large degree, it's driven by the configuration of the wires. So maybe going back to G-7, on the left-hand side, the H frame, all of the --

Can we bring G-7?

MS. DARLING: There is no G-7.

MR. DERSTINE: There is. You're on -- you're currently on G-5. Thank you.

MR. BECK: So in this configuration, those H frames, all of the conductors are at the same level. It's what we call a horizontal layout of the circuit or the phase wires. So they're all equal distance from the ground. There's a certain ground clearance required. So you have a ground clearance cutoff point, and then the sag of the wire, in addition to that, gets you up to the insulator position. So as a span increases, the sag of the wire increases, driving up the structure height. Your ground clearance is going to remain the same requirement whatever that is. If it's 25 feet, you're going to have that 25 foot of ground clearance, and then some allowance for the

conductor sag mid span.

Because if you think of the way a transmission line is, you've got it supported at each end by a structure, and then that center, the sag of the wire, the belly, there's a distance between where it's attached at the insulator point down to the bottom of that catenary curve that the wire takes. So all three phases being at the same level, that's the driver there.

When you look at, on the right-hand side, where we have double-circuit, we have a stacked configuration. So each side of the pole has a circuit. So as an example, this might be the WAPA side and the right-hand side could be the TEP side. There's a clearance requirement, again, of -- there's the sag down for each conductor. So there's a sag for that top conductor relative to the next lower conductor relative to the next lower conductor, so you've got all of those sags are additive. You have a clearance requirement from that upper wire to the wire below it; those are additive. And then at the very bottom conductor you have, in addition, the ground clearance requirement. So all those clearances, because they're additive, that's what really drives up the height of this type of construction.

If you want a line to be as low as possible, you build it with this horizontal flat configuration, but then you're talking about right-of-way issues because you can only put one circuit in that place.

Maybe just to touch quickly, since we have this diagram up, the width of right-of-way, again, is driven by -- you've got the center line of pole, you have a certain distance that the arm goes out for clearance of the wire to the pole itself. Then you've got the swing of the insulators, because they will swing out in the wind, and then again that catenary curve, or the sag of the wire, that will blow out under wind conditions. So you set your right-of-way by going from the center line, the length of the arm, the amount of allowed blowout of the insulator, the sag blowout that goes out beyond that, and then whatever the clearance requirement is from the wire itself to edge of right-of-way. And that's the driver on how we determine the need for right-of-way width by National Electric Code requirements.

MEMBER HAENICHEN: Mr. Beck, this is just a hypothetical question, but would it be possible to use a horizontal configuration with a monopole?

MR. BECK: I mean, it's possible, Member Haenichen, but it would get very expensive and

it would be a very interesting-looking structure. You'd have to -- if you tried to do it on a monopole, you'd have a really long arm, and for double-circuit you'd have two really long arms, and they all have to be spaced over so nothing is closer to the pole than requirements and each of the wires is separated. So typically, if you're going to do a flat-type construction, it's easier to go with a two-pole-type structure. And you have that arm between the two poles, and then that center phase kind of hangs between them.

MEMBER HAENICHEN: One final question that that raises. And I think I know the answer already: It would be very expensive. But if you used two steel monopoles at each site, you could emulate the horizontal structure.

MR. BECK: That's true, you could. You could build an H frame structure out of steel poles. And because the steel has more rigidity, you don't need the cross bracing, so you at least eliminate the cross bracing that's in a wood H frame. But again, if you're putting double-circuit, you're going to stack one on top of the other, at least that one set of clearance requirements is additive. So it would be lower than double-circuit monopole in height, but it would still

be taller than the wood H frame.

MEMBER HAENICHEN: Thank you.

MR. BECK: Just if we want to finish on the Exhibit Gs, G-4 is basically that same pole that was a direct embed. This is a pole that's going to be on a foundation, and the foundation just isn't shown in this diagram. But there's really no difference in the dimensions and so on, it's just mounted on a concrete foundation that's poured in place. Depending on the soils and the foundation requirements, some places you might put a foundation pole in.

Then moving on to G-5, that one is for angles. So you'll typically design a pole for a range of angle. So what we call a tangent pole might be good for up to 2-degree deflection in the line, and that's a reasonable cutoff point cost-wise for creating a pole that will allow that kind of an angle. You go over 2 degrees, then you create another series of structures, and maybe it's for angles from 2 to 20 degrees. You design the pole accordingly, and then that pole just allows -- can go in a corner point, an angle point in the line, and it allows for the deflection of the line caused by the angle itself. So this isn't the wind blowing these insulators over. Those insulators are pulled over because it's on a corner. So that's just

an angle structure. And again, this one is shown to be a foundation pole because it's not showing direct embed. Typically, our angle structures are on a foundation.

And then to finish, G-6 is labeled as a dead-end structure. And basically, you use the -- a dead-end structure typically is a stopper structure. So if you have a long line, let's say you had a 20-mile-long transmission line and it's straight as an arrow, straight route, no angles, no deflections, you really don't want to put in 20 miles of the simple tangent structures. Because if there is a failure in a hurricane or whatever, not that we get those here, but some major storm came through and drops one pole, you can have the domino effect.

The poles are all designed to accommodate when they're all standing; but one goes down, it starts pulling the next one down. So every 5 miles you likely would put in what we would call a stopper pole or a dead-end structure. It's a heavier, stronger pole. And even if the upstream 5 miles dominoes down, when it hits that stopper pole, that stops the progression of that failure. So you would typically put a stronger pole in in those cases.

Also, outside of substations. At the end of

your line you pull your full line tension up, and then that last structure where you're dropping into the substation, on the one side is what we call a slack span, it doesn't have a lot of tension, just drops into your substation. So that pole has to be stronger, and typically that's a dead-end.

And so when we dead-end a line, the line is coming into the end of that arm, so there's actually an insulator coming out at you that you're not seeing in that picture that's holding the tension on the wire. And then these are just jumper insulators underneath for the jumpers that go from one side to the other. So if you go out, you'll see these occasionally, you'll see these dead-ends with the wire hanging down below, that's just the jumper to connect one side to the other.

CHMN. CHENAL: Can we go to G-7 just real quick. Can you tell me again, Mr. Beck, just why the height of the monopole can't be lowered so that the bottom circuit is the same height as the H frame circuit?

MR. BECK: There's no reason it can't. It could come down lower. So these were -- this is based on a design with a little bit longer span. So if we span out with the monopoles, which the monopoles are

capable of those longer span lengths, then we can -- we'll need a little more ground clearance. So that's what's driving up that bottom phase conductor.

CHMN. CHENAL: All right. Thank you.

MR. BECK: And also to point out, the H frame on the left today is -- all of those dimensions are based on 115 kV. The monopole is going to be designed for 230. So the ground clearance, again, it's not huge, but there's a couple feet, several feet of additional ground clearance required because of the higher voltage.

CHMN. CHENAL: Thank you.

BY MR. DERSTINE:

Q. Mr. Beck, while I have you looking at TEP-21, that's the Supplement to the Joint Application to Amend, let me ask you, did you participate in the preparation or have involvement in supervising the preparation of TEP-21?

A. (BY MR. BECK) Yes, I did.

Q. And our environmental witness panel will speak to more of the contents of TEP-21 later in the hearing. But your role was essentially to supervise the preparation, the various studies, and the statutory exhibits that are contained in 21; is that a fair statement?

A. (BY MR. BECK) Yes, that's correct.

MR. DERSTINE: Mr. Chairman, the next section Mr. Beck is going to go in greater detail into the reroutes and the corridors. That section will take some time. If you think it's appropriate, this may be a good time for our morning break.

CHMN. CHENAL: I was going to suggest that before we got into the next section. I just wanted to make sure we completed the last section. So let's take our 20-minute break, and that gets us back here at about 11:00.

(Off the record from 10:39 a.m. to 11:09 a.m.)

CHMN. CHENAL: Counsel has indicated they're ready, and we'll resume with the testimony of Mr. Beck. I'm supposed to give the AV folks a heads up.

MR. DERSTINE: Just making sure that all the Zoom participates are up and running and we're linked in.

BY MR. DERSTINE:

Q. For fear of beating the issue to death, we did finally pull up the famous landfill. Can we just spend two minutes on that now, since we have the map up?

A. (BY MR. BECK) Yes. Mr. Chairman, Committee,

apparently in the e-mail from the commenter I had not seen the actual attached map, but the area in question is right in here. So this is the Silver Bell Golf Course. This is not the landfill that was up at Camino Del Cerro. It's one a little bit further south. So the golf course is right here, and there's an old landfill apparently right in this area here, and that's what he was proposing. Again, it's not on the alignment, it wasn't proposed for rerouting there, and nobody had raised this issue as it went through its process. But just for the purposes of the record, it is just south and east of the golf course along Silver Bell Road.

Q. All right. So your next section is the reroutes and the corridors for the reroutes. We've had some testimony in general talking about the reroute sections, those four sections where the line moves out of the existing WAPA corridor, and you identified those and presented some testimony on those reroutes during the flyover, but this is an opportunity to go more in-depth and give the Committee an understanding of why we moved out of the WAPA right-of-way in these four areas. So why don't you proceed, Mr. Beck.

A. (BY MR. BECK) Yes. So I'm going to speak to the four reroutes that we have in the project proposal:

The Vail connection, the Old Vail Road reroute, Tumamoc Hill, and the Marana Regional Airport reroute.

So the first one that I'm going to talk about is the Vail corridor, which is down in the bottom right-hand side of the overall map. And again, I've spoken to this, but specifically, this alignment on the left was what was in the proposed CEC -- or, in the CEC 173 and approved. It's the left, or western, corridor alignment. And actually, these lines are showing the proposed right-of-way within the corridor.

As we had discussions between Southline, TEP, and Western, and we're looking at the detail up at the Vail substation, we realized that there was a better way to get from Vail down to the right-of-way for the western line. And this involved input from the construction side of Western. They got out in the field and took a look at this. And that's why we are coming back with the concept of an alternative right-of-way to the east side.

And in order to cover that and give us the flexibility to get that done without having to come back for a CEC process, we are requesting a 3,350-foot-wide corridor that would be centered on a center line between these two alignments. It would go 50 foot on either side of those lines and encompass

this area, which, again, is all State land except for a small parcel right to the south and east of the existing Vail substation, which is owned by the gas company.

And we're highlighting there in blue the approved corridor from CEC 173, and that's what we are going to be requesting at this point for that corridor for the project. And again, this is a corridor to allow flexibility for construction. Ultimately, only a hundred-foot right-of-way would be obtained to construct the line connecting the Western line to the Vail substation.

CHMN. CHENAL: 150 or 100 feet, Mr. Beck?

MR. BECK: Well, actually, in this case, it was -- we used 150 foot. So that is correct, Mr. Chairman. So 100-foot is satisfactory for the construction, but TEP would like to have a little bit of extra right-of-way.

Next reroute will be the Old Vail Road alignment. It's highlighted in green. It's this portion down here. Just a little bit of repeat from our previous Sonoran case where we talked about the Pima County Aerospace, Defense, and Technology Research and Business Park concept. Pima County is looking for this whole area along the proposed alignment to be a

development area, economic development for the county. They see it as a national and international crossroads for traffic related to the Canada-Mexico roadway. It has a linkage of roadway transportation, air transportation with the Tucson Airport, and rail service on the eastern edge of the area they're identifying, because there's a big rail yard near I10 over on the right side of the map on the screen.

Again, the sun corridor and beyond -- again, this map is kind of small -- but basically, it's just intended to show that the concept is having a roadway or highway that extends from Mexico, from the coast, all the way up through the U.S. and into Canada, portions of which have already been constructed. But this reroute provides some benefit for, in particular, truck traffic.

CHMN. CHENAL: Member Noland.

MEMBER NOLAND: Mr. Beck, just to clarify, and I think this was shown on the flyover, but what is going to happen here is to put that new right-of-way and corridor on the north side of Old Vail Road, correct, and take down the H frames that are going through the residential area in the old WAPA line alignment, is that correct?

MR. BECK: That's correct. There will be

several structures that cross that Summit neighborhood that will be taken out. And the intent of this was not necessarily to get out of that neighborhood, but it was more for the roadway process, which in a slide or two later you'll see the roadway corridor proposed. But it's to accommodate all that; but as a result, it does eliminate a couple of structures from that neighborhood.

MEMBER NOLAND: And puts it along the alignment of the road, and there's really not much of anything in that area today?

MR. BECK: Yes.

MEMBER NOLAND: Okay, thank you.

MR. BECK: So one step that Pima County has already undertaken and done is they created what they call the Aerospace Parkway, which is this roadway. And the roads were realigned and a new road built to connect across this piece of land and then to tie up towards the airport and Raytheon. So that's one step in the County's plans that they've already undertaken.

And then this is what ADOT has kind of identified as a link, and I don't know why it's titled the remaining link, but this is off of their information. This is the roadway to connect I19, the north/south to Mexico, over to I10 a little bit south

and east of the main part of the Tucson area, which provides a bypass for trucking from going through kind of the heart of Tucson, the downtown area, and get over into the railroad yard area. It's a railroad offloading facility that's being developed just north of the interstate.

This was the study corridor that -- or, study area that ADOT had put together for their road design, and they've now reached the point where they've identified corridor alternatives. You can see them up here in red, blue, yellow, green. They have a number of different corridors that they're taking comment on right now. In fact, I saw on last night's news a brief request for the public to comment on this roadway process.

So specific to our project, again, here the purple line is the existing WAPA alignment. The proposed reroute is the green line coming up just a little bit west of the prison area and then heading west along Old Vail Road. To Member Noland's point, in this corner here we'll get out of some residential areas. We're going to request a 775-foot corridor in this stretch of the alignment, and then dropping back to 300-foot corridor over here. And on the left-hand map -- map on the left-hand side, a little bit more

detail of that 775-foot area. You'll see here this roadway proposed corridor, one of the alternatives is that blue line there, and so that's indicated to be on the southern side of TEP's existing lines and the existing roadway.

CHMN. CHENAL: Mr. Beck, just a -- I'm looking at the slide on the iPad and I'm looking at the slide on the screen, and on the screen you've got a 300-foot corridor, but on the iPad it's a 600-foot corridor.

MR. BECK: Good point, Mr. Chairman. That is one correction that needs to be made to the slide. So we've corrected what's on the iPads, and it was just to make it more consistent with coming across there to accommodate all the facilities that we're going to have to be working with and accommodating.

CHMN. CHENAL: So you're going to be asking for a 600-foot corridor, is that correct?

MR. BECK: I think it's 600 and 775.

CHMN. CHENAL: Your crew is --

MR. RAATZ: 775.

MR. BECK: All the way?

MR. RAATZ: No. Just for that one section that Renee -- Renee has it detailed. So 775 right there, the dash line, and then 300 for the other.

MR. BECK: Yeah. So it's 775 on this portion here that's the wider area, and then it drops down to the 300 for the balance, for that other kind of half of the alignment.

So again, on the left-hand side, the blue represents the proposed roadway. You see the orange lines are the 138 kV lines, for the most part. Of TEP. Those are going into the Sonoran substation, which is just south of here. The western line likely would be placed just on the north side of Old Vail Road coming across along Old Vail Road. But again, we're asking for that wider corridor so we have some flexibility to adjust, as needed, as we run into obstacles along the road. Oh, I actually had that slide in here.

So the next reroute is Tumamoc Hill shown in green. Again, that's near A Mountain. It's just south of the -- or, west of the downtown Tucson -- south and west of the downtown Tucson area. Here again, you can see the hill itself right here. A Mountain is to the right-hand side of that; Tumamoc sits just behind it. This whole area is University of Arizona and Pima County joint use area. The research is handled by the U of A, and we'll get some more information from our environmental consultants when they speak.

But the proposed realignment is to go --

depart from the WAPA right-of-way at Starr Pass Boulevard, head west along the north side of the road, then head north along the east side of the road of Greasewood, and then back to the east along the south side of Anklam. And the line would be located just within the boundaries of the Tumamoc Hill properties as part of the relocation.

And then the last area is up at the Marana Regional Airport. Here again, the purple represents the existing WAPA alignment. The green represents the proposed realignment. The purpose is to get a little bit further distance between the airport and the runways and the line, and it was for some future plans that the Marana Airport had for some expansion.

And those were the reroutes.

BY MR. DERSTINE:

Q. Mr. Beck, I guess is there anything else you wanted to add or to clarify, point to concerning the route, the corridors, the reroute sections before we move off those topics?

A. (BY MR. BECK) I don't believe so, unless there's any questions.

Q. All right. So the next section deals with some of the statutory and notification requirements for this proceeding. And you're the sponsor of these

exhibits, so let's move into notice and publication. I think your first slide there references the Supplement to the Joint Application. We touched on that. That's TEP Exhibit 21. Did you have any changes or corrections to TEP-21? Again, much of the content there was prepared by SWCA, and we'll hear from those witnesses this afternoon. But from your vantage point as the representative of TEP who supervised the preparation of the Supplement to the Joint Application, TEP-21, any corrections or anything you want to point out in that document?

A. (BY MR. BECK) No. They're just minor grammatical-type corrections that would be in there.

Q. All right. So then moving on to publication of the notice of hearing, one of the requirements is that -- well, the Chairman issued a notice of this hearing, and one of the requirements is that we publish that notice. Can you walk through the publication? You've got a slide there. And then I want you to also queue into the exhibits that are also involved.

A. (BY MR. BECK) Yeah. In particular, Exhibit 11 is the notice information. And it's included in this supplement as Exhibit 11, but we had publication of notice of hearing in the Arizona Daily Star on both October 31 and November 1st. We also

published in the Green Valley News, which is the area south of the project in Green Valley. And their newspaper, I believe, prints twice a week. And then we also published in the Explorer, which is delivered generally up in the northwest Tucson area, to a large degree the town of Marana, and that was in the Explorer on November 4th. And tear sheets and affidavits are in the exhibit. The Explorer doesn't do affidavits, so we only had the tear sheet from them, but we do have affidavits from both the Star and the Green Valley News for publication.

Q. Aside from publishing the notice of hearing, one of the requirements is to post signs that contain the hearing information along the route. Do you want to -- those are collected at TEP Exhibit 12. Why don't you walk us through what's in TEP-12.

A. (BY MR. BECK) Yes. In TEP-12 there is a map showing what were the proposed locations of signs. We originally planned on installing 22 signs along the project corridor. In the end, and this is a correction to the slide, I believe only 12 photos were -- or, signs were actually installed. We had some problems and delays in getting some of the permitting required to get them installed. So in the end, we have 12 sign locations, and those were all posted prior to

November 11th.

And again, the photos of the sign locations -- or, indications of the sign locations, the map, as well as pictures of each installed sign, are in the Exhibit 12. We tried to place the signs in visible locations. The photo in Exhibit 12 that was labeled, at the bottom, Page 1 of the sign photos is just one example of being adjacent to the roadway and showing what that sign looks like as it was installed.

Q. Included in Exhibit 12 are photographs of the signs in the ground, and it identifies the location and the date in which the signs were placed, is that correct?

A. (BY MR. BECK) Yes, that's correct. It has the date, location in the picture of each location.

Q. Okay. One of the other requirements under the line siting statute is that we provide notice to affected jurisdictions. Who were the affected -- who did we determine to be the affected jurisdictions for this case?

A. (BY MR. BECK) They were --

Q. I think you'll find those -- look at TEP-13. I'm sorry. I should have directed you to that exhibit ahead of time.

A. (BY MR. BECK) Yeah. The return receipts are

in Exhibit 13. These notices were all sent by docket control from the Corporation Commission. We've included the return receipts of those that were sent. They went to Pima County, the Town of Sahuarita, Pinal County, Marana, Town of Marana, and City of Tucson, and those were the affected jurisdictions that were notified.

Q. All right. We've talked around this subject, but I'm wondering if this might be a good time to at least have you refer the Committee to Exhibit 19. And let's talk just briefly about that so that the Committee at least has an understanding, as we go through the rest of the case, of the proposed changes to CEC 173 that we'd be making. I think at a later stage in the case we're actually going to walk through 173, as the Chairman has requested, and give a more detailed overview of that. But I think this may not be a bad time for -- to at least use that redline, what's been marked as TEP-19, to at least give the Committee some understanding of the actual changes that are being proposed to 173 that would allow TEP to own and construct the project, bring the project within the call of 173, and what other sorts of changes to conditions might need to be made. Do you have that in front of you?

A. (BY MR. BECK) Yes, I do.

Q. Why don't we take a minute and just give the AV team an opportunity to pull it up.

A. (BY MR. BECK) So while they are pulling that up, our hope at TEP is that in the end -- we know there will be a discussion of the conditions and the information that's in Case 173. TEP is willing to accept all those conditions in 173 as they were written, except for the couple changes that we identified as needed. And our hope is, at the end of the process, that the recommendation or the order -- I guess the recommendation that goes back to the Commission is that 173 in total remain as is, except for, and just identify the few conditions that need to be changed. And the conditions accordingly -- and granted, there may be more than a couple. The Committee may have some other changes. But rather than repeating all of the conditions, we would have a finding of fact, I believe, that just says, all the conditions except for these are as is. So that's kind of the concept of how we did this redline.

Q. And let me just lay a little foundation. TEP-19 is CEC 173 verbatim as it was approved by this Committee, but there are -- you'll see that we have made certain redline changes that the applicants

believe are the changes -- the amendments that would be required to carry out the purpose and the intent of the applicants in moving forward with their transaction and that would allow TEP to own, construct, and operate one of the 230 kV circuits for the Vail to Tortolita segment, bring the Vail to Tortolita segment within the call and the coverage of CEC 173, and then there are a few minor changes, primarily to corridor, and Mr. Beck can speak to what else is there.

So Mr. Beck, do you want to -- we'll wait a second while we pull it up on the screen. I think we're still working on that.

MS. GRABEL: Member Haenichen, do you have a question?

MR. DERSTINE: So it will be a second. Do the members of the Committee here in the room have it before them?

CHMN. CHENAL: Yeah.

Member Haenichen, do you have a question?

MR. DERSTINE: You can't hear? Okay. One second. We've got some difficulties with Member Haenichen's headphones.

(Off the record from to 11:41 a.m. to 11:47 a.m.)

CHMN. CHENAL: We're going to go back on the

record then.

MR. DERSTINE: We're back. We found the document and were able to present it on the screen here in the hearing room, and more importantly, for the Committee Members who are appearing by Zoom. And I think Member Haenichen's earphones are working.

BY MR. DERSTINE:

Q. So Mr. Beck, what's been marked as TEP-19 is CEC 173 that carries that watermark across that shows redline. That doesn't mean that there's any red ink on this document, but it does incorporate and show proposed changes to CEC 173. Why don't you start -- I mean, one of the difficulties, when I first looked at 173, was that there is terminology that's used to describe different sections that are included within the CEC 173 and excluded from CEC 173.

Maybe it makes sense to start with an overview of the project description. And again, we're not going to go through all the conditions. I think that may be appropriate at a later stage in the hearing. But I wanted to just give the Committee, if we can, a sense of what are the proposed changes that the applicants believe are appropriate for the Committee to find and recommend to the Commission. So if you can, kind of take us through that.

A. (BY MR. BECK) Sure. Relative to the changes, and it's a big assumption, but the assumption is that once we go through all of the discussion and your deliberations on the CEC 173 conditions that are in the existing case, that in the end the majority of those stay as is. And so for that reason, in the redline that we're showing here we haven't repeated them. And we'll mention in the finding of fact what the deliberation was.

But relative to the changes we're thinking would go into the redline CEC, if we could scroll down to Page 3 --

Q. Well, let me stop you there, Mr. Beck. I think what is marked and in the exhibit binder as TEP-20 is a Recommended Opinion and Order which would serve as a starting point for this Committee's findings of fact, conclusions, and be a form of document that this Committee could submit to the Commission if it decides. And it's a draft, and this Committee will ultimately decide what goes into that document. But TEP-19, at least for now, unless it's adopted as something as an attachment to the Recommended Opinion and Order, is a way for us to show the Members of the Committee the changes to 173, to my way of thinking, in kind of concrete form, as opposed to words on another

piece of paper that describes amendments.

So with that, if we can move forward with describing the -- starting with the overview of the project description and walk us through CEC 173 and the changes to it that are shown in that document.

A. (BY MR. BECK) Yes. So if we scroll down to Page 3, there's Heading A, Overview Project Description. As mentioned, there is no description of what we have identified as the Vail to Tortolita project, and so we see the need to add a definition in the Overview Project Description section.

So if we move -- and actually, before we get to that definition, if we move to Page 5, under the Vail substation, which was approved in CEC 173 prior, we have identified the change in that corridor width, and there will be a correction to that from the 3,400 to 3,350. But that's a change from the 600 that was in the original to what we're now requesting of 3,350. So that's the first proposed change or redline in this redline version.

Then if we go to Page 8, we've added a Section 5, which is a new definition of -- and it's a little bit strange as far as the language, but we feel it fits within the context of what we're doing. So it would be a definition of the CEC Vail to Tortolita

upgrade route. And it would just say, "The CEC Vail to Tortolita upgrade route consists of a 64-mile segment of the 121-mile upgrade section that extends between TEP's Vail and Tortolita substations as depicted on Exhibit" to be determined what the label is.

Q. And Mr. Beck, I think it would be helpful, maybe back up and go through these defined -- these other headings, starting with the approved CEC route corridor and route description. I think that gives some context to the change or the addition of the CEC Vail to Tortolita upgrade route and why we're using that terminology.

A. (BY MR. BECK) Okay. So the CEC upgrade route, as defined in A on Page 6, identified the portions of the project within that, which were 5 miles of new non-WAPA-owned 138, 230 transmission lines and associated facilities that will interconnect the upgraded WAPA 230 Apache/Tucson and Tucson/Sahuaro to four existing substations. Within that, there was a definition of: The Pantano substation and that connection approval; the Vail substation, that connection line; DeMoss Petrie substation, that connection line; and the Tortolita substation with that connection line. And then we are proposing that in addition to that, then we have this CEC Vail to

Tortolita upgrade route definition, which would be the other piece approved in the CEC which was not originally approved in the original CEC.

Q. And so the upgrade section, as that term is used in CEC 173, included the Vail to Tortolita segment. The upgrade section is the broader 121-mile WAPA line. The Vail to Tortolita segment, our 64 miles, are included within that. CEC 173 excluded the upgrade section, the WAPA-owned 120 miles of line. We're bringing -- now looking to bring back in those 64 miles that were excluded, and that's that first change that you've shown, correct?

A. (BY MR. BECK) Correct. The 121 miles from Apache station, shown on that left map, to the Tortolita/Sahuaro substation, in the upper left of that map, that's the 121-mile segment that was identified as the upgrade route but was excluded from approval in the CEC originally. And what we are requesting is that the 64-mile subsegment of that, the Vail to Tortolita portion, would be become approved in the amended CEC. And to get there, this definition would identify what that 64-mile segment is.

Q. So the first change is to bring in the Vail to Tortolita segment, the 64-mile segment of the upgrade section, under CEC 173. Now, we're going to

move into the conditions that need to be changed to allow us to carry that out, and I think there's just a few of those.

CHMN. CHENAL: Before we move off that screen, we have a number of attachments to the original 173, basically a large series of maps that depict exactly what's covered by 173. So we would, in following through with a recommended -- you know, with an order, findings of fact and an order, we're now going to add an additional map, then, to the existing maps to show what's going to be defined as the Vail to Tortolita upgrade route. So the Exhibit X that's reflected on the screen is going to be an additional map that will show the upgrade route that will be added to the existing maps that are already part of 173, is that correct?

MR. DERSTINE: Yes.

CHMN. CHENAL: We'll obviously want to see what that is at some point.

MR. DERSTINE: Yes.

CHMN. CHENAL: I know you have that.

MR. BECK: We're developing it and it should be here shortly.

CHMN. CHENAL: You will have that.

MR. BECK: Yes.

MR. DERSTINE: We will, yes.

MR. BECK: And the intent would be that whether it become a replacement to portions of what's already in there or a new insertion, we're kind of thinking a new insertion is what makes sense, but that will be part of our discussion. So whether it becomes part of the existing Exhibit A and is titled accordingly, or is it a standalone exhibit, and I think we're at maybe D on the CEC. I'm not sure.

CHMN. CHENAL: Because of the route changes that you've described earlier today -- yeah, I guess there's two days to do it. But you'll -- you're working through that and you will come up with something, but obviously that will be important for the Committee.

MR. BECK: Yes.

MR. DERSTINE: We will have a proposal and we'll show you the map and we can decide what to name it and where it goes.

CHMN. CHENAL: Perfect.

MR. BECK: And we're trying to be sure that the maps are consistent and feel and look like the previous maps that were done for the case.

CHMN. CHENAL: Good.

BY MR. DERSTINE:

Q. So getting back to the CEC redline, TEP-19, you've covered the inclusion now of the 64 miles that we're now naming the CEC Vail to Tortolita upgrade route. And now I think you're going to move on and identify the conditions that the applicants believe need to be modified in some fashion.

A. (BY MR. BECK) That is correct. So on Conditions 1 through 10, at least the applicants, at this point, don't see any need for changes in those. We know that's subject to deliberation.

On Condition 11, which is on Page 11, we're adding in the new defined term to incorporate the CEC Vail to Tortolita upgrade route to make sure it's included in the construct, operate, and maintain all facilities in conformity with all the terms and so on of all of the requirements that are listed. And then a little bit lower in that same paragraph, adding "TEP" after "applicant." So, "Applicant and TEP shall retain."

Q. So Condition 11 essentially applied certain mitigation measures and conditions from the WAPA ROD and the PCEMs, et cetera. And what we've done with the proposed change to Condition 11 is to ensure that those conditions apply now to the new section, the new Vail to Tortolita segment, and apply specifically to TEP?

A. (BY MR. BECK) That's correct, yes.
Q. That's the intent of that change?
A. (BY MR. BECK) Yes.
The next proposed change that we've identified is on Condition 31. And that's, the last part of that paragraph would be changed to say the -- well, let me read the whole thing. "The certificate is conditioned on WAPA owning and operating all of what is described in the application as the upgrade section with the exception of what is described in the application as the CEC upgrade route and the CEC Vail to Tortolita upgrade route."
Then it would go on to say, "TEP is authorized to construct, own, and operate one of the 230 kV circuits in the CEC Vail to Tortolita upgrade route."
MEMBER NOLAND: Mr. Chairman.
CHMN. CHENAL: Member Noland.
MEMBER NOLAND: Thank you. When I reviewed the redline, I made a note on this particular change and also on the separate document and order. It doesn't say "the structures." Now, it's my understanding that TEP is going to own the structures, is that correct?
MR. BECK: We will share ownership. Our

proposal with Western is that we have shared ownership of the structures.

MEMBER NOLAND: Oh, then I misunderstood.

MR. BECK: So from a cost recovery standpoint for TEP, we -- from an accounting perspective, we need to own at least half of the structures and half of the wire that's up in the air to be able to put it into rate base.

MEMBER NOLAND: Can you put that into some kind of language here so it's a little more clear? Because I don't think it's clear. Though you did say the maintenance is going to be handled by both TEP and WAPA, but I think you need to say something about the structures so people know who's responsible for what.

MR. BECK: We can work the language, yes.

MEMBER NOLAND: Thank you.

CHMN. CHENAL: I think that's an excellent point, because "circuit" to me -- I mean, I don't know, it's a term of art, I guess. But I always think of circuits as the wires and maybe the conductors, whereas the structures are separate and apart. And so, I mean, maybe, I guess, that's a fundamental question. I guess we need to confirm. You're going to own -- TEP is going to own both the structure, at least all or part of the structure, and the circuit, is that correct?

MR. BECK: No. TEP will own half of the structures. And we're still -- at least that's our intent. We're still working that through with Western. There's been some somewhat jokingly discussion about, well, one of us owns the top half and one owns the bottom half of one owns the left-hand side of the structure and the other owns the right-hand. That doesn't make any sense.

Western has some issues with having shared ownership of individual structures, is what they're telling us. So we have had discussions about potentially owning every other structure or TEP owns Structures 1 through 10 and Western would own 10 through 20, if there are only 20 structures. But in the end, our position with Western, we need to own 50 percent of the structures. We just need to fashion into our agreement with them what that ownership looks like. Is it every other structure? Is it certain numbered structures? And still that's what we're working on with Western.

But in the end, TEP will have 50 percent ownership of structures, ownership of one circuit, which is the conductors and insulators and so on. Western would have ownership of the other circuit, and they'll own the underlying right-of-way.

CHMN. CHENAL: Well, okay. But to Member Noland's point and my question, I thought I said that TEP will own all or part of the structures and the circuits. So that is really a correct statement, and it just has to be put in words. So it might only be half of the structures, but all of the circuit. But I think this language here leaves out the structure part, the structures part of it, and I think you want that in there. If I were TEP, I'd want the CEC to make it very clear you're authorized to build the monopoles, obviously.

MR. BECK: Yes, we want to make it clear. We want it to be clear for the Committee and the Commission that it's acceptable to both of you. In the end, our contractual arrangement with Western is going to be in a contract with Western, so we're going to be very, very, very explicit in that contract as to ownership. But the more we can put in here to make that clear, we'll work on that to get that language in there.

CHMN. CHENAL: And it may not yet be determined, but is TEP going to actually do all the construction even though it will only own maybe half of the structures?

MR. BECK: That's one thing we're still

negotiating with Western. We started with the position TEP would like to construct it. They indicated some potential for that. And in our last discussion with them they're kind of saying, well, we kind of want to build it. I have a feeling one of the reasons that they're considering taking the construction on is to keep their workforce busy in this time frame.

MEMBER NOLAND: Mr. Chairman.

CHMN. CHENAL: Well, I just think Member Noland's question was very good. We want to build the language so it provides the flexibility you need to do what you want to do, and I don't think this quite captures it all. But obviously, there's plenty of time to work on it.

Member Noland.

MEMBER NOLAND: Thank you. And I do really need to see this clarified. I understand contractually you need to figure out the 50/50 way you're going to do this. I don't really care what WAPA likes or doesn't like; I want the 50/50 language in here.

My other question is: Are they going to be responsible for taking down the wooden H frames?

MR. BECK: So whoever does the construction on the project will be responsible for that removal also. And whether they do it or TEP does it, likely

there will be a lot of contractor involvement, and that will be part of the contract with the contractor to remove and either haul away and dispose accordingly or bring back to the companies for disposal.

MEMBER NOLAND: Thank you.

MR. BECK: So we will add language to clarify on 31 on the ownership issue.

And those were the only areas that we saw explicitly needing to be marked up in the original CEC, basically as a conformed version of that CEC, that would somehow maybe accompany the Recommended Order.

BY MR. DERSTINE:

Q. And the effect and the intent, Mr. Beck, is that all of the conditions as written in CEC 173, unless modified by -- at the suggestion of this Committee and as ruled upon by the Commission, would remain in place, and those conditions would apply equally to the Vail to Tortolita segment, the 64 miles of line which we're seeking to include within CEC 173?

A. (BY MR. BECK) That is correct. And there is at least one condition that I know of that -- well, that doesn't affect the Vail to Tortolita section of line. It's still applicable as a condition to the overall CEC, and we don't feel the need to try and carve that out as TEP. It's plain on its surface

that -- in this case, it's the Crane Lake stuff. That's only where Crane Lake is, so it's not where we're at, so we're not concerned about that. We think it's still satisfactory or okay if it's left in the CEC, and everybody will realize that, well, that's over there and not over here.

Q. And I guess one point that has been raised is, have we considered whether there are conditions that aren't in 173 that should be, as applied to the Vail to Tortolita segment, given that it maybe and does cover areas within Tucson and Marana that were not considered by this Committee back at the time of 173? In particular, I'm thinking of, and I think the Chairman has raised, this concern about whether or not there needs to be some sort of an FAA aviation condition given that the line is within some proximity to the Marana Airport.

A. (BY MR. BECK) Well, we don't see the need for a condition like that. There are federal requirements, FAA requirements. We must do that. As an organization, we're required to regardless. So whether it's in a condition in this case or not, we always -- when we're in the proximity of an airport, we reach out and go through the FAA process to make sure that everything is compatible. So, you know, it kind

of goes back to my long-standing issue of the growth of conditions in cases. In particular, where they're already required by existing laws, is it really necessary to add that? So we didn't see a need for that.

CHMN. CHENAL: I'm going to propose a little modification just to comply with FAA regulations, like we have in a number of other cases that are in proximity to an airport. But the language I'm thinking of is just a few words, actually.

MR. DERSTINE: I think that covers it. I realize we tried to wedge this in, but I thought it was helpful and I hope it's helpful for the Committee to understand kind of where we're going ultimately with the case. This afternoon we're going to bring in our environmental witness panel, talk about what was done originally through the NEPA process, and then what we did to support the application before the Committee, deal with visual impacts, have you see what's -- more simulations. So that will all happen this afternoon, but hopefully you now have a better understanding of the direction we're looking to go with the proposed amendment.

CHMN. CHENAL: Well, good. I think it's a natural time to take our lunch break.

MS. GRABEL: Actually, Chairman, before we close this panel off, I know that Mr. Patterson wanted to put a few more things on the record with respect to the Southline project and its continuing viability. I don't think it should take long, but we can do that after lunch if you'd like as well.

CHMN. CHENAL: Let's do that after lunch. We normally break about noon, and it's about 10 after. That will be a nice thing to start up with after the lunch break. So let's take an hour, and we'll see everyone back here after lunch. Thank you.

(Off the record from 12:12 p.m. to 1:23 p.m.)

CHMN. CHENAL: Good afternoon, everyone. This is the time set to begin the afternoon session of the hearing.

Mr. Derstine.

MR. DERSTINE: I believe it's going to be Ms. Grabel.

CHMN. CHENAL: Oh, Ms. Grabel is going to start, okay, follow-up questions with Mr. Patterson.

MS. GRABEL: Thank you, Chairman. Yes.

REDIRECT EXAMINATION

BY MS. GRABEL:

Q. Mr. Patterson, you were present yesterday

during the testimony of Mr. Beck, correct?

A. (BY MR. PATTERSON) I was.

Q. And you recall a series of questions about Southline and potential challenges to its continuing viability?

A. (BY MR. PATTERSON) I do.

Q. Do you have any additional testimony you would like to provide in that regard?

A. (BY MR. PATTERSON) I do. And also, to just circle back with some of the questions that I was asked by some of the Committee Members, if I may.

Q. Thank you. Please proceed.

A. (BY MR. PATTERSON) Great, thank you. I really wanted to circle back just on a couple items from the discussion yesterday related to the Southline specifically, its location with respect to what Southline is trying to do, also how it fits in with some of the other projects and planned infrastructure that was under discussion, and really how that fits into the commercial position both for Southline and for some of the other efforts and how that might or might not have an impact on this proceeding from Southline's perspective.

Really to begin, I just pull up this map that I had shown yesterday, which, just to review, is the

extra-high-voltage system in New Mexico and Arizona, mainly 345 and above. There's a small amount of some of the smaller voltage, but really it doesn't show the smaller voltage systems. And just to review, Southline is shown in a green corridor from Afton to Apache, and then the new build -- sorry -- the new build from Afton to Apache and the upgrade section of Southline from Apache to Sahuaro. And then the call out of the Vail to Tortolita is shown on this map with this call out right here.

Other points -- just to reference this for this brief discussion, just some other common points electrically. Here is the Palo Verde hub. A large market trading hub, obviously, with the Palo Verde nuclear facility, but also as a prime trading hub where lots of entities come together electrically. Mead up here, another trading hub. And then for reference in the discussion of resources, the Four Corners area, which I'm sure you are all quite familiar with.

But just to kind of rewind a little bit about Southline, so we are looking to connect really the southern existing systems in New Mexico and Arizona. And just to rewind a little bit, our approach is really to connect to and upgrade the existing system. And as Mr. Beck testified, that's part of our approach to --

we were looking to do something that would be smaller, more incremental, that could meet and connect with various different parties, that could meet multiple different needs, including delivering renewable resources, but also provide other benefits to the system, including really a bidirectional capability, which we haven't talked that much about.

In contrast, if you rewind and you think about what the different resources are that are available or of interest, as Mr. Beck testified, and I completely agree with, one of the interesting things is how the shape of the wind in New Mexico -- it's a very rich resource that produces at very high capacity factors, but the shape of when it produces is different from the solar, which is prevalent really throughout the whole area. And as Mr. Beck testified, that creates value, because you can bring in more renewable resources at other times, and so the portfolio system or the portfolio aspects of that are really beneficial.

So from that standpoint, there is this interest in New Mexico wind. And as we had looked at some of the resource maps yesterday, there is really rich resource generally on the eastern side of New Mexico, particularly in the center part of New Mexico up in here, but also in the southern, southeastern

portion of New Mexico. There's also some rich wind in west Texas. There's also some wind along the line along Southline route. It's not as -- it's not as high capacity factor as the eastern New Mexico wind, but it's better wind resource than some of the Arizona wind, for example. So there's a gradation of different types of resource capabilities.

So we believe that Southline is positioned to, you know, in the long-term, tap into multiple types of these resources. It may well be the case that there's development of wind and solar and battery storage and kind of a combination in areas that are along the line, like in this Bootheel area of New Mexico. We believe there's opportunity to bring resources in from the existing system where there's really rich wind, for example, out in eastern New Mexico, in the way that TEP is accessing on the current system out from eastern New Mexico and then come across Southline; or, potentially bringing resources in from central New Mexico down south along the existing system and then out on Southline; or, even potentially other ways of utilizing the existing system. So that's the approach that Southline is targeting to access the renewable resources in the area.

How that contrasts with other approaches --

one of the things that I didn't hit on in my testimony that I probably should have was just in the interim between when we were before the Committee and now, we talked a little bit about some of the timing challenges or timing issues that came about where Southline and the wind developer, for example, couldn't line up enough incremental additional demand and implement that to get it in service in a time frame that would meet the 2020 time frame. And there were challenges that I mentioned in terms of getting it across El Paso system in that time frame in order to get the wind resources to other parties in the marketplace.

What happened in the interim, while we were working on that with TEP and the wind developer, is there was some incremental improvements to the New Mexico system up in PNM's area that allowed some wind to come from this central rich resource area and reach Four Corners. And what that allowed to do was allowed those parties to access some wind from the existing system and bring it to markets. And so really we were competing against resources that were able to make it to the market in a time frame with the kind of price certainty that Mr. Beck had testified to; and because we were still working through some of our development and schedule issues, we couldn't get that done in time.

So that really allowed some additional resources to use the existing system in a similar way that TEP is accessing some of the wind resources from the southern part of eastern New Mexico.

And that all makes perfect sense if you think about it from our perspective. I mean, the first approach should be use the existing system; that's the cheapest, least impactful way to access resources. And the utilities, in our minds, were acting completely rationally. But if you look forward, that's pretty much tapped out, and there's really not a lot of ability to access the next round of, in particular, wind resources, since that's the differentiating type of resource from the solar that Arizona and California entities have plenty of access to.

And so then the question is, if you're going to access new additional wind resources, how are you going to access that. And Southline's approach is to upgrade the existing system. The other approach, you know, that was mentioned is trying to connect directly to a wind resource and build a longer, more direct line across New Mexico and Arizona. And there are, you know, differences in those approaches.

We've taken -- our approach has been based on trying to maximize the benefits while minimizing the

impacts, and it has resulted in a smaller, lower-total-cost type of project. But we have other challenges that we're working through, in terms of not accessing the resources directly, and we need to work with the existing system.

On the other hand, plugging in directly to rich wind resources, it solves some problems, like it's a pretty straight, easy commercial story to just take wind from Point A and deliver it to Point B. But in order to make that work, you have to build something very large, very long, and it's going to have a lot of impact across a lot of new corridors.

And so that's really, from our minds, the difference in approaches. And for the next round of accessing those resources, those are really kind of some of the bigger choices, in our minds, as we see it.

So I guess circling back to Member Haenichen's question. I was thinking more about your question, and it's a good one. It's really not as much of has there been a technical study of all these different efforts to access the resources; and I think, as we talked about yesterday, I don't think there's at least any definitive one. But really I think the question is more -- it's more of an economic question than it is a technical question and a commercial

question, and I believe the market will sort that out.

And as Mr. Beck pointed out, one of the main things that's needed is certainty around pricing. And what we are -- what we are still in development mode for for Southline is, in order to get certainty around pricing at a particular market, we need to know your timing of when you can get in service. And particularly, that is driven, as Mr. Beck had mentioned, by the federal tax credits. And since those have been ramping down, that changed the commercial dynamics for delivering wind to the markets. But we think that, and we don't know for certain, but we do think that the policy landscape probably indicates that there will be continued, or if not, improved momentum in that space, and that will probably open up a whole 'nother round of the potential to bring wind to the market.

So that really kind of leads me to, why does it make sense for Southline to work with TEP and sell Southline's rights in the Vail to Tortolita project and how does that really advance the rest of Southline and/or how does that keep or help the rest of Southline and its commercial viability. And for those points, I just wanted to run through a few parts of our thinking.

The first, mentioned a little bit, is it's

just a good indicator of progress. To get this first portion of the line moving and in service is an important step.

I think probably more importantly is we obviously view TEP and WAPA as our customers and key partners, even if it's not -- as Mr. Beck mentioned, this is not a joint venture, Vail to Tortolita. But from our perspective, TEP is a critical customer/partner relationship for us to move the rest of the project forward; same with WAPA. And since they both identified how critically important this section is, getting that moving really helps our overall efforts.

It's also, from a timing perspective, really, really critical. Because even if we had everything together to build the whole project today, we'd still be working through how are we actually going to build this thing? What is the construction sequencing? What do you start with first? And in all likelihood, we probably would have been focused on this area to start the construction anyway, given the other needs and benefits that have been raised by Mr. Beck. But also, just from the complexity of the construction itself, you know, having to go through this certain area, replacing existing line, many of those things would

have required this section to move ahead first anyway. So from our perspective, seeing the Vail to Tortolita section move forward now, it will be beneficial because for the rest of Southline to be built out, that section would have to be in service.

So coming back to the schedule point. If things move along as we've talked about, and TEP and WAPA are able to get Vail to Tortolita in service by 2023, that allows us to move forward on the rest of Southline in parallel in the development phase, trying to line up all the pieces that we've talked about, and hopefully we can come in not too long behind it, in '24 or in that kind of time frame, where we'd be able to then have the rest of Southline come in and then there'd be this upgraded path into the markets that would improve the system.

And then I guess just trying to hit one other point, to your point, Mr. Chairman, if you -- it's a little hard to see on this map. But if you see Southline coming into Vail, one thing you'll notice -- oh, that's helpful. Thank you. If Southline comes in and ends at Vail, for the sake of the go forward, and Vail to Tortolita is now TEP and WAPA, what that means for us is if we have parties who are looking to get to markets, for example, before, we would have come all

the way to Tortolita and Sahuaro and we would have been connected to WAPA and to TEP. And so in order to get to the market, let's just say Palo Verde, for example, we would have had to either work with TEP to come along their 500 kV system to get to Palo Verde or potentially to come around on their 345 system from Vail to Palo Verde, for example, or with WAPA, and their system is not shown on the map, to get to Palo Verde.

Going forward, if Vail to Tortolita goes in service, then it doesn't meaningfully change that from the sense that we'd still need to connect to either TEP or WAPA, and there'd still be these potential pathways to the market. Now, we wouldn't control the capacity in the same way that we did before, that's true, but it was an appropriate tradeoff to move forward in a way that would move everything forward that would be good for TEP and WAPA and would help push our progress forward.

So those are some of the main points I just wanted to circle back on, but I'm happy to take any questions or any discussion.

CHMN. CHENAL: Any questions from the Committee on Mr. Patterson's additional points?

(No response.)

CHMN. CHENAL: Has there been any estimate of

the amount of capacity that will be available, assuming TEP develops the Vail to Tortolita line, how much available capacity? I guess it's too early to tell until those agreements are reached between TEP and others. I mean, does history provide any lessons? Maybe that's more of a question for Mr. Beck than Mr. Patterson. But maybe, Mr. Patterson, if you know.

MR. PATTERSON: I don't, and I would have to defer that question to Mr. Beck probably. And since it would change their system in a way that -- in terms of how it would measure the capacity, I can't speak to that.

I can speak to the WAPA side, and this is public and they published it. Once this goes in, with relatively minor additional upgrades, WAPA has already built out part of its system up to Palo Verde, and there's roughly 250 megawatts of capability to get. So there's at least that. It would require some additional upgrades beyond what's shown here, but that, combined with other opportunities, I think, provides enough certainty that there would be ways to get to markets, from our perspective.

CHMN. CHENAL: Thank you.

Mr. Beck.

MR. BECK: Mr. Chairman, just to add onto

your question, TEP hasn't done any studies to see what's going to be available, and it will kind of depend on how flows actually occur once the line is in service. But the interesting aspect is that, especially regarding the renewables, the wind in New Mexico, because they tend to be more evening oriented, and our load in particular is more daytime, there may be some optionality in there to provide capacity on a as-available basis for those third parties and it may work for the market at that time.

The other thing we haven't talked about is that -- and Doug kind of referenced it -- is that Western has developed -- a lot of the portion of their 115 kV lines have been upgraded from the Palo Verde area down to basically the ED5 area, just north of ED5. And so there would be a short segment left between the Tortolita area and that ED5. Should Western choose to complete that, maybe they could convince their customers that there's enough value in that shorter segment, with the addition of the Vail to Tortolita, that they bring their 230 all the way down to the Vail area. But that's something they would determine, but that would also add some additional capacity.

CHMN. CHENAL: Thank you.

MS. GRABEL: Thank you. Mr. Patterson hit on

all the points that we had to talk about, so I think we're ready to move on.

CHMN. CHENAL: All right. Well, thank you.

Now, Mr. Derstine, are we going back to Mr. Beck?

MR. DERSTINE: We are not going to go back to Mr. Beck right now. I think, for clarification, we're not going to send Mr. Beck or Mr. Patterson home. They're going to stay. They will remain under oath. To the extent that there's issues that come up during our next panel, they're still under oath and may be able to supplement or respond to questions from the Committee.

But this would be the time that we'll move to our environmental witness panel. The environmental witnesses are Cara Bellavia -- Bellavia, Cara, I saw her grimace right there on the Zoom feed -- and Theresa Knoblock. They are with SWCA, the environmental consulting firm that did the work during the NEPA process originally that the Committee has heard a fair amount of testimony on, for the benefit of the broader Southline project. And SWCA then also did the environmental study work in support of the Supplement to the Application to Amend that was marked as TEP-21. So this would be the time to swear those two witnesses,

who hopefully you can see on your screen.

CHMN. CHENAL: Yes, I can. And I just -- the reason I kept going back to you, Mr. Beck -- to you about Mr. Beck is I just noticed in the exhibit with Mr. Beck's testimony there's the section on the noise and the electromagnetic field analysis.

MR. DERSTINE: And our plan was to do that as part of the environmental panel. He'll do that at the end.

CHMN. CHENAL: Okay, very good. So the witnesses, do you prefer an oath or an affirmation?

MS. KNOBLOCK: Affirmation, please.

MS. BELLAVIA: Affirmation, please.

CHMN. CHENAL: Well, both raise your right hand, please.

(Cara Bellavia and Theresa Knoblock were duly affirmed en masse by the Chairman.)

CHMN. CHENAL: Thank you very much.

MR. DERSTINE: Let's start by introducing --

CHMN. CHENAL: Mr. Derstine, let's wait a second. I just wonder -- what we see on the screen are two little tiny screens of the witnesses. And I wonder if we could get a little better, larger picture of the witnesses, at least as they provide their testimony. No offense to the Members of the Committee.

MR. DERSTINE: And we can make them larger. If you want to --

CHMN. CHENAL: That's probably better.

MR. DERSTINE: Do you want to close the screens for the Committee Members or do you want to keep them up?

CHMN. CHENAL: Well, let's keep the Committee Members there, as Member Riggins sits down.

MR. DERSTINE: There's Member Riggins.

MS. KNOBLOCK: Does it become larger with -- because we'll be shutting our cameras off while the other person is testifying, so only one person will be on the screen at a time. I don't know if that is part of the problem.

MR. DERSTINE: So I think Ms. Knoblock just mentioned, and I think it's a good point, they are -- you've sworn them, we'll present their testimony as a panel, but they're going to cover these segments essentially one witness at a time. So when one witness is speaking, the other will have their camera off, and so I think that will allow us to increase the frame or the picture for the witness who's testifying.

CHMN. CHENAL: That's fine.

MR. DERSTINE: We'll see how that goes.

CARA BELLAVIA AND THERESA KNOBLOCK (VIDEOCONFERENCE),

called as a witnesses on behalf of the Joint Applicant, having been previously affirmed en masse by the Chairman to speak the truth and nothing but the truth, were examined and testified as follows:

DIRECT EXAMINATION

BY MR. DERSTINE:

Q. Let's start with you, Ms. Bellavia, and have you give the Committee a little understanding of your education and your professional experience, please.

A. (BY MS. BELLAVIA) Sure, I'd be happy to. Just before I go crazy talking, I want to make sure you can hear me okay.

CHMN. CHENAL: Yes, we can.

MS. BELLAVIA: Okay, awesome. As Matt said, my name is Cara Bellavia, that's the correct pronunciation. I have both a bachelor of arts in anthropology and a master's of urban and environmental planning from Arizona State University.

I am a vice president and project manager at SWCA Environmental Consultants. I have over 23 years of experience in environmental planning and permitting; 20 of those years have been with SWCA. In my 20 years at SWCA, I have managed or participated in more than 700 environmental planning projects, including I was

the project manager for the Southline transmission line EIS, which has been mentioned several times, and I was the project manager for and testified in Case No. 173 in 2016 also for the Southline transmission line project.

BY MR. DERSTINE:

Q. Ms. Bellavia, do you also want to give just a high-level summary of the topics that you're going to cover?

A. (BY MS. BELLAVIA) Yes. So my testimony will include a discussion of the Environmental Impact Statement and NEPA process that, again, has been referenced for the Southline project, and I will also go over some of the studies we conducted for this particular amendment to Case 173 in that application.

Q. All right. Thank you. Ms. Knoblock, your education and experience, please.

A. (BY MS. KNOBLOCK) Yes, thank you. Can you guys hear me okay?

CHMN. CHENAL: Yes, thank you.

MS. KNOBLOCK: I have a bachelor of science in biology from Sacramento State University and a master of science in environmental planning from the University of Arizona.

I'm the Tucson office lead at SWCA

Environmental Consultants and have been consulting in environmental planning and permitting for over 25 years. I myself have managed and participated in more than 300 environmental projects over the past 25 years and have over 28 years experience coordinating public outreach and presenting at public open houses and hearings for EISs, EAs, and California EIRs. My degrees are science-based, and I have experience conducting protocol-level surveys, data collection, and doing scientific analyses.

BY MR. DERSTINE:

Q. Thank you. And your topics for this section of our hearing?

A. (BY MS. KNOBLOCK) Yes. I'll be covering the public involvement process. I'll touch base briefly on the public involvement that happened during the EIS process and then in more detail on the public outreach efforts that we have done for the Vail to Tortolita project. I will also be addressing the studies that have been conducted for biological registrations and for visual analyses.

Q. Thank you. Ms. Bellavia, you're going to handle this first section. But before we deal with the overview of the EIS, I want to direct your attention to TEP-21, which is the Supplement to the Joint

Application to Amend Decision 75978. Mr. Beck testified that he supervised the preparation of the supplement from the standpoint of TEP. SWCA did all the heavy lifting and the preparation and the study work that's contained within TEP-21, and includes all the various exhibits and the studies required by the Rules of Procedure before the Power Plant and Transmission Line Siting Committee; is that right?

A. (BY MS. BELLAVIA) Correct.

Q. I didn't hear you.

A. (BY MS. BELLAVIA) Yes, correct. Is that better?

Q. Thank you. We'll touch on the various elements, some of the exhibits that are included in TEP-21, as well as we have marked Exhibits -- TEP Exhibit 4, which is a supplement to Exhibit C; TEP-5, supplement to Exhibit E; TEP-6, which is a supplement to Exhibit H; 6a, which is a component of TEP-6; TEP-7; TEP-8; TEP-9; TEP-10. We'll get to those when they -- when we get to those topics and those subjects. But those are supplements to the formal exhibits required for a CEC application, and in this case, the Supplement to the Application to Amend, is that right?

A. (BY MS. BELLAVIA) That's correct.

Q. Okay. With that housekeeping work done,

there's been a fair amount of testimony from Mr. Patterson and even from Mr. Beck a little bit in terms of giving the Committee and reminding the Members of the Committee who were actually here for Case 173 about the EIS and that process as it applied to Southline. But we thought there was a value in at least giving kind of a high-level overview of the EIS process, and I think that's your job.

A. (BY MS. BELLAVIA) That is my job.

Q. So take us through that.

A. (BY MS. BELLAVIA) Sure. Okay. So really Mr. Patterson and Mr. Beck referred several times to the federal permitting or EIS process in their testimony, and I just want to maybe set the stage for why the federal permitting process was even contemplated or necessary for the Southline project.

So really the reason why the Southline project went through an Environmental Impact Statement and through the NEPA process is because there were essentially two major federal decisions or federal actions that were required. And one was that Southline applied to the Bureau of Land Management for right-of-way on their lands in both New Mexico and Arizona, and Southline had requested that WAPA consider upgrading their line. And so those -- in order for BLM

and WAPA to really consider those decisions before them, and then ultimately whether or not to make those decisions, it triggers the National Environmental Policy Act, which requires that federal agencies take into account the effects of their decisions. So that's really the premise of why an Environmental Impact Statement was done at all.

CHMN. CHENAL: Let me ask just a quick question at this time, just because I don't know the answer to this. Is there some amount of federal land that needs to be impacted for the NEPA process to be triggered? I mean, if Southline -- you know, let's say a 200-mile project was going through 2 acres of federal land. Would there have to be a NEPA process for the entire route or how does it work? At what point is the NEPA process triggered, I guess?

MS. BELLAVIA: That's a great question. And really the NEPA process is triggered any time an agency has to make a decision, big or small. I would say, in your hypothetical example, if there was just a small portion of BLM land, for example, maybe an EIS, which is sort of the most detailed level of analysis, would not be required, but it would certainly still need to be considered in a similar fashion.

CHMN. CHENAL: The entire route or just the

route across the federal land?

MS. BELLAVIA: That's a good question. It depends on a couple factors, but usually for the Bureau of Land Management they would look at the impact of their decision, let's say, that's on this smaller area on other lands and how it might enable the longer route. So they would likely consider the rest of the route in some fashion maybe as a connected action.

CHMN. CHENAL: Thank you.

BY MR. DERSTINE:

Q. And Ms. Bellavia, in the housekeeping questions that I posed to you at the outset identifying various exhibits, I neglected to reference TEP Exhibit 3, which is the slide deck that the Committee Members here in the hearing room are looking at and hopefully the Members attending by Zoom are also seeing. That slide deck was prepared by you and Ms. Knoblock, and I gather those slides are being used by you to support and supplement your testimony; is that true?

A. (BY MS. BELLAVIA) That's correct.

Q. And at this stage, do you have anything you want to call out in terms of any changes or corrections to TEP-3, the environmental witness slides?

A. (BY MS. BELLAVIA) No.

Q. All right. Please proceed.

A. (BY MS. BELLAVIA) Sure. Before I continue, did I answer Mr. Chairman's question?

CHMN. CHENAL: Yes, thank you.

MS. BELLAVIA: Okay. All right. So I set the stage for why an EIS was prepared, and it was really, as I said, because BLM and WAPA had decisions to make, and those decisions required compliance with the National Environmental Policy Act.

That EIS did consider the upgrade of WAPA's line, the whole of it, 120-plus miles, of which the Vail to Tortolita project is a portion. So when we talk about Vail to Tortolita, it was considered in the 2011 to 2015 NEPA process.

Next slide.

So here is a screenshot of the cover of that EIS, which, as I said, is -- an EIS is the most detailed level of environmental analysis under NEPA. And in this case, the Southline EIS was over a thousand pages and four volumes in its final form and was a years-long process, as I'll get to in a minute in looking at the timeline. But it's a detailed study that really looks at the applicant's need for the project, why the federal agencies are doing an EIS and their need in responding to the request before them.

We discussed the project in alternatives to the route in detail in the EIS. And it also requires opportunities for the public to provide comment and feedback on the project and the process.

All right. On the screen before you, you can really see here these are essentially sort of the critical milestones and critical process steps in the EIS. I mentioned that BLM and WAPA both had decisions to make, so they were joint agencies for the project, which means that essentially they both led the content of the document and decisions about the process.

In terms of the milestones, you can see here really the whole NEPA process kicked off formally with publication of the notice of intent in April 2012. That triggers a formal public comment period. We had a scoping period that was, in total, 90 days, and we ended up having several public meetings both in New Mexico and in Arizona. Three of those in Arizona were in Benson, Willcox, and Tucson. We also had a separate agency meeting in Tucson.

Between spring of 2012 and at the end of that comment period and the scoping period, we took the comments from the public and prepared the detailed Draft Environmental Impact Statement. You can see from the timeline there that that took us roughly two years,

and we published a Draft Environmental Impact Statement in the spring of 2014. That is notified to the public essentially via publication of a notice of availability in the Federal Register, and that triggered also a 90-day comment period on the Draft EIS, which the public is invited to make comments on, as are stakeholders and other agencies.

Then, between the spring of 2014 and the fall of 2015 we basically revised the Draft EIS based on all that stakeholder and public comment, and the Final EIS was published in the fall of 2015.

And then ultimately, the Bureau of Land Management and WAPA published their Records of Decision in April and May of 2016, and those Records of Decision are essentially those agencies' formal responses or decisions about the request submitted to them originally, again, one, whether WAPA would consider upgrading their existing line, and whether BLM would or would not issue a right-of-way grant for the project on BLM land. And in both cases, those decisions were to, yes, allow Southline to work with WAPA to upgrade the line and, yes, for BLM to issue right-of-way to the project.

BY MR. DERSTINE:

Q. And Ms. Bellavia, I guess getting to the

Chairman's question, my understanding from the testimony is that there's really only a small portion of BLM right-of-way that was involved with the Southline project, and yet they were a co-agency, worked the same level of involvement as WAPA did; is that true?

A. (BY MS. BELLAVIA) Yes, that's accurate. And I'd say the inverse of that is accurate, which is that WAPA had no like specific project interest in, for example, the new build or in New Mexico, and yet they participated at an equal level in that part of the project.

Q. Thank you.

A. (BY MS. BELLAVIA) Okay. Cooperating agencies, as I've listed here on the slide, they're really a formal category of stakeholders in the NEPA process, and they are critical to the preparation of an EIS. And really, in terms of the regulations, what a cooperating agency is is an agency other than the leads that have special expertise with respect to an environmental issue or where they have jurisdiction by law.

And so BLM and WAPA determined which agencies to invite to become cooperating agencies, sent letters and made numerous phone calls following up. And

ultimately, 21 tribes and 33 federal, state, and local agencies were invited. And as I said, ultimately, 17 agencies accepted status as a cooperating agency and participated in and supported preparation of the Draft and Final EIS.

I won't get into too much detail here in terms of outreach. My colleague, Ms. Knoblock, will get into the public involvement elements of the EIS. But I just wanted to mention here kind of the ways in which we engaged with the cooperating agencies, which is we hosted numerous webinars and meetings with those groups to review where we were in the process, get their feedback on alternatives or environmental concerns for the analysis. They also had an -- the cooperating agencies had an opportunity to review administrative drafts of the documents, such as the Draft and Final EIS, before they were published and to provide their feedback. So just wanted to illustrate here kind of how cooperating agencies participate and how they helped.

Although none of those tribes invited to become cooperators did become cooperating agencies, through requirements essentially of the government to government consultation, the BLM and WAPA did continuously coordinate with and had continual sort on

in-person meetings, letter communication, et cetera, with 21 federally recognized tribes throughout the course of the EIS process.

Then really in addition to those cooperating --

CHMN. CHENAL: Excuse me. Member Drago has a question. Excuse me for a minute.

MS. BELLAVIA: You bet.

MEMBER DRAGO: Yes, hi.

MS. BELLAVIA: Hi.

MEMBER DRAGO: A question for you back on Slide 13 and then onto 14. Did you all engage with the State Historic Preservation Office? Was there any feedback?

MS. BELLAVIA: Good question. So the Arizona State Historic Preservation Office was not a cooperating agency, but I will touch on, here in a few slides, their role in working with the BLM and WAPA on cultural resources, in particular Section 106 of the National Historic Preservation Act. There was an agreement document developed that was signed by the Arizona State Historic Office. So they were worked with, but not in the context of a cooperating agency.

MEMBER DRAGO: Thank you. On Slide 14 -- there are 22 federally recognized tribes. Do you know

which one was omitted?

CHMN. CHENAL: Member Drago, could I ask you to move the microphone a little closer? I think that would cut down on feedback.

MEMBER DRAGO: Yes. On Slide 14 it states that there were 21 federally recognized tribes, when there was 22. And I was just going to ask, was there a reason to omit one of them?

MS. BELLAVIA: I do not know the answer to that, and I will have to check. That's a good question. But I can certainly look into that and then we can circle back.

MEMBER DRAGO: Thank you.

MS. BELLAVIA: Sorry, I was just writing myself a note so I remember to look.

Okay. Let's see. So I mentioned how the cooperating agencies were involved in development of the EIS and throughout the process how we worked with the tribes throughout -- or, the BLM and WAPA worked with the tribes.

The final point I really wanted to mention here was that the BLM and WAPA developed essentially a working group for Tumamoc Hill in that area, because during the scoping process and leading up to and subsequent to it there were a lot of comments and

concerns from stakeholders about impacts to Tumamoc Hill and what those impacts might be of upgrading the existing WAPA line across Tumamoc Hill.

And so although some of these agencies didn't ultimately become cooperating agencies, the BLM and WAPA worked closely with the Arizona Game and Fish Department, University of Arizona, Pima County, the City of Tucson, members of the Tohono O'odham Nation, and the Arizona State Land Department to really workshop what their concerns were with Tumamoc Hill and to identify potential options to really reroute that line off of Tumamoc Hill. And so that stakeholder outreach with Tumamoc Hill and that working group began in 2012 and continued through 2013. They were critical in developing options for Tumamoc Hill and informing the analyses.

This slide here really -- most of these agencies and the resources mentioned here are not pertinent to Vail to Tortolita, so I'll only touch on them briefly. But which is to say, we did not only interact with stakeholders in Arizona or relevant to the Vail to Tortolita project, but in Arizona we -- well, rather, BLM and WAPA met with, for example, the Fort Huachuca -- members of Fort Huachuca about concerns -- their concerns about impacts to the Buffalo

Soldier Electronic Testing Range. And then as I think Members of the Committee and Mr. Chairman may recall, there was sensitivity at Willcox Playa and, in particular, Crane Lake, and so we had several meetings with Arizona Game and Fish Department and the Fish and Wildlife Service about that area.

Okay. Next, I'll just touch on kind of the process for how alternatives were developed in the EIS. And they're relevant in the sense that the original proposal from Southline was to upgrade WAPA's line in its existing place and to connect, you know, the Afton substation in New Mexico with the Apache substation in Arizona, and the EIS process really informed that.

I have lost video of the room, and I just want to pause and make sure people can still hear me.

MR. DERSTINE: We can still hear you and see you, but let's see. I want to make sure. I don't know if it's an issue on our end.

MS. DARLING: It's fine on all of ours.

AV TECHNICIAN: We chose to take the Chairman -- or, your image off. Sorry. We'll put your image back up.

MR. DERSTINE: Ms. Bellavia, you're saying you don't see the slides on your screen?

MS. BELLAVIA: No. I just wasn't seeing -- I

didn't get to look at you, Mr. Derstine, but I can see you now, so it's fine.

MR. DERSTINE: Well, I'm the least important person to see in this mix.

MS. BELLAVIA: Okay. I just wanted to pause because the screen looked different and I wanted to make sure that my feed didn't drop.

Okay, picking back up. So really this is -- I want to just discuss for a few minutes sort of how we got to the reroutes that Mr. Beck discussed in some detail. And to do so, I just want to kind of lay the foundation with how the EIS process led to those.

And so really the alternatives development process and the NEPA process really starts with the beginning of scoping and can really go all the way through the end. But in this case, for Southline, they came to the BLM and WAPA with a proposal, and that sort of formed the foundation of the analysis.

Then, using those public scoping comments -- I mentioned the scoping period -- or comments on the Draft EIS can lead to development of alternatives to the proposal. And so in the Draft EIS we had identified alternatives, which we called local alternatives, because they were really solving small geographic concerns. And then, based on comments on

the Draft EIS, we included a few route variations, we called them in, the Final EIS. And I only mention those specific names, local alternative and route variation -- if you were to refer to the EIS, that might help clarify what those mean.

CHMN. CHENAL: Member Gentles.

MEMBER GENTLES: Were there significant route variations based on public input?

MS. BELLAVIA: I would say not significant ones in the upgrade except for at Tumamoc Hill, and those were really primarily developed based on the feedback of that working group. So not that there were 10 different ways to get around Tumamoc Hill developed, but different segments of how you could go around or connect in different ways. We had 10 local alternatives developed by that working group that were contemplated in the Draft EIS, in the upgrade. And then the realignment up by the Marana Regional Airport was also developed based on stakeholder feedback.

MEMBER GENTLES: Mr. Chair, the gentleman that asked the question about the landfill and why they didn't take it through the landfill, was that in this area?

CHMN. CHENAL: I believe it's south. Mr. Derstine or Mr. Beck?

BY MR. DERSTINE:

Q. Ms. Bellavia, were you here this morning for the testimony and were you able to see where we showed the Committee, by Google Earth and by, I think, an attachment to that gentleman's e-mail, the landfill? The question, I think, from Member Gentles was: Was the landfill and an alternative in the area of that landfill considered as one of those local reroutes or local adjustments?

A. (BY MS. BELLAVIA) Yes, I was present this morning, and I heard his comment at the meeting last night. And no, that was not a comment made during the NEPA process, so we did not contemplate that as an alternative for that reason.

MEMBER GENTLES: Thank you.

MS. BELLAVIA: All right. Let's see. So as I said, we really -- in the EIS, we started with Southline's proposal. We developed alternatives through the course of the process. And really where there were comments provided, we tried to address those with an alternative or address those in the analysis and tried to develop alternatives that might avoid or minimize negative impacts. And I'll get into some more detail about how the reroutes came up, but those were at Tumamoc Hill, at Marana Airport, at Tucson Airport,

really all developed based on stakeholder feedback and concerns about future plans.

There were some alternatives in the EIS that were considered, but not ultimately studied in detail. Most of those alternatives were not in the Vail to Tortolita section. They were in -- primarily in New Mexico and eastern Arizona. But there were some other more general technological options eliminated, such as recommendations to possibly rebuild another line, not WAPA's line, to build a new line in a separate or adjacent right-of-way, or even a request to work with consumers to decrease demand and not require an upgrade to the system.

BY MR. DERSTINE:

Q. So those option alternatives that you just described, those are the kinds of things that are considered and evaluated through the EIS process and are an important element of the process that is looking at, are there other or different ways, other than, say, rebuilding or upgrading the WAPA line, that would still suit the need and meet the purpose and need for the project?

A. (BY MS. BELLAVIA) I would say yes, if that's a comment. So, you know, the comments received were generally about do we need another high-voltage line

and can you look at decreasing demand, if you're referring to that particular question. But I would say it's not the responsibility of the EIS or that process to determine the need for the project in the bigger picture.

Q. Got it. Thank you.

A. (BY MS. BELLAVIA) The map you can see on the screen here, hopefully you can see sort of well, is -- if you could go back to the other map on the left screen -- is really the -- yes, thank you -- the Southline transmission line project primarily as it exists in Arizona, and the alternatives -- you can kind of see the rainbow line work here of the alternatives considered in that EIS. And then I included a box around the Vail to Tortolita project, and you can see that really most of the alternatives in Arizona were not in this part of the project.

Q. All right. I guess this next section, based on the topic slide there, is that your focus now is more to the EIS process as it relates more directly to Vail to Tortolita?

A. (BY MS. BELLAVIA) Yes. I will get into a little bit more detail on those reroutes and how they came about in particular.

Okay. So on the screen here you can see, and

as Mr. Beck has testified, there really were sort of three areas that were of concern in this part of the upgrade. That was the area south of the Tucson International Airport, the area of Tumamoc Hill, and then concerns about Marana Regional Airport and some future plans there.

I list on the screen here -- again, if you're cross-referencing the EIS -- in the EIS we called that alignment, which in our testimony here I believe we're calling the Old Vail Road realignment, in the EIS that had a sort of alpha numeric name which was U3aPC. Then the options around Tumamoc Hill, there were, as I said, nine that we looked at in detail, they all have a prefix of TH and then dash, some number. And then Alternative MA-1, which is what we're calling the Marana Airport realignment. I just wanted to clarify if there's an interest in connecting these in the EIS.

Next slide.

This is just a map from the EIS. And again, it's really illustrating a point I've made before and sort of showed on the previous map with the red box on it, which is that most of the concerns in the upgrade part of the project were around Tumamoc Hill; although, I'm sure the screen is small and the detail is small. That box on the bottom right shows sort of the

different ways that the Tumamoc Hill working group contemplated getting the existing WAPA line off of the hill and some different options.

Yes, thank you for zooming in. Okay. We can go to the next slide.

So first, I'll start with -- I'm going to now go back to it, the name we're using for this testimony, because it's more fun that U3aPC, but it's the Old Vail Road realignment. And I won't go into this in a ton of detail, as Mr. Beck has already discussed this, but I think it's important to just mention that this is a realignment that was developed between the Draft and Final EIS, which is -- it was not in the Draft EIS.

Pima County sent an extensive comment letter to BLM and WAPA including a request to potentially realign WAPA's right-of-way in this area, as Mr. Beck has testified, essentially to allow for future development related to the aerospace parkway, corridor -- Sonoran corridor, and related. And so their letter on the Draft EIS, in fact, included a map of the route they wanted, which is essentially the realignment that's been adopted -- that was adopted and included in the EIS. So this specifically came as a particular request from Pima County.

Let's see. Okay. Looking at Tumamoc Hill,

this one, as I said, we had several options to get around Tumamoc Hill, some of which was really along I10 and along a river. And after looking at those with that working group, there were too many land constraints, not the least of which I think are some existing high-voltage TEP lines, as well as considerable archaeology and a number of other sensitivities.

So through discussions with the working group, WAPA settled on this realignment around Tumamoc Hill, essentially taking that blue line, which is the existing WAPA line, and skirting it along Starr Pass, Greasewood, and then Anklam. And again, this is the product of several meetings and feedback with that working group who involved Pima County, University of Arizona, Arizona Game and Fish, Arizona State Land Department, City of Tucson, and the Tohono O'odham Nation.

And then finally, we have the Marana Regional Airport alignment. And this one also came as a specific request from the Town of Marana regarding future development plans at the airport, and so this was in response to that. They made those comments during the scoping process, so this alternative was included in the Draft EIS and in the Final EIS. And

again, this came as a specific request from the Town of Marana with a desire to accommodate future expansion south of the airport.

Q. You've touched on these three realignments that align with the testimony that Mr. Beck gave, but it doesn't include the Vail substation, what we've called, reroute. Was that -- tell me how the Vail substation reroute relates to or doesn't to these realignments that you've just talked us through.

A. (BY MS. BELLAVIA) Sure. The connection from WAPA's line to the Vail substation was essentially part of Southline's proposal, so it was part of their request. It wasn't an alternative or an option developed as a result of the process. It was based on a need to connection to Vail substation.

So the -- I know we've looked at a corridor, as Mr. Beck has indicated, and then there's the two possible alignments in and out of the substation. And the Western alignment is what was really considered in the EIS and was also certified in this -- in Case 173 initially.

Q. And that's helpful, because I think I have thought of there being four reroute sections. What there really were are three reroutes or realignments where the project moved outside of the existing WAPA

right-of-way. The connection to the Vail substation was simply that, it was that line had to be connected at Vail, or it was proposed to be connected at Vail, and it was a matter of how do we get there. It did not involve a realignment of the existing WAPA line; do I have that right?

A. (BY MS. BELLAVIA) Yes, that's correct.

CHMN. CHENAL: So let me, if I may, just ask a question on this.

MS. BELLAVIA: Sure.

CHMN. CHENAL: The Final Environmental Impact Statement called out for these three rerouting from the existing WAPA line. Is that also contained in the Record of Decision?

MS. BELLAVIA: Yes.

CHMN. CHENAL: Is the actual operative order, if you will, that authorizes the route in the Record of Decision?

MS. BELLAVIA: Yes, it is. In both BLM and WAPA's decisions these were selected.

CHMN. CHENAL: Thank you.

MS. BELLAVIA: Yes.

Okay, moving on. Mr. Derstine, would you like me to continue?

BY MR. DERSTINE:

Q. Yes, please. I'm sorry.

A. (BY MS. BELLAVIA) That's fine.

Though the next two slides I'm going to mention are not specific to the Vail to Tortolita project, they're relevant to the decision made about them, which is a biological assessment and opinion were prepared. And those were done in compliance with Section 7 of the Endangered Species Act, and they require consultation -- that Act requires consultation with the Fish and Wildlife Service, which was completed for this project.

The Fish and Wildlife Service issued a Biological Opinion at the end of 2014. And we found that while the BO was issued for 12 species, which I have listed here on the slide, only seven of those species were identified as having suitable habitat in the Vail to Tortolita project area. And of those 12, the seven in Vail to Tortolita are the southwestern willow flycatcher, yellow-billed cuckoo, northern Mexican gartersnake, Sonoran Desert tortoise, lesser long-nosed bat, Pima pineapple cactus, and Tucson shovel-nose snake.

I did want to mention that, subsequent to that 2014 BO, there have been some changes to the Endangered Species Act list and status of two of these

species, which is that essentially they've been, I'll just say, sort of downlisted. The lesser long-nose bat is now delisted and is no longer protected by the Endangered Species Act, and the Tucson shovel-nose snake is no longer a candidate species.

We did sort of discuss this with WAPA several years ago, and ultimately had some informal conversations with the Service, but it was decided that the conservation measures outlined for the species in the BO, whether they were listed or not, would still apply in order to -- in order to ensure that these species would not be jeopardized.

The next slide is the one I was referring to in reference to the question as to how we coordinated with the Arizona State Historic Preservation Office; and that is, a Programmatic Agreement was developed and signed. And that Programmatic Agreement was developed to comply with Section 106 of the National Historic Preservation Act. This, like the other parts of the process, included outreach to tribes and interested parties.

But ultimately, the Programmatic Agreement was signed by the parties listed on the screen here, including Southline, BLM, WAPA, and the Arizona State Historic Preservation Office, as well as the Tohono

O'odham Nation and the Arizona State Land Department. And really, as parties to the Programmatic Agreement, the process and steps outlined in that agreement ensure that each of the parties to the PA have an opportunity to comment on any report or comment on the process -- the cultural resource inventory and mitigation process as it moves forward. So it outlines very specific compliance requirements with regard to cultural resources. Compliance with that PA is required not only because they signed -- those parties signed it, but also because it's required by the BLM and WAPA's Records of Decision, which is on the screen next.

Okay. So really once the Final EIS was published in late -- the Final EIS was published in late 2015, that Biological Opinion was issued by the Fish and Wildlife Service, the Programmatic Agreement was signed by those parties, then the agencies could issue their decisions. Again, as I said, that's their formal response to the request before them. BLM published their Record of Decision in May 2016, and WAPA published theirs in April of 2016.

If you want to go to the next slide.

And really that map on the left essentially -- on the left screen depicts the route that was selected by BLM and WAPA, including the out of

right-of-way -- the not reroute, but the connection to the Vail substation, which Mr. Beck talked about and Mr. Derstine just asked me about, as well as the realignment along Old Vail Road and at Tumamoc Hill and at the Marana Airport.

I know I've heard several people testify about PCEMs. I don't think I heard anybody spell out what those were, so I'll do that to make sure it's clear. It basically stands for Proponent Committed Environmental Measures. Again, those we ended up calling PCEMs.

And the PCEMs represent a combination of really the design features that Southline themselves proposed, best management practices recommended by BLM and WAPA and/or required by state and local laws, as well as mitigation developed during the NEPA process. For example, all the conservation measures that were included in the Fish and Wildlife Service Biological Opinion were wrapped into the PCEM. So at any point, a party or part of the process resulted in a recommendation to minimize impacts, they were incorporate as PCEMs.

Both BLM and WAPA adopted -- or, require adoption of all measure -- all the PCEMs in both of their RODs, which is to say that all those measures

apply to the whole project.

Q. And Ms. Bellavia, the PCEMs, I believe, are collected and included in the exhibit binders as TEP-14. It's a trifold -- well, a long piece of paper that's folded, headed Table 2-8, Project PCEMs by Resource. And for the Members of the Committee, we don't -- we did some last minute rejuggling. There's not a tab for it, but it is there behind the certified mail receipts showing the notice to the affected jurisdictions. But all the PCEMs are collected under TEP-14.

A. (BY MS. BELLAVIA) Yes. They're actually in several places; that is probably the easiest place to find them. But they are in the EIS in Table 2-8, and they are also in the BLM's Record of Decision as Table 8. WAPA does not include them as an attachment to their decision, but they incorporate them by referencing Table 2-8. So yes, they are in Exhibit 8 -- I'm sorry -- Exhibit -- whatever you just said that I just got wrong.

Q. TEP-14.

A. (BY MS. BELLAVIA) Yeah, thank you. They're in TEP-14, and also in the EIS and the agency Records of Decision.

And really at the end, as the mitigation

measures and PCEMs evolved based on feedback, there are over 350 measures in the Record of Decision and TEP-14 that -- with the goal of minimizing impacts to sensitive resources, such as mitigation required for cultural resources or biological, visual, et cetera.

CHMN. CHENAL: Just to put Mr. Beck at ease, it looks like a treasure trove of potential new conditions that could be added to the CECs.

MR. BECK: Unless it's all referenced in one condition.

MR. DERSTINE: Can we pause here for a minute? I'm detecting that maybe the court reporter is struggling a little bit at times to hear Ms. Bellavia's testimony. Can we do anything in the room maybe to boost her audio? It may be the WiFi connection is not great, but we'll do what we can to try to boost her audio here for the benefit of the Committee Members, everyone in the room, including the court reporter most importantly.

MS. BELLAVIA: If I need to speak up, please just let me know.

MR. DERSTINE: That might help too.

CHMN. CHENAL: Yes.

MR. DERSTINE: I don't know that it's your fault, but that can help us.

MS. BELLAVIA: Okay. I'll warn my family in the other room why I'm yelling at my computer.

Okay. Really that's -- those PCEMs --

If you want to advance to the next slide. One more slide. There we go.

I mentioned that the reroutes that I've discussed and Mr. Beck has discussed were incorporated into both agency decisions, as were all 350-plus PCEMs. And so this map, again, on the screen here is the selected -- rather, the approved route in both agency decisions. And again, for your benefit, I've just highlighted the Vail to Tortolita project in the context of the larger approved project by BLM and WAPA.

Next slide.

This is covering ground I think we've all -- you've seen both in the flyover and in Mr. Beck's testimony, but again is just a representation of the selected route with the addition of the potential alternative option getting in and out of Vail.

BY MR. DERSTINE:

Q. So this -- I'll stop you there on the slide. I think it's Slide Number 33 of TEP-3, which is the environmental witness panel slide deck. I gather, from this next section, I was wrong when I assumed that all of the environmental study work is done during the EIS

process and then you're done. Is that true, there's more environmental studies that have yet to be performed or possibly are ongoing?

A. (BY MS. BELLAVIA) That's correct. The EIS and really those PCEMs, in fact, require -- several of those measures are actually requirements for additional pre-construction surveys. So the Records of Decision and those PCEMs require additional work, as does the Programmatic Agreement, which I mentioned. And really those additional pre-construction surveys -- those pre-construction studies, I should say, fall into two categories, which I can cover in my testimony next.

CHMN. CHENAL: Let me interrupt at this point. We've gone about 90 minutes. I think this would be a nice time to break for our afternoon break. Let's take a 20-minute break, and we'll come back at 3:00.

(Off the record from 2:38 p.m. to 3:04 p.m.)

CHMN. CHENAL: Thank you, everyone. Let's resume the afternoon portion of the hearing. I understand we have the Committee Members remotely and the witnesses. Please proceed with the --

MEMBER NOLAND: You need to get closer. I can't hear you.

CHMN. CHENAL: Please proceed.

MEMBER NOLAND: Awesome.

MR. DERSTINE: I'm glad you got in trouble and I didn't. I'm trying to keep my mouth's eyes on the microphone.

BY MR. DERSTINE:

Q. Ms. Bellavia, we didn't start on the pre-construction survey section, correct? We did not?

A. (BY MS. BELLAVIA) We did not start on that yet.

Q. All right. Before we do that, we had a question from -- about tribes and the lost tribe that was missing from the list of 21. Did you do a little bit of research and digging and are you able to respond to that question?

A. (BY MS. BELLAVIA) Yes I did, and yes, I can. So Member Drago observed that I stated that WAPA and BLM consulted with 21 federally recognized tribes, and he correctly noted that there are 22 federally recognized tribes in Arizona. So his question was, which tribe was missing from the list. So it gives me an opportunity to clarify how -- which 21 tribes were consulted and how that was developed.

Essentially, BLM and WAPA consulted with 21 tribes who were both federally recognized in Arizona or New Mexico and had traditional territory or traditional

claims in or adjacent to the project area. So really those 21 tribes were a combination of those in both states with traditional territory.

After looking at the list of 22 federally recognized tribes in Arizona, 11 of those had traditional territory and claims in and adjacent to the project area and were consulted during the NEPA process and the 106 process. I hope that clarifies who was consulted with and hopefully rectifies 21 versus 22.

MEMBER DRAGO: Very good. Thank you.

BY MR. DERSTINE:

Q. All right. On to pre-construction surveys, 2018 to 2019.

A. (BY MS. BELLAVIA) Yes, thank you. As you asked me, Mr. Derstine, did the Record of Decision mean everything was over, and the answer was no. There were additional surveys and studies required in the Records of Decision. And as I said, they really fell into kind of two categories, both cultural resource surveys, which I'll elaborate on here, and also biological resource surveys.

As here on the screen, essentially that Programmatic Agreement which I mentioned requires that a complete inventory of the right-of-way be completed prior to construction. In fact, that Programmatic

Agreement requires that the right-of-way and a wider area called an area of potential effect, or APE, be surveyed, and that APE was identified as 350 feet.

So SWCA completed a survey of that APE, which includes the right-of-way, for the Vail to Tortolita segment in 2018 and 2019. We did not survey areas where we could not get access outside of the right-of-way, which resulted in a total of 2,437 acres in the Vail to Tortolita segment being surveyed in compliance with the Programmatic Agreement.

Through our surveys of that APE, our team identified 57 archaeological sites. 15 of those archaeological sites had not been identified before, which is to say they're new sites. And then 42 of those sites were previously known or recorded, including sites relevant to or related to the Tumamoc Hill Archaeological District and a few other substantial areas, including the Valencia site.

That survey also identified 80 historic buildings, most of which are residential houses, but also include substations, which can be historic, and industrial buildings. None of those residences are in the actual right-of-way, I wanted to clarify, they are just within that APE.

The next category of studies that we've

completed are the biological resource surveys. These are required in both WAPA and BLM's Records of Decision, and there are several specific PCEMs which require survey for a variety of species. We completed surveys for these species in 2018 and 2019. The species that are asterisked on the screen are the ones that were observed.

Although, I will say you'll see that a Sonoran Desert tortoise was observed; that was observed just outside the right-of-way, so not in it, but outside of it, and in April 2019, so it's been a little bit of time. And then the other species asterisked is Pima pineapple cactus, which is an endangered species that is protected, and that has been observed in the right-of-way. WAPA has been managing that species themselves for a number of years. And then there are a number of Arizona native plants in and adjacent to the right-of-way, including Agave and Sahuaro. Those are protected by the Arizona native plant law, and again through PCEMs in the Record of Decision.

And I will let -- my colleague, Ms. Knoblock, will get into more detail about biological resources specific to the Vail to Tortolita project, but here I just wanted to elaborate that some additional studies have been completed since the Final EIS and Record of

Decision.

Q. All right. Ms. Bellavia, is there anything else that we missed or that you needed to touch on in terms of that high-level overview and summary of the EIS process?

A. (BY MS. BELLAVIA) No, I think I've covered everything, unless there are questions.

Q. Well, you're turning it over here to Ms. Knoblock. So I'll let Ms. Knoblock pop up on the screen and, Ms. Bellavia -- there we go.

A. (BY MS. KNOBLOCK) Magic.

Q. Yeah. The two of you are in different parts of the country, based on your backdrop screen. You appear to be in the plains somewhere, Nebraska or -- do we know, Ms. Knoblock, where are you?

A. (BY MS. KNOBLOCK) Well, I know where I am. I don't know where that picture is taken. It's one of SWCA's transmission line photos, but I did not look to see where it was from.

Q. Okay. So we're going to deal with public outreach. Public outreach is a topic that's collected under Exhibit J to the supplement, the supplement again being TEP Exhibit 21. I think I have that -- that's right, Exhibit J is special factors, which really generally involves public outreach, public involvement.

And I think your presentation is going to go back in time a little bit and give an overview of the outreach that was done in the pre-NEPA and the NEPA phase, and then you're going to testify about some of the outreach and engagement that was done for this hearing and in support of the Vail to Tortolita segment. Do I have that right?

A. (BY MS. KNOBLOCK) Yes, that is correct.

Q. Okay. Please proceed. Well, let me stop you there. So Exhibit J is in -- contains more information on public involvement. There's also TEP Exhibit 7 -- well, not Exhibit 7 -- TEP Exhibit 8, which is the supplement to Exhibit J, so that's additional information that came about concerning outreach and engagement. That's in TEP-8. TEP-9 is the -- I believe is the virtual open house PowerPoint presentation, you're going to talk about the virtual open house that was held in support of this hearing, I think, back in October, and a transcript from that open house. And then TEP-10 is the Vail to Tortolita project newsletter that went out to again publicize this hearing and give over -- well, it went to over 38,000 addresses and gave more information on the project, correct?

A. (BY MS. KNOBLOCK) Yes.

Q. All right. With all that, why don't you start us off.

A. (BY MS. KNOBLOCK) Okay. I'm going to talk briefly about the different phases of public outreach that occurred. Cara and other folks have already touched on these, so I'm not going to belabor the pre-Vail to Tortolita outreach, but I'll talk a little bit about pre-NEPA outreach, outreach that happened during the course of the EIS, and then a little bit more detail about our outreach that we have conducted this year.

If you can turn to the next slide. And please let me know if I'm speaking too quickly. I'll try to remember to not speed up as I talk.

So as part of the pre-NEPA outreach, which that was before 2012, most of this happened in 2011, Southline, again, they conducted a series of informal stakeholder meetings and met with various local jurisdictions to the administrators and so forth. They also hosted two formal pre-NEPA public meetings, several, in Willcox, Tucson, Marana, and Benson. And they hosted a routing workshop in late -- in September of 2011.

If you could go to the -- a couple slides.

As the EIS process formally kicked off, EISs

in particular under NEPA regulations and guidelines, require formal public involvement. So after the notice of intent was filed, they proceeded to do their public outreach required under NEPA requirements. That public outreach included reaching out to interested groups and other stakeholders, collecting those names on a mailing list, and they were notified throughout the EIS process.

And as a note, we were provided that list and looked at that list during our current efforts to ensure that folks that were in our area in the current effort would also receive information. And so those folks were notified during the course of that EIS process.

In addition to that, the Southline group maintained a project website and an e-mail mailing list throughout their process. They had several newsletters and fliers that were sent out advertising scoping meetings. They maintained a toll-free information line, put paid notices in newspapers of record as part of their formal process. Their publications were included in the Federal Register, and copies of the EIS documentation were available, printed copies, upon request and in libraries, community centers, and so forth if people wanted to go look at them there.

MEMBER GENTLES: Mr. Chair.

CHMN. CHENAL: Member Gentles.

MEMBER GENTLES: The timeline on this part of the outreach, this was back in 2012?

MS. KNOBLOCK: Yes, this outreach was conducted between 2012 and 2015 during the EIS process.

MEMBER GENTLES: Thank you.

MS. KNOBLOCK: So now I'm going to talk a little more specifically about what we have done this year for this public outreach effort.

You can go ahead and move to the next slide.

So at the beginning of the process, when we started reaching out, TEP put up a project website. All the project materials are maintained on that website, links to documentation that went out is on the website, and project maps. The website also includes Spanish translations of materials as necessary, including the newsletter and other materials. And I'll talk a little bit more about what's on that website later on.

One of the first things that we did was prepare and hold a virtual open house. That open house was advertised in the Arizona Daily Star, in a Sunday paper. We also put out a series of targeted Facebook ads advertising that open house.

And the open house was held on October 20th. During that open house, we did a formal presentation with a PowerPoint regarding the project, we discussed the relationship of the project to the previous EIS, and talked about the current TEP effort. The transcript and video of that open house was uploaded to the website. And I'll show you, on the next slide, the other information that was provided at that open house. That open house was attended by 10 people other than the presenters that were at the open house.

Next slide.

BY MR. DERSTINE:

Q. Let me stop you there for a minute. So the virtual open house transcript, I don't know if the video is there, but it's included in --

CHMN. CHENAL: Mr. Derstine, could you speak up?

BY MR. DERSTINE:

Q. -- TEP-9. Is that what's collected there in terms of -- TEP-9 says, TEP virtual open house PowerPoint and transcript. That covers the virtual open house that was conducted on October 20?

A. (BY MS. KNOBLOCK) Yes. The PowerPoint is included and a written transcript of the open house. If people want to see a video of the open house, they

would need to go to the project website. It's posted there.

Q. All right, thank you.

A. (BY MS. KNOBLOCK) So if you can go to the next slide.

This slide was actually included in the open house, but it also shows you a short list of the different mechanisms by which people could get information following the open house. There was a phone line that was maintained. For English you could call one line; if you spoke Spanish, there's also a Spanish speaking phone line. You can leave messages on those lines, and TEP would respond to your questions. You can e-mail the website address that is posted there or go to the website and submit comments via the website at the address shown there or you can write written comments.

Next slide.

The next phase of our public outreach was to publish a newsletter that went into more detail and provided people more information about the project and also had a wider distribution. That newsletter, as Mr. Derstine already mentioned, was mailed directly to 38,000 -- over 38,000 recipients. On the next few slides, I'll show you the notification area -- or,

actually, it's up on the screen to the left now.

And just to state, the way this that mailing list was arrived at was to -- we updated it this year with a vendor to find -- do a search of current residents, tenants, and businesses within 1 mile of the project area, as shown on the slide to the left. And so that list was updated.

In addition, the newsletter was sent to a list of stakeholders from previous Southline efforts. That list of stakeholders was updated for this current effort. It was -- jurisdictions that are not anywhere near our project area were removed, and all the people and the addresses, contact information was updated either by calling people directly, looking at their website, or direct e-mailing them. So that list was updated for this effort.

Q. And Ms. Knoblock, that newsletter, the actual newsletter that went out to those 38,000 recipients, can be found at TEP-10, is that right?

A. (BY MS. KNOBLOCK) I believe so. I do not have the table of contents up in front of me.

Q. Well, I'll state for the record, it can be found at TEP-10.

A. (BY MS. KNOBLOCK) Thank you.

The newsletter that went out -- and I do have

a copy of it in this presentation, I'll talk a little bit more about that -- included not only information about our TEP project, but there was an insert in that brochure that talked about how our project relates to the WAPA project and also provided folks information that may have been aware of the previous WAPA Southline project, where to go to get more information as their project continues.

As a result of both of those outreach efforts, the open house, the website, and the newsletter, we did receive a number of public comments. And I think Mr. Derstine is going to talk a little bit about the summary of those comments and add it as an exhibit.

Q. So the spreadsheet that collects, I believe, and Ms. Knoblock, I'll need you to discuss what's in that spreadsheet, but TEP-17 is a spreadsheet that I believe collects the various comments and responses and additional information that relates to comments generated by the outreach efforts that were done in 2020; is that right?

A. (BY MS. KNOBLOCK) That is correct. We received a number of comments via phone, through the TEP website comment database, via direct e-mail. We did not actually receive any letters, but we received

comments through all the other mechanisms.

This spreadsheet -- and please feel free to ask specific questions if you have questions about that. But to summarize it, we received a total of 14 separate comments, 12 of which -- and this is pre-hearing, pre-December 1st -- 12 of which were from the public. Of those comments, 12 of the commenters had no specific opinion about the project, two of them had opinions about the project, one was against the project with caveats, if it spoils our view, and one was a comment that it's very near to an existing subdivision with alternative suggestions.

Most of those comments were requests for additional maps because of the -- the newsletter is a very high-level overview, and people were wanting to know the specifics of the line adjacent to their specific houses. Those folks were provided detailed maps of the locations that they were interested in. Other issues raised included, in general, questions about EMFs and other hazards, visual impacts, and questions about how close the line would be to their home or subdivision.

The other two comments that were non-public comments were from agencies. We were contacted by the Army National Guard and the ANRG Heliport, which is an

organization that has a heliport, I think it's in the Marana Airport facility. Those two agencies were requesting additional information, and TEP responded to them with additional information. They wanted to question how they can provide design input as the project moves forward to ensure that there were no conflicts with their operations.

CHMN. CHENAL: Let me -- excuse me. Let me stop you there, because I see the comment that was made.

MS. KNOBLOCK: Yes.

CHMN. CHENAL: Just one second. The comment is specifically made, "If the poles can remain below 100 feet, then I don't foresee any issues." And he goes on to say, the battalion commander, he or she, says, "This situation isn't as cut and dry as referencing FAA requirements."

So since the poles are not going to be below 100 feet, we know that, what is the technical solution to that? Is that the Marana rerouting, is that what addressed this situation, or how was this situation addressed?

MS. KNOBLOCK: That isn't a -- I'm not necessarily the one that can speak to the specific coordination that would occur with them. I can read

what TEP's initial comment back to them was. It's actually -- if you have the exhibit open, on the right-hand side there is a response in there. And I'd prefer if Mr. Beck or someone can speak to how their design considerations would be dealt with as we move forward. Obviously, TEP, as they move forward, and Mr. Beck has testified, they would reach out as design moved on to ensure that there are no conflicts with these entities. But I'd prefer if he would answer a question about specific design measures that might be necessary.

CHMN. CHENAL: Sure. Let's hear from Mr. Beck, because that seems to be kind of an important question that was raised by the battalion commander.

MR. BECK: Yes. And we've worked with them in the past on previous projects. Southline has already committed to them that their structures would be at 100 feet, the minimum height. And we would support that and, during design process, accommodate their needs to keep them at a hundred feet or below.

MR. PATTERSON: I think it's referenced in the PCEMs under the military operations WAPA had already committed to that. There's a reference to having, I believe they said, a 90-foot design in reference specifically to that concern which was

brought up during the EIS process.

CHMN. CHENAL: Okay, thank you. And what PCEM number is that?

MR. PATTERSON: I believe it's in the military operations table on Page 107.

CHMN. CHENAL: What exhibit again?

MR. PATTERSON: This is Exhibit --

MR. BECK: It's 14, I believe, but it's not tabbed.

MR. PATTERSON: -- TEP-14.

MR. BECK: It's the foldout sheets, the larger sheets.

CHMN. CHENAL: And which -- where are they located? I see a foldout for military operations. THE PCEMs look like they're organized alphabetically by category. Is it under --

MR. BECK: It's, Table 2-8.

CHMN. CHENAL: Right.

MR. PATTERSON: Yeah. Then in military operations do you see DOD-6?

CHMN. CHENAL: Yes.

MR. PATTERSON: So there's multiple lines, it looks like, for DOD-6. I believe it's the second set there where it begins, "Use the optional structure height of 90 feet in areas intersecting the military

training route VR-263." I believe this references that. I'll have to double-check.

CHMN. CHENAL: Would you, Mr. Patterson? I actually see that, and it refers to a certain military training route, and a number of them -- I would just like confirmation that that PCEM addresses the battalion commander's comments regarding height of poles by the Air National Guard heliport by Marana -- it's not Marana, it's the one north of that. It's Pinal County, I think.

MR. BECK: I believe it's the Pinal Airpark.

MS. BELLAVIA: Yes. This is Cara Bellavia. That's correct, Mr. Beck, it's Pinal Airpark they're commenting on.

CHMN. CHENAL: So, Mr. Patterson, if you'd be kind enough to kind of double-check to confirm that covers it. I think that's important.

MR. PATTERSON: I will, just in case I have that wrong. I'll follow up.

CHMN. CHENAL: Thank you.

BY MR. DERSTINE:

Q. Ms. Knoblock, there was -- I think one of the commenters last evening said he had submitted a written comment. Is that included in the spreadsheet that's marked as TEP-17?

A. (BY MS. KNOBLOCK) Yes, it is. I believe his comments -- there's actually a couple back and forths with that gentleman to answer his question, and I believe his comments are Comment 8a, 8b, 8c. Originally, he was asking for better maps, and then he -- I just want to make sure, because I think that one of these comments was from him and one was from another person in his HOA, but they were all the same issue. But let me just double-check.

Okay. Yes. So if you'd like, I can read more or reference what he said in that --

Q. No. I just wanted to confirm that. He had indicated he had submitted a written comment; I wanted to make sure we had tracked it, it was included in our spreadsheet, and that he had been given a response.

A. (BY MS. KNOBLOCK) Yes. Yes, that is correct. Comment 8a, 8b, and 8c.

Q. Thank you.

MS. KNOBLOCK: Did anyone else have any questions about the specifics of the comments received that are summarized in the newsletter -- I'm sorry -- in Exhibit TEP-17?

CHMN. CHENAL: I don't believe so.

MS. KNOBLOCK: You can go on to the next slide. You've already seen -- sorry. I'll let you

catch up. The map on the left is actually a split onto the next slide, and then the content of the newsletter is included in this -- starting on Slide 47.

So just to summarize, the newsletter included more details about TEP's proposal and their request for public input. It notified all the people receiving it that the public hearing would occur and that they would have an opportunity to ask questions at the public hearing.

Next slide.

It included a map and some explanation of other ways that they might provide public comments, including the same things that I talked about before in terms of the website, mailing, calling. There was also a box in there that translated -- translated into Spanish that indicates that the full content of the newsletter is translated and available on the TEP website if they needed it to be in Spanish.

Next slide.

This is the copy of the WAPA insert. This was prepared by Southline for this project, and it includes a background on the original Southline project and how it relates to the TEP project, also provides a little bit of information about future NEPA considerations and what will be happening on that

project in the coming time.

BY MR. DERSTINE:

Q. So Mr. Beck has testified to the publication of the notice of hearing in the newspaper, testified to the posting of signs along the route. In addition to that, your testimony is that this newsletter went out to over 38,000 recipients. This newsletter, which is marked as TEP-10, also publicized this hearing and included a QR code that folks could use and other channels that they could utilize to obtain more information on this hearing and provide comment. Do I have all that right?

A. (BY MS. KNOBLOCK) That is correct.

Q. So our next section and chapter has both of you. I don't know who's going to run with this to start.

A. (BY MS. KNOBLOCK) Let me just -- I'll run through the next slide, because I'm going to be speaking to biological resources, which is the next topic. So if you can flip to the next slide, I'll provide a brief overview.

This section of our presentation will talk in a little bit more detail and provide an opportunity to ask questions about the exhibits that have been submitted, both the summaries that we originally

prepared as part of the joint -- Supplemental Joint Application exhibits and the supplementary evaluations that we did.

The exhibits that have been submitted include information about biological wealth and resources; scenic resources, which include both visual resources and scenic resources in the context of historic sites and structures, as well as archaeological sites; a land use exhibit; a noise evaluation; and a recreation exhibit.

Q. And so what you have identified that's shown on Slide 51 of your environmental witness slide deck that we're seeing here in the hearing room that's marked as TEP Exhibit 3, those identify the exhibits that are included with and were attached to the supplement, which is TEP-21, that essentially serves as the CEC application for the Vail to Tortolita segment, is that right?

A. (BY MS. KNOBLOCK) That is correct.

Q. Okay. And we're going to start off with biological resources.

CHMN. CHENAL: Let me just ask kind of an overview question before you get into that. The length of the section is 64 miles, but -- correct me if I'm wrong, but it's like 54 or 52 miles is really the

existing right-of-way and there's something like 12 miles that is different than the original -- than the existing WAPA right-of-way.

MS. KNOBLOCK: Yes.

CHMN. CHENAL: So when you go through and you're explaining the -- going through the environmental review, would you separate out the part that's regarding the existing versus the new work you've done? I presume you've -- the updated work you did relates to the 12 miles.

MS. KNOBLOCK: The updated work relates to both the 52 replacement miles and the new 12 miles. So as part of the original FEIS, the entire area was covered, including the reroutes. What we did to compile these exhibits, the first level of effort was to go through the previous FEIS information to carve out what would be applicable to the full 64 miles and the new -- well, the 54 upgrade miles and the 12 new. So we carved that out of the original FEIS, identified any holes in the information that might be present because of time or updates, changes, or just because -- you know, if perhaps there hadn't been enough review to provide the information that the CEC needs to look at. So these original exhibits on this slide were specific to the Vail to Tortolita project, but it included the

whole 64 miles.

CHMN. CHENAL: All right, thank you.

MS. KNOBLOCK: Okay. You can move on to the next slide.

So there are two exhibits that relate to biology, biological wealth and biological resources. The specific areas of biological wealth in the project area include Tumamoc Hill, which we've talked about a lot. There are also three wildlife linkages that occur within the project area, and then there are a couple different types of Pima County Conservation Land System resources that are present.

Tumamoc Hill, as people have talked about before, is a unique open space within the city of Tucson. It's also an ecological preserve. There's a desert botanical laboratory there, and it's home to a sensitive plant species. This area also overlaps or includes three wildlife -- important wildlife linkages, and I'll talk a little bit more about that. There's a map on the next slide that shows some of those wildlife linkages. Pima County also has a Conservation Land System, and the project area crosses within some important riparian areas and biological core management areas.

So I know this figure might be a little bit

difficult to see because of the coloration. This is taken directly from the County website. But for those that can see the colors, the wildlife linkages or wildlife corridors are the areas in yellow. As you can see, those go from the Mount Lemmon mountain area, the Sky Islands across I10, and over to the other side of the freeway and other mountain ranges that are over there. The red areas are Pima County's identified biological core management areas. And areas in green are important riparian areas. Near our project area that's primarily the Santa Cruz River corridor; but as you can see, there are some other vegetated areas adjacent to the project area.

Next slide.

In terms of biological resources, the entire actual project area is located within two biotic communities. These are both Sonoran Desertscrub desert-type communities. We do not have any designated or proposed critical habitat for any listed species. As Cara had mentioned previously, though, we do cross habitat for seven listed species as identified on this list. Those species were addressed, and the potential impacts to those species were addressed in the Biological Opinion prepared for this project.

Next slide.

Another important resource that is of concern for the project is our migratory birds. The primary concern with migratory birds for a project like this would be a potential for avian collision with transmission lines. Electrocution is not a specific concern for this type of line, but avian collisions are.

For this project, an Avian Protection plan was actually prepared already. That was reviewed in coordination with Game and Fish and Fish and Wildlife Service and was approved in 2018. And that implementation of that Avian Protection Plan was included in the approval Records of Decision for both BLM and WAPA.

CHMN. CHENAL: And who prepares the Avian Protection Plan?

MS. KNOBLOCK: Cara, I believe -- did SWCA prepare the Avian Protection Plan?

MS. BELLAVIA: Yes, I can answer that. SCWA prepared the Avian Protection Plan, but it was subject to review and approval by the Arizona Game and Fish Department and the U.S. Fish and Wildlife Service. So it was drafted by us, and then ultimately finalized with their feedback and blessing.

CHMN. CHENAL: And it was prepared on behalf

of Southline, is that correct?

MS. BELLAVIA: Yes.

CHMN. CHENAL: Thank you.

MS. KNOBLOCK: We can go to the next slide.

And then just to comment, because I know this had come up in the last hearing, the Avian Protection Plan was -- does reference and include both the suggested practices in the 2006 Avian Protection Plan guidelines and also the 2012 guidelines. And those measures that are included in that are part of the project PCEMs.

If you can go to the summary.

The slide to the left is just showing the majority of the project is within two different types of Sonoran Desert community. The other types of habitats are up on Mount Lemmon and are not in our project area.

So as a brief summary, in terms of biological resources, there's a total of 91 special status species that were evaluated in the project area, 76 of which have the potential to occur. The project could have adverse impacts on both vegetation and wildlife resources primarily just due to vegetation removal, construction impacts -- construction impacts potentially causing collisions and noxious weed issues

and noise and vibration, et cetera.

As a result of that, the FEIS did include project PCEMs to minimize or avoid those impacts. And in terms of endangered species, federally listed species, the Biological Opinion was reviewed by Fish and Wildlife Service and agreed to.

As we have mentioned previously, 80 percent of our specific project is existing right-of-way, which obviously lessens the potential impacts to both vegetation and wildlife. And then we have the 12 miles that would be new construction; although, a lot of that construction is within disturbed corridors.

Next slide.

And then if anyone has any specific questions, obviously the exhibits -- that table includes the specific PCEMs. But just as an overview, the types of measures that are included are -- include avoiding vegetation where possible, restoring and reseeding disturbed areas, making sure you have a noxious weed management plan, implementing the Avian Protection Plan, and avoiding construction in sensitive wildlife areas as necessary.

CHMN. CHENAL: Let's just stay here for a second, because there's a lot to read, and you're going pretty fast through this important material.

MS. KNOBLOCK: Okay.

MR. DERSTINE: Again, those PCEMs are also reflected in TEP-14.

THE COURT REPORTER: I need to stop for a second. I'm having trouble hearing because my speaker went out.

CHMN. CHENAL: Let's take a break right now for a few minutes to take care of some audio visual matters.

(Off the record from 3:50 p.m. to 3:53 p.m.)

CHMN. CHENAL: Please proceed, Mr. Derstine.

BY MR. DERSTINE:

Q. All right. Ms. Knoblock, do you have the PCEMs, TEP-14, in front of you or access to it?

A. (BY MS. KNOBLOCK) I was just trying to open it while we were on there. Here, I have it right here. Yes, I do.

Q. It may be helpful for the Members of the Committee if you can direct or identify where some of those -- or, the significant PCEMs that relate to mitigation of the biological impacts. And it may very well be that they're scattered throughout; but if you can, focus our attention on some of those within TEP-14.

A. (BY MS. KNOBLOCK) Yes. The majority of --

well, some of the measures are included under vegetation, which would be Page 109 of that table that you have, VEG-1 through several pages. Those are mostly related to vegetation. Some of the -- well, I'll just stick to that. The other set of measures related to plant and wildlife species are under wildlife; that starts on Page 112. And they're in alpha order, so V and W. Those are the majority of the PCEMs that relate to plant and wildlife species.

Q. And so in Condition 11 of CEC 173, that I'll read in part, "Applicant shall construct, operate, and maintain all facilities, improvements, and structures from the CEC route in conformity with all terms, conditions, and stipulations set forth in the BLM and WAPA RODs and the POD, including all Proponent Committed Environmental Measures ("PCEMs"), attached to the BLM ROD." Are those the PCEMs that we are -- that the Members of the Committee are looking at and that have been included in TEP Exhibit 14?

A. (BY MS. KNOBLOCK) That is correct.

CHMN. CHENAL: Mr. Derstine, we have a terrible reverb or echoing problem. It's very -- it was very hard for me to understand your question. I don't want you to have to read it back, but it was just hard to understand the question. I don't know if that

means turning up the volume or speaking closer to the microphone.

MR. DERSTINE: I think I'm about as close as I can get --

CHMN. CHENAL: Yeah, it looks that way.

MR. DERSTINE: -- without eating it.

CHMN. CHENAL: It looks that way.

MR. DERSTINE: And maybe that's part of the problem. But I think we did some adjustments in moving equipment around, and so maybe -- has it settled down now? Can you hear me without a reverb?

CHMN. CHENAL: That is much better.

MR. DERSTINE: All right. Let's try it again.

BY MR. DERSTINE:

Q. Ms. Knoblock, I'm going to read to you Condition 11 from CEC 173, a portion of that condition. "Applicant shall construct, operate, and maintain all facilities, improvements, and structures in the CEC route in conformity with all terms, conditions, and stipulations set forth in the BLM and WAPA RODs and the POD, including all Proponent Committed Environmental Measures ("PCEMs") attached to the BLM ROD." I assume that the PCEMs that are referenced in that Condition 11 that I just read to you are the PCEMs that are included

in TEP-14?

A. (BY MS. KNOBLOCK) That is correct.

Q. And within those PCEMs there are a number of measures and -- committed measures that relate to and are intended to mitigate the biological impacts on vegetation and wildlife of the construction phase or the operation of the project?

A. (BY MS. KNOBLOCK) That is correct.

CHMN. CHENAL: All right. Thank you, Mr. Derstine. It's much clearer and easy to understand.

One quick follow-up question. The Avian Protection Plan that's been developed covers the 64-mile Vail to Tortolita segment and also will cover the 12 miles of diversion?

MS. KNOBLOCK: Yes.

MR. DERSTINE: I don't think we could hear that.

MS. KNOBLOCK: Yes, that is the case. It covers both the new construction and the upgrade structures, the full 64 miles.

BY MR. DERSTINE:

Q. Anything else you want to add or think it's important to testify to concerning the biological resources and the PCEMs that are directed to mitigation

of the impacts of the project?

A. (BY MS. KNOBLOCK) Not at this time, no.

Q. I think our next section we're going to switch over to Ms. Bellavia, turning to cultural resources.

A. (BY MS. BELLAVIA) Yes, thank you. Really most of the material here is a restatement of what I already indicated with the results of the pre-construction surveys conducted in the last couple of years. I just wanted to be clear that the results I presented were focused on this Vail to Tortolita segment; but as required in that PA, the Programmatic Agreement, I referenced earlier, survey of and identification of resources is required for the whole project, its full extent from New Mexico to Arizona.

So again, we surveyed the area of potential effect where we could be granted access. As Mr. Beck testified earlier, the right-of-way is fairly constrained in some areas. And so if we were to actually survey the full 350 feet, in some areas we would be going through people's backyards. And in many cases, they did not grant WAPA access for that, and that's not -- that is not a surprise.

I don't need to linger on this slide unless there's questions. I can just address the next one,

which is to say the survey is completed and kind of elaborate what the next steps might be with cultural resources.

Next slide.

So as I indicated -- oh, back one -- the Programmatic Agreement requires survey of the area of potential effect. The survey has been completed and the reporting is in progress. Once that report is completed, that also doesn't end the work required to comply with Section 106 of the National Historic Preservation Act. The Programmatic Agreement requires that all the parties that signed that Programmatic Agreement get an opportunity to review the report and review the findings of it and provide feedback on the potential effects of the project on those resources, as well as provide feedback on potential mitigation, whether there's an opportunity to avoid some of those resources, for example, sometimes a pole can be relocated to avoid a sensitive resource, or in other cases, where avoidance is not possible, additional data recovery, usually in the form of excavation, might be required for some of those resources. But all the steps in that Programmatic Agreement must be completed before any ground disturbing can continue and basically before construction could begin. That compliance with

that Programmatic Agreement and the steps in it must be completed.

Q. Ms. Bellavia, the more detailed information concerning the cultural resource studies and cultural resources within the Vail to Tortolita segment are compiled at Exhibit, I believe it's E-2 of the supplement that's TEP-21, is that right?

A. (BY MS. BELLAVIA) That's correct. Exhibit E-2 of Exhibit 21 is really actually a discussion of the cultural resources, if I remember correctly, of the bigger project, whereas -- and I think you're going to ask me about this next -- the supplement -- sorry -- Exhibit TEP-5 provides the more specific information to the Vail to Tortolita route that I have just presented.

Q. Thank you. Anything else on cultural resources?

A. (BY MS. BELLAVIA) Not at this time, unless there are questions.

Q. The next topic are visual resources. Ms. Knoblock, you're back on the stand for visual resources.

A. (BY MS. KNOBLOCK) Yes, thank you.

Q. I think you can start with giving us some background in terms of the methodology and the study area for the analysis of visual impacts of the project.

And there was already some testimony, I think you heard the testimony from Mr. Beck, and the flyover simulation also included some simulations or reviews of the existing line, as well as I believe there's at least one simulation of what the new structures would look like in place. But start us out with the visual simulations and walk us through the impacts from upgrading this line from a 115 kV wooden H frame to a 230 kV double-circuit steel monopole structure.

A. (BY MS. KNOBLOCK) Yes, thank you. So as I was mentioning earlier, the first level of effort that we conducted when we were doing the updates for this project is to look at the visual simulations and visual resource analyses that were conducted previously as part of the FEIS and focus in on the Vail to Tortolita project area, including both the upgrade sections and the reroute new, new construction sections. Our study area that we used for our update was 5 miles on each side of the right-of-way, which is consistent with what was done in the Final EIS.

When looking at visual resources, we looked at which municipalities are within the study area and what kind of land use plans they have and whether they have any visual resource guidelines as part of city planning. As you can see on the slide and has been

mentioned before, we have several municipalities within the study area, including Tucson, south Tucson, Sahuarita, Marana, federal lands, and tribal lands.

Next slide.

The primary methodology used for the visual simulations followed the guidance of the BLM manuals that relate to visual resources. The reason being that BLM is a federal agency that has a well developed visual resources approach to analyzing visual resources. And because they were one of the co-lead agencies, it made sense to collect the data in conformance with their visual resource process. Information collected through their process can readily be applied to analyzing impacts to visual resources as relates to other land use planning.

For the Vail to Tortolita area, out of the -- there were a number of key observation points that had been established as part of the original FEIS analysis that were overlapped into the Vail to Tortolita area. There are a total of 44 data collection points within our project area. And on the other screen what you're seeing is an overview of our project area with all of those data points shown.

I realize those are difficult to see on that slide. And what I'll be doing, as we move forward, is

referencing verbally where I'm talking about and then we'll be mirroring that on the screen so you can get a better understanding of what area I'm specifically talking about.

So after we established the initial methodology, we obviously knew that you as a Committee are fairly familiar with visual resource analyses, we identified any issues of concern expressed during scoping, we looked at areas with sensitive receptors within the area that we were studying, we chose the key observation points based on both those public comments, the character of the landscape, field review, and input from vested stakeholders.

If you can go to the next slide.

So in terms of the specifics of what is happening in the Vail to Tortolita project area, as we've discussed previously, 80 percent of our project would be taking wood H frame -- 75-foot-tall wood H frame poles and replacing them with new monopoles.

So the image on your right, I think you've seen something very similar previously with Mr. Beck, that's an existing H frame pole. And as I move forward, I'll show you some simulations with a replacement steel monopole.

Some of the types of changes that you'd see

as a result of the upgrade and/or new construction would be changes in the landscape character, scenic quality of the area based on changing existing structures in the landscape to new structures. So we're looking at changes between existing conditions and existing views compared to the new conditions.

Can you say stay there?

So there are two general types of sensitivity that we're looking at. The higher sensitivity changes would be obviously people that are walking, biking, or living in an area, they're exposed to a view longer, and changes in that view would be of higher concern to them, as opposed to areas that are dominated by commercial businesses or roadways where motorists are moving through the view very quickly.

So the next couple slides, if you could move through those, they repeat the map that you already have.

So these next few slides, I'm going to show you a series of examples from the visual resource analysis that you have received. I am not going to go through every data point that was in the packet, just some examples from north to south.

Mr. Derstine, I don't know if you want me to reference --

Q. Yeah. So the packet that you referred to is Exhibit E to TEP-21?

A. (BY MS. KNOBLOCK) Correct.

Q. So that has the visual resource analysis and a narrative describing the methodology and what was performed, as well as the resource areas, and then it contains quite a number of visual simulations. Again, that's in Exhibit E to the supplement, TEP-21.

And the slides that you're going to present, Ms. Knoblock, as I understand it, will be a select few of the larger number of visual simulations included in Exhibit E to TEP-21, is that right?

A. (BY MS. KNOBLOCK) That is correct.

Q. Okay. Please go ahead.

CHMN. CHENAL: And Mr. Derstine, I wonder if it's possible for Ms. Knoblock to -- or, for somebody to indicate on the left screen on the map where the key observation points are that we're going to be looking at as photos on the right screen.

MR. DERSTINE: I think that's the plan. We'll see if we can pinpoint it on that map and give you a better understanding of where that photo is being taken from.

CHMN. CHENAL: Thank you.

MS. KNOBLOCK: Thank you. And again, I know

Cara had mentioned in her presentation that these odd alpha numeric codes have to do with the labeling from the original FEIS, so this initial series is KOP U3-05, but that's why there's this odd numbering from there.

So this first image is a view of existing conditions. It's taken down at the Southern -- southernish end of our project area near the Pima County Fairgrounds. I think it's actually within our project area. It should be a little further north, but I don't -- it's kind of hard to see on the slide. This view is looking approximately north.

I don't know if he's going to be able to go over there.

So as you can see, this is a representative example of an area along a roadway that has existing overhead utilities on both sides of the roadway, distant views of Tucson mountains, various Tucson mountains.

I was going to move on to the next slide. I just want to make sure, are they going to be able to -- okay, yes.

So this next slide is showing existing conditions and simulated future conditions. This roadway that you're seeing here is Old Vail Road. As Mr. Beck mentioned, it's an unpaved road, and they're

circling that area. The Tucson Airport would be off to the right-hand side in this photo. The view is looking northwest along the existing WAPA line. You can see the simulated line in the simulated conditions on the right.

Next slide.

The first photo on the left is actually quite a ways outside of our project area. It's taken from actually the parking lot in the San Xavier Mission, so it's off to the west of our project area. But this is a representative view from an important tourist area looking north, northwest towards the WAPA line. You actually can't see the line in this photo because it's blocked by trees.

The second picture is within our project area. It's over closer to the Santa Cruz River trail system. And you'll note in this picture that the poles that you're seeing are actually steel monopoles. This is, however, an exhibiting conditions photo. This is a location where, for whichever reason, WAPA has already replaced their wooden H frames with steel monopoles. As Mr. Beck mentioned, occasionally, when they have the opportunity or a failure, they do replace these poles already. So this is a place where they've already replaced the poles.

And then the third image is -- let's double-check my notes -- this is a picture that you've seen previously. This is taken near Irvington and Midvale Park Road. And this is one of the locations where the existing WAPA line is going right through a quite congested subdivision. There is a right-of-way in there, but the residences do encroach on all sides of that.

Next slide.

Q. And Ms. Knoblock, as you move forward, it would be helpful, I think, for the record at least to use the U3-09, U3-08, U3-07, the reference to those, the numbers that correspond to the slides. It's helpful for the folks in the room and will be helpful for the record.

A. (BY MS. KNOBLOCK) Certainly.

Next slide.

The next two images are U3-10. That's being pointed to on the screen. This is an existing slide with a simulated --

I'm hearing an echo. Is that a problem for you guys in the room? It's very faint for me. I just wanted to make sure.

Q. Strangely enough, we don't have an echo in the room.

A. (BY MS. KNOBLOCK) Okay. I just want to make sure that -- I don't see anybody that's not muted on the Zoom. That's normally what happens.

This pair of slides is taken from within the Kennedy Park Fiesta area looking northwest. The next set of slides actually will be a KOP taken along the trail that you see in the middle ground of this photo. As you can see from -- this is an example of a visual sim where the existing poles are -- they're obscured in some ways by the mountains in the middle foreground, whereas the simulated poles would be extending above those hills. However, also note that that has also to do with exactly where you're standing.

Can you go to the next slide.

U3-10, this is a -- sorry. U3-11, this is again another pair of exhibiting conditions and simulated conditions. And this is just west of the slide that you saw previously. The trail that you see on the left side of the screen is actually part of the further portion of the trail that you saw going up and over that hill in the previous slides. Here again we have an example where the existing H frame poles are lower on the landscape than the proposed monopoles; however, also note that your views of the distant landscape are not completely obscured, but you do have

additional aboveground utilities in your viewshed.

Next slide.

So this next series of slides, this is TH1-S3. This next couple slides are taken near the Tumamoc Hill area. This set of images is taken west of our line. If you're looking at this image, you can see Tumamoc Hill in the background. You're looking along West Starr Pass Boulevard. The intersection of Greasewood Lane, where we -- Boulevard, sorry -- where we would turn north is kind of in the middle of this photo.

When you're looking at Tumamoc Hill in the distance, you can see some existing overhead utility lines. That is the existing TEP distribution line, which we'll be able to see better in the next slide. Also, as you're looking towards Tumamoc Hill, you can see a very distinct kind of cut bisecting the middle ground of that. That the cut is actually the Kinder Morgan pipeline showing going across there. You can't fully see the existing WAPA line from this viewpoint.

And then when you look at the simulated slide, you can see that you -- the new monopoles are in the same location as the existing TEP distribution line. They're taller, but more widely spaced.

Next slide.

So this KOP TH1-S6. This is taken along Greasewood kind of near the northern end of the Greasewood Lane leg right before it turns onto Anklam Road. The view is north, northeast really. Looking kind of kitty corner off of Greasewood Lane, you can see the existing TEP distribution line that is present in the right-of-way. In the simulated image, you can see a new steel monopole.

This is an example of kind of a complicated visual analyses. You are adding additional overhead utility lines and wires to the viewshed; however, the new poles are, again, more widely spaced. They're also taller, so they -- a viewer, like a motorist driving along the roadway, their view is not obstructed by the -- directly obstructed by the new wires or the poles because they're so tall, whereas someone that is a little bit further back might, you know, have more visual clutter in their -- in their viewshed. Obviously, if you were turned more towards the mountain, your view would be a little bit different.

I don't know if anybody has any questions about that. I'm going to move on to the next slide.

So this is the last in the series of examples that I'm showing you. This is U3-17. There you go. This slide is taken at Christopher Columbus Park. For

those of you familiar with Tucson, this park is just north of the Sweetwater Wetlands and the sewage treatment plant. This area is between Silver Bell Road and the Santa Cruz River and the I19 corridor.

So as you can see in both pictures, your view here is fairly cluttered. This is an industrialized corridor, even though there's residences behind you to the west. There's existing TEP lattice structures in this corridor, the existing WAPA line. Although, the new simulated conditions, the new line from this angle would be taller, you're still within an existing overhead utility corridor.

CHMN. CHENAL: Member Noland has a question.

MEMBER NOLAND: Yes. You said between Silver Bell and the I19 corridor. Did you mean I10 corridor?

MS. KNOBLOCK: I'm sorry. Yes, I did. Thank you.

MEMBER NOLAND: Okay. Thank you.

MS. KNOBLOCK: Yes. This is that area where you're driving along where there's a lot of industrial things on both sides of the road, yes.

MEMBER NOLAND: Mr. Chairman.

CHMN. CHENAL: Yes, Member Noland.

MEMBER NOLAND: Just for clarification, the WAPA line and right-of-way through there was there long

before Christopher Columbus Park. And that water area used to be just a big hole in the ground that filled through the floods, and they decided then to make it a lake and stabilize it and turn the whole thing into a park, but it was done around the lines there.

CHMN. CHENAL: Thank you.

MS. KNOBLOCK: Thank you.

So to summarize the conclusions from both the FEIS and our updated analysis, in general, the conclusions were that the visual contrast from the project would be low to moderate throughout most of the project area, the exception being the Tumamoc Hill area.

Generally, the contrast would be low where the proposed conditions would replace an existing transmission line and in areas where there's already an urban setting with a cluttered skyline or existing overhead utility lines and other features.

We consider the impacts moderate in areas where replacing the existing H frames with taller structures and horizontal conductors would be more visible against the skyline, particularly where there are recreational users that are sensitive to changes in the visual landscape.

Specifically, in the Tumamoc Hill area, as

discussed before, visual resources were one of the issues that were of concern to the stakeholders from both a visual resources standpoint and a cultural visual resources consideration, and that was part of the reason why this alternative route was discussed.

Again, the original FEIS proposed a number of PCEMs to try to reduce these impacts in the Final EIS and RODs, incorporate those types of measures. And just to clarify, visual resources, PCEMs would include items such as like micrositing individual pole locations in lower areas to conform to land contours. As Mr. Beck mentioned, the coloration of the poles can be a consideration. The height and the spacing of the poles can be changed in design, and so forth.

BY MR. DERSTINE:

Q. So Ms. Knoblock, the visual stimulations that you included in your slide presentation, TEP-3, and all of the additional visual simulations that are included in Exhibit E, those were done for the EIS, am I correct about that?

A. That is correct, they were conducted as part of the EIS process.

Q. And so the visual impacts of the upgrade, upgrading from the 75-foot wood H frame structures to, in some areas, up to 130-foot-tall steel monopoles,

were considered and taken into account as part of the EIS process, is that correct? Am I accurate about that?

A. (BY MS. KNOBLOCK) That is correct.

Q. And I think, then, as you mentioned, there are PCEMs that are directed to mitigating and attempting to minimize the visual impacts that were recognized through these various visual studies and simulations?

A. (BY MS. KNOBLOCK) Yes.

MR. DERSTINE: We're going to give the environmental panel a bit of a break and switch to noise and EMF, because Mr. Beck is going to handle those topics.

CHMN. CHENAL: We've been going at this for about 90 minutes. Let's just take a real short 5-, 10-minute break and then pick it up for the remainder of the afternoon. So we'll take a short break now and then resume.

(Off the record from 4:30 p.m. to 4:46 p.m.)

CHMN. CHENAL: I know it's getting a little long in the day, so we'll go to 5:00, maybe a little past 5:00.

I had a little discussion with counsel during the break. We think we can hopefully finish the

hearing tomorrow, tomorrow morning, at least by lunch. Unless there are any surprises, we should be able to do that. Maybe have a little time left over in the morning, take a little break with that time and have lunch, and then maybe come back early, the beginning of the afternoon, if the timing works out, and do the decision and order.

And I think what I'm going to propose, I think what would work is we could have on maybe one side of the screen the decision and order that we'll be reviewing, and on the other screen we could have the CEC, which would show the impact of the changes based on the order we're doing so we could see side by side exactly what it would look like.

With that in mind, Mr. Derstine, if you want to continue with Mr. Beck.

MR. DERSTINE: Thank you.

ED BECK,

called as a witnesses on behalf of the Joint Applicant, having been previously sworn by the Chairman to speak the truth and nothing but the truth, are examined and testified as follows:

DIRECT EXAMINATION

BY MR. DERSTINE:

Q. Mr. Beck, you're going to take over the noise and electromagnetic field analysis. The noise and EMF is included in Exhibit I to TEP-21, that's the supplement. And then there's TEP Exhibit 7, which contains some additional information that supplements exhibit I. And I know that your slides then also contain some additional information, so we're back working from TEP Exhibit -- your slide tech is marked as TEP Exhibit 1, and I think we're starting on Page 43 of TEP Exhibit 1. Do I have all that right?

A. (BY MR. BECK) That's correct, as far as I know.

Q. Okay. Well, take us through noise and EMF.

A. (BY MR. BECK) Okay. Relative to noise, there will be some noise generated both during construction and operation, primarily during construction.

As physically the new poles are being installed and the old ones removed, there will be your typical tractor, loader, crane equipment working in the right-of-way causing some noise during daylight hours.

The noise during operation and maintenance, occasionally there will be maintenance equipment out doing maintenance on either poles or wires or

insulators. That does not occur very often, so it's very minimal.

And then as far as corona noise, on a new line there usually is very little corona noise. It does become enhanced in bad weather, and in particular rainy weather. So we haven't had any corona noise in the last approximately a year since we've had no rain. But that will be very minimal, any corona noise, and it's caused by imperfections or little bumps and so on that are on the conductor and/or insulator and the little bit or arcing that occurs from the electrons flowing through. And so on a new line, again, everything will be tight and new and there should be very little noise coming from the line itself.

Relative to EMF, just quickly, what are they. The electric fields produced by the voltage in the conductor cause the electric field, and so they're associated with the strength or pressure that is forcing the current flow, which in the case of electric transmission is the voltage. The level of a field doesn't change with flow. It's strictly related to the voltage. So we build a 230 kV line, that level is going to stay constant.

Magnetic fields are produced by the current flowing through the wire, and it changes in proportion

to the load. As more power flows across the line, more electrons, the magnetic field will increase.

The EMFs that are produced by power lines are much weaker than those associated with other sources, such as microwave ovens or radio waves. And given the frequency, EMFs produced by power lines are considered nonionizing, because they are not known to damage DNA or cells directly, and they dissipate the further away you get from the line.

CHMN. CHENAL: Well, Mr. Beck, I just have to ask the question. It's not known to damage DNA or cells directly, but is it known to damage cells or DNA indirectly?

MR. BECK: Not that I'm aware of, no. That's a good point of the language, yes.

MEMBER NOLAND: Mr. Chairman.

CHMN. CHENAL: Member Noland.

MEMBER NOLAND: Mr. Chairman, Mr. Beck, when you're going through this, the question from our public lady that spoke last night, I believe, was about the magnetic field levels and the difference between those levels from the 115 line to the new 230 line. Would you please address that when you get to that?

MR. BECK: I will, absolutely. It's a couple slides down the road.

You've seen this table before. Again, it's just the typical magnetic field levels associated with various appliances and the distance from the source. A lot of the public will say, well, we really don't care about those appliances. We're more concerned about the power line. But they don't pay attention to the fact that they're getting much more exposure from these appliances that they have in their home and use every day.

CHMN. CHENAL: Mr. Beck, what is the magnetic field level of the power line then? These show what a microwave, for example, is. But what should be the numbers with the power lines?

MR. BECK: Well, Mr. Chairman, if we go to the next page, we've got some numbers. So the magnetic field for the 230 kV line at the center line of the line, so right directly under the line at the pole, would be approximately 60 milligauss. It's probably 58 milligauss. And when you get to the edge of the right-of-way, it's about 20 milligauss.

So going back to the previous table, 20 milligauss would be equivalent to a washing machine at 6 inches, a video display terminal at 6 inches is 14, so it's a little bit less. But as you'll see, a microwave oven or a hair dryer, those numbers get very

large. The hair dryer you probably would be using at 6 inches, and that's 300 milligauss.

So there's the issue that you're using those relatively short-term, maybe you're using that hair dryer for 10 minutes a day when you use it; the power line is out there all the time. But again, as you get away from that power line, those numbers decrease rapidly. So as you see, at the edge of right-of-way it's already gone from -- in the case of the 230 for the magnetic field, it's gone from 58 down to 20. And when you get out to a hundred foot away, it's down to about 8 milligauss. And you can see the 115 kV numbers are a little bit less.

But specifically for this project, here is -- there's two slides related to the 115 versus 230, kind of the before and after. This first slide, Slide 49, has the electric field numbers. And you'll see that the 230 kV is shown in the orange color. The 115 is in blue.

Keep in mind that you're comparing a double-circuit 230 to a single-circuit 115 kV. The level of electric field is slightly higher under the 230 situation within the right-of-way, within that narrower band of the right-of-way. As you get out to approximately 75 to 80 feet, you'll see that the 230

numbers are slightly less than the 115. But in general, those curves are the same other than right in the middle and right at the edges of the -- the bottom apex of the curves.

Then we go to the next slide, which is the magnetic field. Again, these are measured in milligauss. You'll see that the existing 115 kV line at the center line, or right under the middle of the line, is approximately 240 milligauss, whereas the 230 double-circuit is approximately 170 milligauss. The reason it's lower is because with the double-circuit we will alter the phasing, so we will make sure the phasing is not the same on both circuits.

So in electric transmission, we have three phases make up a circuit. And that's why you see three sets of wires are called a circuit, an A, B, and a C phase, and they're all out of phase to each other. They're not all matching up. And I know this doesn't make a lot of sense, but those three phases are producing that flow. When we have a double-circuit line and we put two circuits together near each other and we alter the phasing so that one may be ABC and the other circuit is CBA, they tend to offset each other. And that's why you're seeing it will 230 magnetic fields are actually somewhat lower with the

double-circuit.

MEMBER HAENICHEN: Mr. Chairman.

CHMN. CHENAL: Member Haenichen.

MEMBER HAENICHEN: Mr. Beck, at what energy flow level are those magnetic fields taken? Is this the capacity, maximum capacity of the line? Because if it's not energized, there's no magnetic field, right?

MR. BECK: Well, that's true. So these are probably at -- we'll have to check and see. I'm not sure what the numbers are. This is out of the Environmental Impact Statement, and we can check and see what that flow was. I don't know if they used kind of the average flow level or if they did it at maximum flow.

MEMBER HAENICHEN: Thank you.

MR. BECK: So that was it kind of on the noise and the EMF.

BY MR. DERSTINE:

Q. Well, I guess I just want to take you back to the comment and the concern raised by one of the public commenters. So for clarity of the record, the change from the 115 kV line at 75 feet in that right-of-way to a 230 double-circuit kV line at a height of up to 130 feet, is your testimony that the EMF at the edge of the right-of-way will either be

equal to, less than, greater than? How do the numbers work out?

A. (BY MR. BECK) So the magnetic field at the edge of the right-of-way is approximately the same whether it's the single-circuit 115 or the double-circuit 230. Right in the center of the right-of-way, the 230 is actually lower. But if you look at those curves, they pretty much line up or lay on top of each other throughout the range except right at the very center top. That's where the big difference is. So if you're standing right under the middle of the line, you'll have less magnetic field as a result of the double-circuit 230, but the balance of the -- as you move away from the center line, your levels are approximately the same. They really are right on top of each other. Slight deviation down at the bottom on this one side, but it's probably -- I don't know if it will be measurable as a difference, actually, in the field.

So I would say the double-circuit 230 is going to be the same as that single-circuit 115, it's definitely not going to be worse, and right in the center it's actually better, right under the line.

Q. And I think, as the record makes clear, that WAPA 115 kV line was there before most, if not

all, of the residential development that's come up to the edge of the right-of-way, that's a fair statement?

A. (BY MR. BECK) Definitely with all of the subdivisions those have come in after the line. If you see an individual ranch house, there may be a few that were out there, but very few before the line was built.

Q. And even where that residential development has creeped up to the edge of the right-of-way, the property lines would be at the edge of the hundred-foot right-of-way, but most of the activities and the homes themselves would be at a further distance from the right-of-way?

A. (BY MR. BECK) Based on some of the aerial views I saw, I'm not so sure I could say that. It appeared that there is actual encroachment into the Western right-of-way, which I know that historically our sister companies had the same issue in some rural areas where facilities, houses, outbuildings, so on got built underneath the line. We weren't out inspecting constantly, and so some of them snuck in there. And rather than going in and saying, tear down your little storage shed, typically we would say, okay, just realize you're within a right-of-way that if we ever

rebuild the line could be an issue and you're trespassing, effectively.

Q. But I assume it's correct that aside from those folks who were brave enough to push into the WAPA right-of-way, that most of the residential -- most of the homes are outside of the right-of-way, and therefore the EMF, whatever EMF they might be experiencing, has dissipated significantly at that distance from the line?

A. That's correct. And in fact, we saw some of that on the flyover, that the subdivisions came up close to but didn't go into the right-of-way. It was only in a few denser areas where it looked like there was some encroachment.

MR. DERSTINE: Well, thank you. I think that concludes your testimony and I think it concludes the hearing for the day.

CHMN. CHENAL: Any questions of Mr. Beck, Mr. Patterson before we adjourn for the evening?

(No response.)

CHMN. CHENAL: Doesn't look like it.

So what do you anticipate tomorrow in terms of testimony?

MR. DERSTINE: So we will return to our environmental panel. Ms. Bellavia is going to present

land use impacts from this project, cover jurisdiction, ownership, all the traditional -- existing land use, planned land use. She will walk the Committee through that information, and that would conclude our environmental testimony. And I think we would bring back Mr. Beck and Mr. Patterson for just addressing any sort of additional issues and to maybe present a little bit of a wrap-up summary of our testimony and then I think we would plan to submit to the Committee and we could move on to deliberations.

CHMN. CHENAL: I think one of the items I think we'd like to see, while we're still on the record, is the attachment or the maps, I should say.

MR. DERSTINE: Yes.

CHMN. CHENAL: I know we touched on that the other day, yesterday. And I think you're considering whether you're just going to add something or you're actually going to redo the existing maps that are with CEC 173. But maybe we could review that before we get into the deliberative process, when we get to that point. I think that would be good.

MR. BECK: Mr. Chairman, we did see a draft of that and we've given some comments back to SWCA and they're working on that. So we should have that hopefully in the morning.

CHMN. CHENAL: That would be great.

And I just have one homework assignment for the Committee, if you haven't already done it, to review CEC 173 and the conditions. I think that will avoid the need to go through all of those conditions.

And I know I had discussed with counsel maybe having Mr. Beck or Mr. Patterson kind of go through those conditions just in a very summary fashion, but I don't know that that's necessary. And besides that, I heard from Member Noland, and I don't want to hear again tomorrow, about the time it's going to take to go through the conditions.

But I'll ask you to familiarize yourself with them, because we're going to be going through certain conditions that will be changed of necessity in certain parts of the CEC, for example, the description of the segment we're discussing. So there's going to be some changes. So we don't have to go through the conditions, I'd ask the Committee to just review 173 again and just, you know, familiarize yourself with it and then that will save some time tomorrow. And I'm very confident we can complete it tomorrow.

Anything else we need to address?

(No response.)

CHMN. CHENAL: If not, then I look forward to seeing everyone here tomorrow at 9:00. Have a good evening.

(The hearing adjourned at 5:06 p.m.)

STATE OF ARIZONA)

COUNTY OF MARICOPA)

BE IT KNOWN that the foregoing proceedings were taken before me; that the foregoing pages are a full, true, and accurate record of the proceedings all done to the best of my skill and ability; that the proceedings were taken down by me in shorthand and thereafter reduced to print under my direction.

I CERTIFY that I am in no way related to any of the parties hereto nor am I in any way interested in the outcome hereof.

I CERTIFY that I have complied with the ethical obligations set forth in ACJA 7-206(F)(3) and ACJA 7-206 J(1)(g)(1) and (2). Dated at Phoenix, Arizona, this 6th day of December, 2020.

KATHRYN A. BLACKWELDER
Certified Reporter
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