



0000103797

1 BEFORE THE ARIZONA POWER PLANT AND TRANSMISSION  
2 LINE SITING COMMITTEE

3 IN THE MATTER OF THE APPLICATION OF )  
TUCSON ELECTRIC POWER COMPANY AND )  
4 SOUTHWEST TRANSMISSION COOPERATIVE, ) DOCKET NOS.  
INC. FOR A CERTIFICATE OF ) L-00000C-09-0385-00149  
5 ENVIRONMENTAL COMPATIBILITY FOR: ) L-00000CC-09-0385-00149  
(1) THE RECONFIGURATION OF AN )  
6 EXISTING TEP 138KV LINE TO AN SWTC ) Case No. 149  
115KV LINE FROM THE EXISTING )  
7 SAGUARO SUBSTATION IN SEC. 15, )  
T.10S., R.10E. TO THE EXISTING )  
8 TORTOLITA SUBSTATION IN SEC. 23, )  
T.10S., R.10E., PINAL COUNTY, AND )  
9 (2) THE RECONSTRUCTION OF TWO )  
EXISTING TEP 138KV LINES AND THE )  
10 ADDITION OF ONE TEP 138KV LINE AND )  
ONE SWTC 115KV LINE FROM THE )  
11 EXISTING TORTOLITA SUBSTATION TO )  
THE EXISTING NORTH LOOP SUBSTATION )  
12 IN SEC. 9, T.12S., R.12E. IN THE )  
TOWN OF MARANA, PIMA COUNTY. )  
13

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25 SITING COMMITTEE

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1 BE IT REMEMBERED that the above-entitled matter  
2 came on regularly to be heard before the Arizona Power  
3 Plant and Transmission Line Siting Committee at The Omni  
4 Tucson National Resort, 2727 West Club Drive, Tucson,  
5 Arizona, commencing at 9:30 a.m. on the 6th day of  
6 October, 2009.

7

8 BEFORE: JOHN FOREMAN, Committee Chairman

9 DAVID L. EBERHART, Arizona Corporation Commission  
10 JESSICA YOULE, Department of Commerce Energy  
Office

11 PATRICIA A. NOLAND, Appointed Member  
12 MIKE WHALEN, Appointed Member  
13 MIKE PALMER, Appointed Member  
BILL MUNDELL, Appointed Member  
JEFF McGUIRE, Appointed Member  
BARRY WONG, Appointed Member

14

15 APPEARANCES:

16 For Tucson Electric Power Company:

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20

and

21

TUCSON ELECTRIC POWER COMPANY  
22 By Mr. Marcus Jerden, Senior Legal Counsel  
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23 Tucson, Arizona 85702

24

25

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MICHELE E. BALMER  
Certified Reporter  
Certificate No. 5048

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1 CHMN. FOREMAN: For those of you who may have  
2 stumbled in looking for something else, this is a meeting  
3 of the Arizona Power Plant and Transmission Line Siting  
4 Committee. And we are on the record, and we are here at a  
5 hearing or meeting of that Committee to consider the  
6 application of Tucson Electric Power and Southwest  
7 Transmission Cooperative for siting and modification of a  
8 transmission line from the Saguaro to North Loop stations.  
9 This case is designated as our number -- I think it's 149.

10 I'm going to start this morning by asking counsel  
11 for the parties who are present to identify themselves for  
12 the record.

13 MR. DERSTINE: Good morning, Mr. Chairman,  
14 members of the Committee. Matt Derstine and Jason Gellman  
15 appearing on behalf of co-applicant Tucson Electric Power  
16 Company, along with Marcus Jerden, Senior Counsel, Tucson  
17 Electric Power Company.

18 MR. GRANT: Mr. Chairman, members of the  
19 Committee, good morning. Mike Grant of Gallagher &  
20 Kennedy on behalf of Southwest Transmission Cooperative.

21 MR. ROBERTSON: Mr. Chairman, members of the  
22 Committee, Lawrence V. Robertson, Junior, on behalf of  
23 Pinal County. I also have with me today Mr. Dennis  
24 Rittenback of Pinal County staff.

25 CHMN. FOREMAN: Okay. Now, we have had requests

1 or inquiry concerning intervention from two individuals  
2 and entities. One is Elizabeth Webb, who has previously  
3 applied to intervene in other cases before the Committee,  
4 and another is from a representative of the International  
5 Brotherhood of Electrical Workers, Frank Grijalva.

6 At the prehearing conference on Friday, I  
7 discussed with both of them the considerations related to  
8 becoming parties, and both indicated that they would be  
9 willing to accept my offer to call them as witnesses  
10 before the Committee to testify concerning the matters  
11 that they had that were of interest to them, and, if  
12 necessary, present documentary material to the Committee,  
13 and do that in lieu of becoming a party to the matter.

14 And Ms. Webb is here, and I understand that a  
15 representative of the International Brotherhood of  
16 Electrical Workers, not Mr. Grijalva, is here. Mr. Corbin  
17 is here.

18 Now, have I correctly stated the understanding  
19 with regard to you, Ms. Webb?

20 MS. WEBB: Yes, Mr. Chairman.

21 CHMN. FOREMAN: And Mr. Corbin, if you would come  
22 forward to that microphone up there. Have I correctly  
23 stated the understanding that I have with Mr. Grijalva?

24 MR. CORBIN: Yes, Mr. Chairman.

25 CHMN. FOREMAN: All right. What we're going to

1 do, then, is we're going to start with opening statements  
2 by the parties. I'm going to indicate that the letter  
3 that was addressed to the Committee asking to intervene by  
4 Mr. Grijalva, we'll note that it's been withdrawn.

5           After the opening statements by the parties, I'm  
6 going to give any members of the public who are present  
7 who would like to make a comment that opportunity, and  
8 then we're going to start after the public comment with  
9 testimony from Ms. Webb and/or Mr. Corbin so that they can  
10 make their presentations, and then we'll move into  
11 testimony from the Applicant.

12           So with that preliminary, and I do like to have  
13 the opening statements made before public comment, and I  
14 do that so that those who appear who would like to make  
15 public comment have some sort of sense of the project  
16 before they make their statements.

17           I also want to point out that there will be a  
18 public comment session this evening at 6:00 p.m. in this  
19 room for anyone who wants to wait and talk then. And we  
20 do that so that if there are people that are working  
21 during the day that don't have the opportunity to come in,  
22 they will be able to come in during the evening.

23           All right. Let's start, then, with the  
24 Applicant. Counsel, you may proceed.

25           MR. DERSTINE: Thank you, Mr. Chairman. If I

1 could address one housekeeping matter before I get started  
2 with my opening. Tucson Electric Power Company has a  
3 videographer present. The hope was, with your permission  
4 and the permission of the members of the Committee, to  
5 videotape some or all of this proceeding for purposes of  
6 in-house training. That is to say, there are employees  
7 high and low within the company who sometimes wonder what  
8 happens at the Line Siting Committee; how are these  
9 decisions made.

10 And Mr. Beck has been asked to provide some sort  
11 of an in-house presentation on the Line Siting Committee  
12 for those personnel so that the company, its employees,  
13 its officers, have a better understanding of what happens  
14 with transmission siting decisions and power plant siting  
15 decisions.

16 So the first matter that I guess I would like to  
17 address is whether or not you, Mr. Chairman, and the  
18 members of the Committee will permit the videotaping or  
19 have some concerns with it.

20 CHMN. FOREMAN: And I appreciate you drawing it  
21 to our attention. As I previously indicated when others  
22 have indicated an interest in videotaping or audio  
23 recording the proceedings, this is a public meeting and a  
24 public hearing, and I don't have a problem with that.

25 What I do have a concern about is the integrity

1 of the record that we are making. We have a court  
2 reporter who is here putting that record together, and the  
3 record is important because it goes to the Commission, the  
4 Arizona Corporation Commission. And if the Corporation  
5 Commission reviews what we do, then they're supposed to  
6 act based upon what is in that record. And I want to make  
7 sure that there is an official record that there isn't any  
8 question about.

9           So as far as making a copy of or recording what  
10 we do, it means I'll have to forgo my opening monologue,  
11 but other than that, I don't think that I have a problem  
12 with you recording what we do.

13           What I would ask, though, is -- in fact, what I'm  
14 going to direct that you do is to make a copy of all that  
15 you originally record and file that with Docket Control of  
16 the Arizona Corporation Commission, and also make it  
17 available to all of the other parties or interested  
18 persons who have an interest in this proceeding. So that  
19 if they want a copy of it, they will be able to have a  
20 copy of it. Is that an acceptable condition for you folks  
21 to proceed?

22           MR. DERSTINE: Absolutely.

23           CHMN. FOREMAN: All right. Then with that  
24 understanding, I don't have a problem with you videotaping  
25 portions of this.

1 MR. DERSTINE: Thank you.

2 CHMN. FOREMAN: Any other preliminary matters we  
3 need to address?

4 MR. GRANT: None.

5 CHMN. FOREMAN: All right. Mr. Robertson, do you  
6 have any preliminary matters that you need to have  
7 addressed?

8 MR. ROBERTSON: No, Mr. Chairman, I do not, but  
9 thank you.

10 CHMN. FOREMAN: All right. Very good.

11 Counsel, you may proceed.

12 MR. DERSTINE: Thank you, Mr. Chairman.

13 As you know, the application, and from the  
14 prefiled testimony, this is a collaboration between Tucson  
15 Electric Power Company and Southwest Transmission  
16 Cooperative. Both companies have a need for additional  
17 transmission capacity to serve load growth to their  
18 customers, and in planning to meet that need recognize the  
19 opportunity to collocate and share transmission facilities  
20 in an existing transmission corridor. The objective of  
21 this joint application is to meet the needs of both  
22 companies while minimizing the environmental impact and  
23 minimizing the cost.

24 For my opening I want to take a few minutes to  
25 give an overview of the case, preview the witnesses and

1 the evidence. Before I do that, let me just touch on a  
2 couple of things.

3           One, you should have a placemat or a map, front  
4 and back, before you. The front side contains a diagram  
5 or map of the project. It calls out the preferred route  
6 and the two alternative options that are proposed in the  
7 application. It also has photographs of the existing  
8 alignment as it sits out there today, as well as a visual  
9 simulation of the preferred option and of the alternative  
10 option. The back side also contains similar simulations,  
11 as well as a cross-section of the facilities or the  
12 engineering options proposed under the different  
13 alternatives or options. So hopefully this will be a  
14 useful tool for you and a quick reference guide as you  
15 hear the testimony and the evidence.

16           In addition, you should have before you a hearing  
17 binder that contains the proposed exhibits of the  
18 Applicant. Included in the binder is prefiled testimony  
19 from the Applicants' witnesses. It contains some  
20 PowerPoint presentations. It includes a proposed route  
21 itinerary to the extent that the Committee decides that it  
22 wants to go out and take a route tour, that's available  
23 for discussion, and it contains a proposed form of CEC.

24           I think the version that's in your binder does  
25 not include a revised form of CEC that was prepared after

1 communication with Mr. Robertson who had some suggested  
2 changes to the proposed CEC. So there should be also  
3 before you a revised version of the CEC, unless it's been  
4 already substituted in the binder.

5 So let me touch on the witnesses and introduce  
6 them to you. We're going to present our case to you  
7 through two panels. The first panel will be Mr. Beck on  
8 behalf of Tucson Electric Power Company, and Mr. Burson on  
9 behalf of Southwest Transmission Cooperative. Both  
10 witnesses, Mr. Beck and Mr. Burson, will testify as to the  
11 need and the purpose of this project for each company.

12 The second panel will consist of Mr. Horst and  
13 Ms. Ericson from the environmental planning firm of  
14 CH2M Hill. Mr. Horst will testify concerning the analysis  
15 of the engineering and route options, the selection of the  
16 proposed options in the application, and the  
17 characteristics of the preferred and alternative options.

18 Ms. Ericson will testify concerning environmental  
19 impacts that informed the decision in selecting the  
20 preferred option, as well as the characteristics of the  
21 two alternative options. Ms. Ericson will also testify as  
22 to the public process used to publicize and generate input  
23 from the public and governmental agencies concerning this  
24 project.

25 Let me touch now on the need for this project

1 from TEP's perspective. The Tortolita substation, you'll  
2 see that on the placemat, sits about 1.3 or 1.4 miles  
3 south of the APS Saguaro substation. You'll see that the  
4 APS Saguaro substation is pretty prominent as you're  
5 driving down south on I-10 on the east side of the  
6 freeway.

7 TEP's Tortolita substation is one of three major  
8 bulk power import points for TEP's system. Two 500kV EHV  
9 lines drop power into Tortolita from a 500kV yard at  
10 Saguaro. Transformers at Tortolita lower the voltage  
11 where it's transferred over to TEP's 138kV HV system. TEP  
12 currently transmits the power from Tortolita over three  
13 138kV lines, and you'll see two of those in that upper  
14 left-hand photo on the placemat.

15 As you can see from the placemat, these 138kV  
16 lines that run from the Tortolita substation down to North  
17 Loop are on wood H-frame structures. Two of these lines,  
18 and maybe all three, were built some number of years ago,  
19 sometime in the '60s, at least as to the two lines that  
20 are the primary focus of this project.

21 TEP needs to replace two of the three 138kV lines  
22 that run from Tortolita down to North Loop because of  
23 ground clearance issues. The conductor hangs too low to  
24 the ground when it's under load and at peak conditions,  
25 which is usually in the hot summer months. So we need to

1 rebuild those two 138kV lines and place them on new  
2 structures.

3           In addition, aside from the clearance issues  
4 which create limitations on capacity, growth within TEP's  
5 service territory requires that TEP have another 138  
6 circuit to move power down from Tortolita down to North  
7 Loop where it can be distributed out to the northern end  
8 of TEP's service territory. So that's the need for this  
9 project for TEP.

10           Let me talk briefly about and give you something  
11 of a project overview. The project consists of two  
12 segments, as you can see. A small little piece at the  
13 top, which we refer to as Segment 1, it's the piece from  
14 Saguaro substation to Tortolita. TEP has an existing  
15 138kV line that's in an existing corridor between Saguaro  
16 and Tortolita. TEP does not use that line, it's not  
17 energized, and TEP will be transferring that line over to  
18 SWTC. And Mr. Grant will talk about what is going to  
19 happen with reconfiguring that line and the purpose and  
20 need for that line for SWTC.

21           Segment 2 is the longer major portion of the  
22 project, again, running from the Tortolita substation on  
23 south past Thornydale to the North Loop substation. And  
24 here the application presents a preferred option and two  
25 alternatives.

1           The preferred option is to rebuild the two  
2 existing 138kV lines, construct a new 138kV circuit, and  
3 add a 115kV circuit for Southwest Transmission  
4 Cooperative, and place those four circuits on a single  
5 monopole, a quad-circuit monopole. That engineering  
6 option allows us to minimize the number of structures  
7 within that existing corridor within that right-of-way.

8           As you can see from the placemat, the preferred  
9 option would follow the existing 360-foot wide corridor  
10 that runs from Tortolita down to North Loop, and the quad  
11 circuit would replace two of the three existing lines in  
12 that corridor and, as I mentioned, add an additional  
13 circuit for TEP's purposes and a 115kV circuit for  
14 Southwest.

15           The advantages of the preferred option are that  
16 it minimizes the environmental and cultural impacts by  
17 reducing the number of structures needed to carry those  
18 four circuits. It uses the existing transmission corridor  
19 for its entire length, and it leaves space in the corridor  
20 for future planning.

21           There will continue to be growth in TEP's service  
22 territory. Tucson Electric Power will continue to need --  
23 in the future will need additional facilities to meet  
24 growth in the area to meet the needs of its customers.  
25 And so by consolidating these four circuits on a single

1 structure within an existing corridor, it leaves room for  
2 future planning and future facilities.

3           And I mentioned minimizing environmental and  
4 cultural impacts, and let me just touch on those and what  
5 you'll hear in the testimony. This area has, even within  
6 the corridor and in the surrounding area, has a population  
7 of saguaro cactus that will be impacted by any project.  
8 So minimizing the impact on saguaros is a concern and was  
9 a factor in selecting the preferred option.

10           In addition, there are -- this area from the  
11 Tortolita fan to the east, heading west towards the Tucson  
12 Mountains, has a large, interconnected archeological site.  
13 I think there was an article in the Tucson paper just  
14 yesterday about irrigation systems west of the freeway.  
15 The Marana Mound area sits in this area east of I-10. And  
16 so this entire area that you see circled on the placemat  
17 moving west and moving up against the Tortolita Mountains  
18 has a number of documented, recognized, important  
19 archaeological sites. So again, minimizing the number of  
20 structures on the ground will minimize the impacts on the  
21 environment as well as those cultural resources.

22           Let me now talk briefly about Option 1. Option 1  
23 uses the same route as the preferred option, but it  
24 strings the four circuits among two series of double-  
25 circuit monopoles. It's a double-double. It's a double-

1 double in that it doubles the number of structures and it  
2 utilizes more of the existing corridor, more of the  
3 right-of-way, and reduces the planning flexibility for the  
4 future for putting new facilities, future facilities  
5 within this corridor.

6           The company recognizes the importance and the  
7 benefit of consolidating facilities in existing corridors  
8 whenever possible. We've done that here, but there will  
9 be a need for future facilities in this area. And again,  
10 one of the factors that informed and drove the preferred  
11 option is that it uses less of this existing corridor. By  
12 moving the four circuits onto two series of double-circuit  
13 monopoles, you're using more of the corridor and limiting  
14 the amount of space for future facilities.

15           The final option you'll see on the placemat is  
16 depicted in blue, and it follows the existing corridor,  
17 the existing line, south from Tortolita, but then moves  
18 west and follows the CAP canal that's depicted in blue  
19 there on your placemat as well as up there on the screen.  
20 And it generally follows the CAP canal all the way down to  
21 Tangerine Road. You'll see it moves slightly west, and  
22 you'll see the callout on your placemat and the other maps  
23 for the Adonis substation. That's a Southwest  
24 Transmission Cooperative facility. Mr. Grant will talk  
25 about that.

1           And then that Alternative Option 2 jogs around  
2 the CAP canal a bit to the east. Apparently, there's a  
3 planned reservoir, a CAP reservoir in that area, so it  
4 moves around to accommodate that. That's what is shown  
5 there in that blue grid, but then moves back along the CAP  
6 canal until it moves along Tangerine Road east to move  
7 back into the existing corridor and drop down into the  
8 North Loop substation.

9           Alternative Option 2 uses the same quad-circuit  
10 monopole engineering configuration. That is, it places  
11 all four circuits on a single monopole, again, to try to  
12 reduce the number of structures, environmental impacts and  
13 cost. But it requires the acquisition of new right-of-  
14 way, a 100-foot right-of-way, and it carries with it the  
15 additional environmental impacts and cost of putting a  
16 line on new ground.

17           I think the bottom line is that it will not be a  
18 mystery that there is no support that I'm aware of for  
19 Alternative Option 2. And therefore, your job today will  
20 be trying to decide between the preferred option, a  
21 quad-circuit monopole, existing corridor, and Alternative  
22 Option 1, placing the four circuits on two series of  
23 double-circuit monopoles.

24           And I think you'll hear from public comment that  
25 the City of Marana, and maybe others, support Alternative

1 Option 2, because of concerns over the height required for  
2 the quad-circuit monopole.

3 CHMN. FOREMAN: I'm sorry. Did you mean to say  
4 support, or did you mean to say oppose?

5 MR. DERSTINE: They support Alternative Option 1  
6 as opposed to the preferred option. They support, I  
7 believe, placing the four circuits on the two series of  
8 double-circuit monopoles.

9 CHMN. FOREMAN: Okay. But with regard to  
10 Option 2, which I understood you to say just a moment ago  
11 that they supported Option 2.

12 MR. DERSTINE: No. I believe that they support  
13 Alternative Option 1.

14 CHMN. FOREMAN: Okay.

15 MR. DERSTINE: They support keeping the line in  
16 the existing corridor, but they support putting circuits  
17 on two series of monopoles as opposed to the quad circuit  
18 engineering configuration putting all circuits on a single  
19 structure, again, because of the height required for the  
20 single circuit, the quad-circuit monopole.

21 So I think at the end of the day your job will be  
22 balancing the visual impact of the quad-circuit structure  
23 against the additional cost, and the additional  
24 environmental impact of Alternative Option 1, two series  
25 of double-circuit monopoles, as well as the impact on

1 future planning and the flexibility for future planning  
2 that's reduced by going with Alternative Option 1.

3 Let me briefly touch on -- well, let me talk  
4 about cost. As I mentioned, there was prefiled direct  
5 testimony from Mr. Beck. He called out the costs. The  
6 preferred option is estimated at \$21,820,000. Alternative  
7 Option 1, \$26,509,000. So a difference of 4 million or  
8 more to put these four circuits on two series of  
9 double-circuit monopoles.

10 Alternative Option 2 is \$24,446,000. Not as much  
11 as the double-circuit configuration in the existing  
12 corridor, but more than the preferred option because of a  
13 need to acquire new right-of-way.

14 So again, I think the testimony and evidence will  
15 establish that the preferred option, quad-circuit  
16 configuration, the existing TEP corridor, not only  
17 minimizes environmental impacts, but has the lowest cost.

18 Ms. Ericson, as I mentioned, will testify  
19 concerning the public process. The public process started  
20 with a newsletter mailing in November 2008 that described  
21 this project generally and announced a public open house  
22 that was held on December 9, 2008. The mailing went to  
23 over 6,000 addresses.

24 The second newsletter was mailed on February 12,  
25 2009. It detailed the engineering options. By that time

1 there had been some analysis of different options and  
2 routes, and that newsletter presented those to the public.  
3 The second newsletter also publicized an open house on  
4 February 17. That mailing went out to over 5,000  
5 addresses, residents and landowners, the reduction largely  
6 due to culling out bad addresses.

7 And a third newsletter was mailed on June 22,  
8 2009, that detailed the engineering and route alternatives  
9 and described the cultural and environmental resources.

10 The newsletters and open houses encouraged the  
11 public to comment and provide input through a phone line,  
12 and both Applicants provided project information and  
13 allowed comment through their websites. In addition,  
14 there was agency outreach that included meetings with the  
15 Town of Marana, Game & Fish, Arizona State Land  
16 Department, and scoping letters were sent out to a variety  
17 of agencies and as well as nine tribes.

18 That concludes my preview of the case. I'll now  
19 let Mr. Grant give you a preview of the case from his  
20 client's perspective and discuss how this project plays an  
21 important role in Southwest's planning and growth.

22 Thank you.

23 CHMN. FOREMAN: Counsel.

24 MR. GRANT: Mr. Chairman, members of the  
25 Committee, good morning again. Mike Grant of Gallagher &

1 Kennedy on behalf of Southwest Transmission Cooperative.

2 As Mr. Derstine mentioned, SWTC is a joint  
3 participant in this project, although I would candidly  
4 admit to you that we're extremely happy that Tucson  
5 Electric Power is doing most of the heavy lifting here,  
6 and we appreciate that.

7 The project meets several important needs for  
8 Southwest, Trico Electric Cooperative, and, as I will  
9 discuss briefly, the water needs of southern Arizona as  
10 well.

11 We were before the Committee just a few months  
12 ago in Case No. 142, so I won't spend a lot of time  
13 talking about Southwest Transmission Cooperative and its  
14 mission and its nonprofit distribution cooperative  
15 members. Briefly, to summarize, Southwest is a  
16 transmission cooperative. It plans for, constructs and  
17 maintains a transmission system which delivers power to  
18 its five Arizona Class A member distribution cooperatives  
19 that basically stretch from the southeast part of the  
20 state through this area, and then ultimately up to  
21 northwest Arizona as well. And it provides power to those  
22 cooperatives so they can economically and reliably get  
23 that power to their members at retail in those locations.

24 As we discussed in Case No. 142, current economic  
25 conditions notwithstanding, Trico Electric Cooperative is

1 and continues to be one of the fastest growing members on  
2 the Southwest system. Trico currently serves this part of  
3 its service territory in Pima and Pinal Counties from the  
4 Thornydale substation, which, with reference to the  
5 placemat, you can see down in green in the lower right-  
6 hand corner. The power used there is wheeled over the TEP  
7 46kV transmission network.

8 Bottom line is that Trico's load growth in this  
9 area has already exceeded Thornydale substation's delivery  
10 capacity, and so the most immediate and pressing need for  
11 this project from Southwest Transmission and from Trico's  
12 standpoint is simply to relieve that situation. Second,  
13 Saguaro/North Loop also opens up the capacity to meet  
14 future needs which undoubtedly will return. And third, it  
15 brings to this area --

16 Good morning, Mr. Mundell.

17 MEMBER MUNDELL: Good morning, Mr. Grant. Thanks  
18 for putting that on the record.

19 MR. GRANT: And third, it brings to this area a  
20 new power source from the APS Saguaro substation, which is  
21 up at the upper left-hand corner of the placemat. And  
22 that, of course, is very good for overall system supply  
23 and reliability.

24 Finally, Southwest will be filing in the next few  
25 weeks a CEC application with the Committee for a project

1 which it is undertaking with the Central Arizona Water  
2 Conservation District. CAWCD, as you all know, operates  
3 the Central Arizona Project. When Southwest's line  
4 involved here is interconnected with the CAP system, it  
5 will not only bring these reliability and capacity  
6 benefits to Trico loads in the area to the west of the  
7 North Loop substation, it's also going to provide  
8 additional and more reliable power for those CAP water  
9 pumping loads in southern Arizona.

10 Let me turn quickly to Southwest's role in this  
11 project, and again with reference to the placemat. The  
12 Saguaro/North Loop project, as Mr. Derstine indicates,  
13 consists of two segments. And Southwest's most direct  
14 participation in this project is that first 1.3 mile  
15 stretch from APS Saguaro substation to TEP's existing  
16 Tortolita substation.

17 SWTC is going to reconfigure about 1.3 miles of  
18 an existing TEP 138kV line into a single-circuit 115kV  
19 line. That rebuild will take place within the existing  
20 TEP corridor, which has been there for several decades  
21 between the Saguaro substation and TEP's Tortolita  
22 substation. It involves some existing lattice and a few  
23 new H-frames coming out of Saguaro, but the vast majority  
24 of that rebuild, about 11 structures currently, primarily  
25 new steel monopoles will make that run between Saguaro and

1 Tortolita.

2           From that point the preferred option, which  
3 Southwest recommends for the same environmental and  
4 economic reasons for our customer/owners as Mr. Derstine  
5 discussed, is a series of quad-circuit monopoles then  
6 between Tortolita and the North Loop substation in the  
7 lower right-hand corner of both the map being displayed  
8 and also the placemat. That is the second element of the  
9 Saguaro/North Loop project.

10           One of those circuits is going to be an SWTC  
11 transmission line designed for operation at 138kV, but  
12 which will be energized initially at 115kV. It will loop  
13 into and out of the new Adonis substation, which is  
14 roughly halfway there in the middle of the map on the  
15 placemat. That creates the new delivery point for Trico  
16 and its customer/owners in this area, and that will then  
17 continue to a structure just north of TEP's North Loop  
18 substation. It's from that tap which we will soon seek  
19 the Committee's and the Commission approval to move west  
20 from North Loop to those joint projects that I mentioned  
21 with the Central Arizona Project.

22           Southwest's manager of transmission engineering,  
23 Jim Burson, is going to join TEP's Ed Beck as a panel to  
24 talk about the components of and the needs for the  
25 Saguaro/ North Loop project. Renee Ericson and Thomas

1 Horst will talk about public outreach and the  
2 environmental aspects of the project, as Mr. Derstine  
3 mentioned.

4 We appreciate the Committee's time and attention  
5 to this matter. Southwest Transmission Cooperative would  
6 ask that you issue and the Commission confirm a CEC for  
7 the preferred route. And as always, we appreciate the  
8 Commission and the Committee's time on this matter.

9 Thanks very much.

10 CHMN. FOREMAN: Mr. Robertson.

11 MR. ROBERTSON: Thank you, Mr. Chairman.

12 CHMN. FOREMAN: Can we get the mic?

13 MR. ROBERTSON: Thank you, Mr. Chairman. Good  
14 morning, members of the Committee. Larry Robertson on  
15 behalf of Pinal County.

16 This case represents the third case before the  
17 Siting Committee since April of this year in which Pinal  
18 County has had occasion to intervene as a result of a  
19 resolution adopted by its board of supervisors at that  
20 point in time. That resolution identifies six cases then  
21 listed on the Siting Committee calendar which had a Pinal  
22 County nexus. The two other cases are Case 142, which  
23 Mr. Grant referred to a moment ago, and siting Case 148,  
24 which is currently in hearings involving Salt River  
25 Project.

1           The factors occasioning the decision of the board  
2 of supervisors of Pinal County to begin intervening on a  
3 regular basis in siting cases with a Pinal County nexus  
4 were several in nature. Prior to the recession, for the  
5 last few years Pinal County had been the most rapidly  
6 growing county within Arizona in terms of population  
7 growth and, thus, the subject of electric reliability was  
8 very, very important for the quality and the  
9 sustainability of that growth.

10           Secondly, in many ways, Pinal County,  
11 geographically speaking, is located at a crossroads in  
12 relation to the electrical system within the state of  
13 Arizona. A number of transmission lines currently pass  
14 through Pinal County, a number of additional transmission  
15 lines are planned or contemplated, several power  
16 generating facilities in recent years were constructed in  
17 Pinal County, several more have been permitted, and  
18 several more are also contemplated down the road.

19           So from a land use and a long-range planning  
20 standpoint, in addition to electric reliability  
21 considerations, the board of supervisors felt that Pinal  
22 County needed to have a place at the table in these  
23 proceedings.

24           And finally, from the standpoint of the quality  
25 of lifestyle in Pinal County, particularly with the

1 projected population increase, the board of supervisors  
2 felt that participating was very important. So thus, we  
3 are before you again today in this proceeding, and you can  
4 anticipate seeing us in several more in the coming year or  
5 two.

6           With regard to this particular case, earlier  
7 today I placed before you a letter dated September 29,  
8 2009, from David Snider, Chairman of the Pinal County  
9 Board of Supervisors, addressed to Chairman Foreman. That  
10 letter was formally approved by the Pinal County Board of  
11 Supervisors at a meeting last Friday, and 25 copies of it  
12 were filed with the Arizona Corporation Commission's  
13 Docket Control yesterday.

14           We wanted to have copies available to you today  
15 because the letter sets forth Pinal County's position.  
16 Briefly summarized, that position is based upon Pinal  
17 County staff and the board of supervisors' review of the  
18 August 4, 2009, joint application which was filed in this  
19 proceeding, together with the exhibits, and the position  
20 of Pinal County appears in the last paragraph on the first  
21 page.

22           As you may note, as of this point in the  
23 proceeding, Pinal County supports the preferred option.  
24 The considerations underlying that decision are  
25 essentially three in nature. The preferred option

1 includes the use of existing transmission line right-of-  
2 way as contrasted with the acquisition of new right-of-  
3 way. Second, it contemplates the use of single supported  
4 transmission structures with less visual impact upon the  
5 areas to be traversed. And finally, the construction  
6 costs associated with the preferred option are less than  
7 Alternative 1 or Alternative 2.

8 I would like to make very clear in this regard  
9 that in taking this position, Pinal County is not in any  
10 way presuming to comment upon or reflect how the line  
11 might impact Pinal County or the Town of Marana. Those  
12 are sister neighboring jurisdictions who have their own  
13 respective viewpoints. But with regard to that portion of  
14 the line that is in Pinal County, that would be our  
15 position.

16 You will also note in the letter in reference  
17 to -- this occurs in the middle paragraph on the first  
18 page -- that there is an electric reliability  
19 consideration where we are deferring to you, the members  
20 of the Siting Committee and to the Arizona Corporation  
21 Commission and your expertise, and that relates to the use  
22 of the quad-circuit structures, which, as we understand it  
23 both from the application and from the responses of TEP  
24 and Southwest Transmission to certain data requests that  
25 the County submitted, is a new type of supporting

1 structure basically for both entities. TEP has indicated  
2 in their data request response that they have some limited  
3 use of it, I believe, in the vicinity of their Irvington  
4 power station southeast of Tucson. And I believe  
5 Southwest Transmission Cooperative to date has no  
6 experience.

7 We are not suggesting that there are any  
8 reliability concerns. But because this is a relatively  
9 new structure for these two companies, it is something we  
10 wanted to look into. So you will find attached to  
11 Chairman Snider's letter our data request that we sent to  
12 the two companies and the responses that the company sent  
13 back. And I anticipate during the course of the  
14 evidentiary hearing that representatives from the parties  
15 will have occasion to comment upon their contemplated use  
16 of the quad-circuit structure and why they made that  
17 particular selection.

18 I believe the final matter that I would like to  
19 address is the draft Certificate of Environmental  
20 Compatibility. As Mr. Derstine indicated during his  
21 opening remarks, Pinal County was afforded an opportunity  
22 to look at the suggested revisions to the draft CEC that  
23 the Applicants were thinking about proposing. We proposed  
24 additional suggestions. We discussed those in a  
25 conference call among the parties. I believe that was

1 last Friday morning. And I noticed reviewing the redlined  
2 draft that Mr. Derstine referred to earlier today that  
3 Pinal County's suggestions of revisions have been  
4 incorporated, so we appreciate that as well.

5 We look forward to participating in this  
6 proceeding, and thank you for your attention.

7 CHMN. FOREMAN: Thank you, Counsel.

8 Now, this is a public meeting in addition to  
9 being a hearing. And so if we have members of the public  
10 who would like to make a brief comment about the  
11 application, you can do that now.

12 As I indicated earlier, there also will be a  
13 public comment session at 6:00 p.m. this evening back here  
14 in this room. So if you would like to come back then,  
15 that's fine also.

16 Is there anyone here today who would like to make  
17 a public comment now?

18 Okay, sir. If you would, I think there's a  
19 tablet down on the table right up here. If you would put  
20 down your name and where you're from and who you  
21 represent, that would be great. And if there's anybody  
22 else who wants to make public comment, I would appreciate  
23 it if you would do that also.

24 All right, sir, if you step up to this  
25 microphone, hopefully it's on, and tell us your name and,

1 if you would, please spell your last name so the court  
2 reporter can be sure that she has it right.

3 MR. HAY: Thank you. My name is Cedric Hay. I'm  
4 Senior Assistant Town Attorney for the Town of Marana.  
5 Last name is Hay, H-a-y.

6 The Town of Marana submitted a letter, actually,  
7 it was by Kevin Kish, our general manager of development  
8 services. The letter was dated September 25, 2009,  
9 setting forth the position of the Town of Marana. I do  
10 have additional copies, if necessary. I just wanted to  
11 make sure that was part of the record.

12 CHMN. FOREMAN: Let me stop here. I have a copy  
13 of this letter. Is a copy of this letter going to be  
14 referred to during the testimony of at least one of the  
15 witnesses, and do we have a copy as an exhibit now?

16 MR. DERSTINE: I don't think we have the  
17 intention of referring to the letter at this point. We  
18 have not made copies or produced it as an exhibit.

19 CHMN. FOREMAN: Okay. If you would then, sir, if  
20 you would like to have it in the record, what I would ask  
21 that you do is step over and give the court reporter a  
22 copy of it right now.

23 MR. DERSTINE: I will say, Mr. Chairman, that a  
24 copy of the letter was docketed, so it is in the docket  
25 for this case.

1 CHMN. FOREMAN: Okay. Well, let's make sure that  
2 we have a -- make sure that the letter to which reference  
3 is made today is the same one that's in the Commission's  
4 docket.

5 Now, sir, I'm sorry. Go ahead.

6 MR. HAY: Thank you, Mr. Chairman. And the  
7 letter is brief, and I think that it's already been  
8 referred to as far as just the relevance. The Town of  
9 Marana is in support of the preferred option or  
10 Alternative Option 1. The concerns that the Town of  
11 Marana does have with the Option 2 portion is that it's in  
12 the vicinity of approximately the Tangerine interchange  
13 with the Town of Marana.

14 As has been noted on the map, and I wanted to  
15 make sure that the light blue diagram, the CAP reservoir  
16 location as a proposed site. There are some concerns with  
17 the Town of Marana. They are currently in the midst of a  
18 study between the Town of Marana, the Northwest Water  
19 Service Providers, the Bureau of Reclamation, and the  
20 University of Arizona -- excuse me -- is studying this  
21 site.

22 I do have an additional exhibit which further  
23 shows the proposed locations, which may present some  
24 difficulties if Option 2 is selected. I think that the  
25 map that's presented has already shown where that

1 alternative site is, so I don't think there's any need to  
2 muddy up the record any further.

3           Actually, with that, I would just say that the  
4 Town of Marana does support Alternative Option 1 as a  
5 preferred choice because of the reduced visibility of the  
6 lower poles, but it's also in support of the preferred  
7 option if that is the direction that the Committee wishes  
8 to go. That's all I have.

9           CHMN. FOREMAN: So you have a strong opposition  
10 to Option 2. You support both the preferred and Option 1.  
11 Of those two, you have what could be called a mild  
12 preference for Option 1 over the preferred because of the  
13 pole height. Would that be a fair summary?

14           MR. HAY: Absolutely. Thank you.

15           CHMN. FOREMAN: Very good. Thank you for coming  
16 and talking, sir.

17           MR. HAY: Thank you.

18           CHMN. FOREMAN: All right. Do we have other  
19 folks that want to make public comment?

20           Sir, if you come forward and give us your full  
21 name, and spell the last name for the court reporter,  
22 please.

23           MR. STALLARD: My name is Mitch Stallard,  
24 S-t-a-l-l-a-r-d. I reside in Tucson, Arizona. I'm  
25 speaking today on behalf of myself and MSP Companies, a

1 landowner and business operator in the Town of Marana.

2 We, too, posted a letter with Mr. Ed Beck of  
3 Tucson Electric Power, a letter dated September 18, 2009,  
4 and I will hand a copy to the reporter if necessary. We  
5 sent that letter in.

6 CHMN. FOREMAN: Is that the only copy that you  
7 have with you here today, sir?

8 MR. STALLARD: I have one copy today, yes.

9 CHMN. FOREMAN: Then let's go ahead and give that  
10 to the court reporter.

11 MR. DERSTINE: Mr. Chairman, that letter was also  
12 docketed for this case.

13 CHMN. FOREMAN: Okay. Very good.

14 Now, the first letter you docketed as  
15 Committee-1, is that right, or did you do that as  
16 Committee-2? I think I gave you a letter earlier from  
17 the Electrical Workers. That was 1. So the letter from  
18 Marana is 2. The letter from MSP is 3.

19 Okay, I'm sorry. We're just trying to keep  
20 track of the record.

21 MR. STALLARD: And I should have opened with,  
22 Chairman, members of the Committee, thank you for allowing  
23 us to speak.

24 We, too, would like to reiterate our support for  
25 the preferred alternative, mildly so over Alternative 1,

1 and our opposition to Alternative Option 2. The reasons  
2 for our support for the preferred alternative are, as the  
3 prior speaker stated, that the environmental impact would  
4 be minimal in that it exists in an existing corridor that  
5 has been used for some time, as well as the cost. So  
6 that's our position that we would like to speak in  
7 addition to the letter.

8 CHMN. FOREMAN: Very good. Thank you for coming  
9 and talking to us.

10 MR. STALLARD: Thank you.

11 CHMN. FOREMAN: All right. Now, at this point I  
12 think what I would like to do is, as I indicated earlier,  
13 with regard to the representative of the electrical union,  
14 Mr. Corbin, why don't you come forward.

15 What I'm going to do is swear you as a witness  
16 and then allow you to make your presentation so that  
17 you'll be subject to cross-examination. So do you wish an  
18 oath or affirmation?

19 MR. CORBIN: Your choice.

20 CHMN. FOREMAN: Well, you're the one that's going  
21 to be doing the swearing or affirming so --

22 MR. CORBIN: Affirmation.

23 CHMN. FOREMAN: Raise your right hand.

24 (James E. Corbin was duly sworn.)

25 CHMN. FOREMAN: Tell us your full name, and

1 please spell your last name again for the court reporter.

2 THE WITNESS: James E. Corbin, C-o-r-b-i-n.

3 CHMN. FOREMAN: Now, we have a letter from  
4 Mr. Grijalva that's already been placed in the record that  
5 was dated September 23. And we have another letter that  
6 you have presented today, which is dated October 5, 2009,  
7 which has been marked as Committee Exhibit 1.

8

9 JAMES E. CORBIN,

10 called as a witness on behalf of the IBEW, having been  
11 first previously sworn by the Chairman to speak the truth  
12 and nothing but the truth, was examined and testified as  
13 follows:

14

15 EXAMINATION

16

17 Q. (BY CHMN. FOREMAN) What is it that you would  
18 like to tell us, sir?

19 A. To summarize the letter, we would support that  
20 the work be done locally by the local craftsmen. We feel  
21 that's a better, lower cost to the ratepayer. We also  
22 believe that as far as reliability is concerned, the  
23 higher quality will give more reliability. And again,  
24 it's a lower cost. At the same time, it's a lower cost to  
25 the ratepayers.

1 Q. Do you have a position with regard to whether the  
2 quad-circuit pole is as reliable as the two-circuit pole?  
3 The four-circuit pole is as reliable as the two-circuit  
4 pole?

5 A. I don't know if anyone else in here has climbed  
6 those towers, but I have. And as far as reliability, we  
7 have had accidents, vehicle accidents, aircraft accidents.  
8 If there's two circuits, it's more reliable. Because if  
9 something happens to one circuit, you still have the  
10 alternative of the other two. The two-pole circuits  
11 versus one four-pole. So if something happens to a  
12 quad-circuit pole, all four circuits are out.

13 Q. Have you worked with quad-circuit poles before?

14 A. I have not. But from a craftsman's experience,  
15 it's not that much different. The analogy I would use, it  
16 would be like putting on four lug nuts instead of six. Or  
17 I'm sorry. Six lug nuts instead of four on a tire. It's  
18 just a few more bolts is all.

19 Q. Are you aware of or have you heard of the failure  
20 of -- catastrophic failure of a quad-circuit pole?

21 A. I have not.

22 CHMN. FOREMAN: Okay. Let me ask if there are  
23 questions on cross-examination from any of the parties.  
24 Start with the Applicant.

25 MR. DERSTINE: No questions, Mr. Chairman.

1 MR. GRANT: Mr. Chairman, none.

2 CHMN. FOREMAN: We have a two-headed applicant  
3 here, TEP and Southwest. Any questions from Southwest?

4 MR. GRANT: None.

5 CHMN. FOREMAN: From Pinal County?

6 MR. ROBERTSON: Mr. Chairman, I had some, which  
7 you fully anticipated, and Mr. Corbin's answers covered  
8 them, so thank you.

9 CHMN. FOREMAN: Any questions from the Committee?

10 (No response.)

11 CHMN. FOREMAN: All right, very good.

12 Sir, thank you for coming and testifying. We  
13 will show that Committee Exhibit 1 is admitted into  
14 evidence, and your testimony is now of record.

15 (Exhibit Committee-1 was admitted into evidence.)

16 THE WITNESS: Thank you, Mr. Chairman, for the  
17 opportunity to speak.

18 CHMN. FOREMAN: All right. Now we'll go to  
19 Ms. Webb.

20 MR. ROBERTSON: Mr. Chairman, before Ms. Webb  
21 begins, if I might raise a procedural point. I just  
22 realized that I neglected to indicate I had had the court  
23 reporter mark Chairman Snider's September 29, 2009, letter  
24 as Pinal County Exhibit 1. And if possible, I would like  
25 to offer that into evidence.

1 CHMN. FOREMAN: Are you going to have someone  
2 testify concerning that?

3 MR. ROBERTSON: No. Pinal County had not planned  
4 to call witnesses. The letter has been filed with Docket  
5 Control. As I indicated, it was filed yesterday.

6 CHMN. FOREMAN: All right. Is there any  
7 objection to the admission of Pinal County Exhibit 1?

8 MR. DERSTINE: None.

9 MR. GRANT: No objection.

10 CHMN. FOREMAN: No objection, good cause  
11 appearing, it's ordered admitting Pinal County Exhibit 1  
12 into evidence.

13 (Exhibit Pinal County-1 was admitted into  
14 evidence.)

15 MR. ROBERTSON: Thank you, Mr. Chairman, and  
16 thank Counsel for the parties.

17 CHMN. FOREMAN: All right. Ms. Webb.

18 MS. WEBB: Mr. Chairman, I have the memo that you  
19 requested the copies, if I might be allowed to pass those  
20 out. And then I have one copy of the questions, and I can  
21 make more copies on the break to give -- but I have given  
22 it to the parties. They've only got one copy to share  
23 right now.

24 CHMN. FOREMAN: So you have two pieces of paper  
25 or two documents that you want to have in the record?

1 MS. WEBB: Correct. One is the short memo that  
2 was requested at the prehearing conference, and then the  
3 other ones are the questions that I asked if I could ask  
4 questions. And I believe I remember you said to bring the  
5 questions and they could be part of the record.

6 CHMN. FOREMAN: Yes. If you would like to put  
7 those questions in the record, you may. And if you  
8 distribute a copy to the Committee members, if they want  
9 to ask those questions as the hearing proceeds, they'll be  
10 able to do that.

11 MS. WEBB: Okay. And I'll just -- I'll have to  
12 make the additional copies of the questions during the  
13 break, if that's okay, Mr. Chairman.

14 CHMN. FOREMAN: That's fine. What I would like  
15 for you to do now, though, is give the original of your  
16 memo and the questions to the court reporter, and we'll  
17 mark those as Committee exhibits next in order. That  
18 would be 4 and 5.

19 All right. Now, do you wish an oath or  
20 affirmation?

21 MS. WEBB: An affirmation.

22 CHMN. FOREMAN: All right.

23 (Elizabeth Buchroeder-Webb was duly sworn.)

24 CHMN. FOREMAN: Please state your full name for  
25 the record, and spell your last name for the court

1 reporter.

2 THE WITNESS: My name is Elizabeth Buchroeder-  
3 Webb. B-u-c-h-r-o-e-d-e-r, dash, W-e-b-b.

4

5 ELIZABETH BUCHROEDER-WEBB,  
6 called as a witness on behalf of herself, having been  
7 first previously sworn by the Chairman to speak the truth  
8 and nothing but the truth, was examined and testified as  
9 follows:

10

11

EXAMINATION

12

13 Q. (BY CHMN. FOREMAN) And what would you like to  
14 tell us?

15 A. Chairman Foreman and members of the Committee and  
16 parties, my name is Elizabeth Buchroeder-Webb, and I'm a  
17 registered voter and taxpayer in Pima County. I am also a  
18 TEP ratepayer. And as it turns out, my mother-in-law's  
19 best friend lives in the project area right over there.

20 Anyhow, the reason why the registered voter and  
21 taxpayer is very important is because in Pima County, when  
22 we vote for open space and preservation, it just doesn't  
23 include where we live. It includes a vast area within  
24 Pima County, and even towns such as the Town of Marana,  
25 the Town of Sahuarita, and the City of Tucson each get a

1 portion of that Pima County bond money.

2 I just received my property tax statement, and  
3 the secondary bond money on it had increased, and it was a  
4 little over \$100. That goes to all projects in Pima  
5 County. And I'll get to my concerns with the cultural in  
6 the Marana Mountains here in a minute.

7 Also, I grew up on the northwest side of town.  
8 We had made many visits to Picacho Peak when I was younger  
9 and to the ostrich farm when my son was older.

10 I am in support of the preferred option, the quad  
11 pole. I am adamantly opposed to Alternative 2. And as  
12 this is in the Town of Marana, I will give my reasons why  
13 I support the preferred option, although they are opposed.  
14 And that is related to, number one, the pole finish plan.  
15 There are ways to mitigate height from a visual  
16 perspective, and one of them is to use a color or a finish  
17 that is not so startling or jarring to the eye, especially  
18 when positioned next to existing steel lattice structures.

19 In the area between -- on your placemat between  
20 the -- I believe it's the Saguaro substation and the  
21 Tortolita substation, I recommend that you use in that  
22 area dull gray galvanized steel poles. There is a large  
23 amount of galvanized steel existing in that area with the  
24 Saguaro substation. There are chain-link fences. The  
25 poles that come out and are used are dull gray galvanized

1 intermixed. They're going to use in this project three  
2 existing steel lattice structures. In that very small  
3 segment, I suggest that a dull gray galvanized finish is  
4 required as a condition.

5 For the entire project I recommend a pole finish  
6 plan as was approved by the Committee very recently in  
7 144. I think this might help with some of the concerns  
8 regarding visual impacts with the height.

9 All right. Number two, saguaro mitigation was  
10 mentioned by Mr. Derstine. What I'm asking for as a  
11 condition or to be considered is that the recommended Fish  
12 & Wildlife three-to-one mitigation for mature saguaros be  
13 a requirement in the CEC versus a suggestion. The nexus  
14 for me on this one is the lesser long-nosed bat. We have  
15 a roost very close to my home in the Empire Mountains.  
16 I've been out with Fish & Wildlife on a bat-catching  
17 expedition. We were too loud and didn't catch any, but  
18 anyhow.

19 I was told by Fish & Wildlife that bats can fly  
20 up to 40 miles from their roost to eat, and so my concern  
21 here is with the habitat. I did drive out into the area,  
22 and I strongly suggest that the Committee take a trip to  
23 the area where some of the residential is existing on the  
24 placemat. It would be where the existing transmission  
25 line starts to overlap the CAP canal and there's a space.

1 I believe on this map there's a road called  
2 Castello Drive out there that's right there, but I don't  
3 see it on this map. It would be between Missile Base Road  
4 and Pipeline Road. There are several mature saguaros in  
5 that area, and my understanding is that the mature  
6 saguaros do not survive transplantation. And so this is  
7 why I recommend the three-to-one that was recommended by  
8 U.S. Fish & Wildlife. In the application, it's Figure 15  
9 on Page B60, it shows the habitat for the lesser  
10 long-nosed bat, Figure 15, B60. And the letter from Fish  
11 & Wildlife is on J29.

12 Also, recently, at the special open hearing  
13 regarding saguaros, Chairman Mayes stated that she has  
14 asked APS to stop using the tree-eating machine on the  
15 saguaros. If the tree-eating machine has to be used in  
16 that area, I would recommend that that suggestion be taken  
17 also.

18 Archaeology. And this is my big concern, again,  
19 because Helvetia was one of the things from the 2004 bond  
20 that had approximately \$100,000. That was recently  
21 transferred to the Marana Mountains complex. Not to say  
22 that this project is specifically in the Pima County land,  
23 but there are so many undiscovered items in this area.  
24 This information regarding Pima County's thoughts on this  
25 matter are on Page J53 through Page J59. I think that's a

1 9. I strongly suggest, or at least have a conversation  
2 about an independent archeologist for a pre-survey to help  
3 with pole placement once the alternative is chosen.

4 The reason why I support the preferred alignment  
5 is I think the footprint for digging one set of poles or  
6 one pole would be much less than putting in two poles.  
7 Because this project, from my understanding, intends to  
8 move west of the current alignment so they can rebuild.

9 Also, when I was out taking a survey of that area  
10 that I mentioned, I noticed some of the poles are nearly  
11 adjacent to the residents road, and I'm not sure how that  
12 would work in that particular curve with the proposal to  
13 move to the west. And these are just questions that I  
14 have, and that's why I suggest at least in this area  
15 particularly there is a field trip or at least discussion.

16 Access roads. This is also mentioned by Pima  
17 County. I would like to see some discussion about a  
18 specific mitigation for old access and construction roads.  
19 In previous cases it has been my experience that when the  
20 new poles are cut down and moved over to the new  
21 transmission line that the old access roads remain,  
22 leaving an opportunity for the OHV use and other  
23 miscellaneous access on those roads driving and so forth.

24 And it's not just about the archaeological and  
25 the plants. It's also about the dust. In that area, if

1 you take a field trip you'll see, because it's in the  
2 alluvial fan, is my understanding, has a higher level of  
3 dust when you disturb the soil. And plus, it's been  
4 worked. So you have environmental air quality concerns.

5           Five, I would like a condition that specifies  
6 some type of standardized sign or font to notify the  
7 public about construction, particularly along interstates.  
8 I would like to see -- this is something that could be a  
9 discussion, obviously, maybe not a condition. But the  
10 signs would be perpendicular to the interstate versus  
11 parallel to the interstate so people who are doing 75 to  
12 85 will see the signs and know that there's construction  
13 in this area.

14           One last thing on the pole finish plan. An area  
15 of concern is where the line at the very end makes a turn  
16 and goes in on your placemat to the existing TEP  
17 substation. I believe it's the North substation. In that  
18 area I think it would be good. That's another reason I'm  
19 asking for the pole finish plan.

20           And my very last concern that is not on here, and  
21 this is regarding future planning. If you look in the  
22 application under the conservation, the land systems, to  
23 go to the Rattlesnake project, which is referenced in the  
24 application in the future for SWTC, I have concerns that  
25 this would not leave any other alternative for that line.

1 It would take it through some very substantial high  
2 priority conservation land systems. And that's something  
3 just for discussion to see if that would exclude any other  
4 alternatives in the future to go to Rattlesnake, which  
5 would be crossing I-10 to the west.

6 All right. I believe that's it, unless anybody  
7 has any questions.

8 CHMN. FOREMAN: Counsel for TEP?

9 MR. DERSTINE: Mr. Chairman, no questions. Thank  
10 you.

11 CHMN. FOREMAN: Counsel for Southwest?

12 MR. GRANT: Mr. Chairman, no questions.

13 CHMN. FOREMAN: For Pinal County?

14 MR. ROBERTSON: I have no questions of Ms. Webb,  
15 thank you.

16 CHMN. FOREMAN: I have some questions, and I want  
17 to make sure that I understand your positions.

18 Q. (BY CHMN. FOREMAN) If I understand correctly,  
19 you believe that what's been referred to as Segment 1 of  
20 the project from the Saguaro substation to the Tortolita  
21 substation, a short segment, should be designated by the  
22 Committee as being the dull galvanized nonspecular grayish  
23 finish?

24 A. Mr. Chairman, I realize now that Pinal County is  
25 sitting right next to me. And if they were opposed to

1 that, I would hope they would say something about that.

2           Logically, from my perspective in dealing with  
3 this a little bit more recently, is that that is a way to  
4 mitigate your viewshed issues. And if you use the same  
5 color that's being used there to begin with, with the  
6 steel lattice structures and Saguaro substation with a  
7 vast quantity of galvanized steel to include the chain-  
8 link fence, I believe that this would offset and mitigate  
9 some of the problems with visual impacts in that  
10 particular area, because it is very congested currently.

11           And so in that area, yes, my preference would be  
12 to say that would be a condition in the pole finish plan,  
13 if it was not opposed by Pinal County, of course, because  
14 it's their county.

15           Q.    So the answer to my question is yes?

16           A.    Yes.    Sorry.

17           Q.    Very good.  Now, for Segment 2 south of  
18 Tortolita, you want something like we put into the 144  
19 conditions, which basically would require the companies to  
20 consult with the local landowners and get their input  
21 before they made a decision about whether it was to be the  
22 gray or galvanized finish as opposed to the darker pole  
23 finish.  Is that what I'm understanding your position to  
24 be?

25           A.    Correct, Mr. Chairman.  And additionally, when it

1 went in front of the Commission, they went ahead and added  
2 the 500 feet on either side of the centerline so it would  
3 also include people who would be impacted but not directly  
4 impacted on their property. In this case, I believe the  
5 majority of the land is owned by the state, so that would  
6 offer opportunity to people who live close by.

7           So yes, I would like to see a pole finish plan  
8 similar to what was in Line Siting Case 144, with the  
9 addition of 500 feet of the centerline to offer residents  
10 in that area to offer comment.

11       Q.    Okay. Now, with regard to the long-nosed bat,  
12 are you aware of any long-nosed bat roosting places that  
13 are within the plan area?

14       A.    My understanding is that the roosts are not in  
15 the area. And I may be incorrect, but that is my  
16 understanding. And I would like to be able to maybe  
17 answer that later or get a chance to read it. I just  
18 don't want to say something that's not true.

19           It's my understanding from my couple of glances  
20 -- not glances, couple of reads over the application is  
21 that there are not the roosts. It is the habitat that  
22 would be destroyed, or possibly, possibly by the removal  
23 of the mature saguaros.

24       Q.    Okay. And you're a witness now, Ms. Webb, and  
25 I'm just trying to pin down what you know and where you

1 know it from, whether you --

2 A. It's from reading the application.

3 Q. Okay.

4 A. And the town --

5 Q. So you have no independent knowledge that there  
6 are roosting places for the long-nosed bat in the study  
7 area; is that true?

8 A. I have no personal knowledge of that. I do have  
9 personal knowledge of the habitat because I did visit the  
10 area.

11 Q. Yes. Okay. Now, with regard to the sign  
12 construction, you indicated that you would like for us to  
13 specify a sign size and font. Do you have a preference as  
14 to what that size and font would be?

15 A. Understanding that certain jurisdictions may  
16 object to certain sized signs, I would like to see  
17 three-by-four unless restricted by the jurisdiction.  
18 Three-by-four minimum.

19 Font, I think, is a little bit over-the-top  
20 micromanaging. I was hoping more that would be something  
21 that would be discussed during by the Committee. Because  
22 I think a font that's maybe red and says something like  
23 big in a picture. But again, that's getting very  
24 micromanagy, and my concern more is to make sure that  
25 they're seen by people who are driving on the interstate.

1 Q. Okay. Why? What value would this information be  
2 to somebody who is driving by on the interstate?

3 A. I think it affords an opportunity for  
4 conversation with utility companies prior to the  
5 construction beginning. Because, unfortunately, we're all  
6 so busy with our lives we might say, I didn't know that  
7 was happening.

8 And if you put these signs up, my understanding  
9 is, and at least my experience has been with the project  
10 in our area, that they're up well ahead of time. And as I  
11 hope I have shown in the past, public outreach and public  
12 involvement is very important to me.

13 Q. My understanding is that there are federal laws  
14 that control what can be placed along the federal  
15 interstate system. Do you have any insight as to whether  
16 or not it would be legally appropriate to place a sign  
17 concerning the construction along the interstate?

18 A. I do not know the ordinances with the federal  
19 system. What I have observed with other projects are that  
20 they have those signs that you can rent or you can buy  
21 that are on feet, and you could put something like that  
22 that would be more temporary. That's just my observation.

23 Q. Okay. And then the question about this future  
24 project that Southwest has, you're wanting us to get into  
25 a discussion of the appropriateness of this future project

1 in this case?

2 A. Mr. Chairman, I'm trying to formulate my thoughts  
3 here.

4 Q. Well, that makes two of us.

5 A. My observation from being in front of the  
6 Committee -- and I hope I didn't misconstrue this -- I  
7 believe it was -- well, I can't remember. But was that  
8 there needs to be more involvement with the public and the  
9 Committee with future planning.

10 And in this case, I just have a concern that by  
11 choosing this project and this route for SWTC that it  
12 would not leave open options to cross the interstate  
13 through an area that is highly sensitive. And that was a  
14 question that I put in in one of my questions that because  
15 of the short time frame, I think, did not get answered,  
16 was that could they come out of the Thornydale substation  
17 and use existing lines in the future?

18 And again, this was more for discussion than -- I  
19 mean, it may not even be legally in place for you. It was  
20 just something that I kind of threw in there because of my  
21 concerns with the west side of the interstate directly in  
22 that area.

23 Q. Are you suggesting that we should change in some  
24 way the CEC or the conditions to the CEC in this case in  
25 order to do something with regard to this future project?

1           A.    Mr. Chairman, I don't believe that I have that  
2 technical and engineering knowledge to be able to make  
3 that kind of a statement. I think, again, I was just  
4 hoping to see a little bit of discussion about  
5 opportunities. So as far as a condition, no.

6           CHMN. FOREMAN: All right. Very good. Then I  
7 think I understand your testimony. Thank you for  
8 presenting it.

9           MEMBER MUNDELL: I have a question.

10          CHMN. FOREMAN: Member Mundell.

11          MEMBER MUNDELL: Is this on?

12          CHMN. FOREMAN: I don't know.

13

14

EXAMINATION

15

16          Q.    (BY MEMBER MUNDELL) Good morning, Ms. Webb. I  
17 just have a quick question. What is your understanding of  
18 how many saguaros would be removed, destroyed, whatever  
19 verb you want to use, if this project goes forward?

20          A.    Member Mundell, my understanding from reading the  
21 application is that there has not been a cactus or plant  
22 survey yet. I did a visual inspection, and without being  
23 able to get out there with a tape measure to see exactly  
24 how far west -- and this concerns the 75-foot, so thank  
25 you for the segue into the 75-foot additional easement or

1 right-of-way, temporary right-of-way to the west of the  
2 project.

3           From my visual inspection, there were saguaros  
4 growing underneath the existing alignment, big ones. So  
5 that's why -- I'm not sure if you were here, Member  
6 Mundell, when I suggested that you have the field trip,  
7 because I can't say specifically because there has not  
8 been a plant count or survey from what I read in the  
9 application. And that's another question I believe  
10 because of the time constraints was not able to be  
11 answered. And I will make copies for the Committee of the  
12 questions.

13       Q. Well, is this -- just so we're clear, I mean, I  
14 got here when Mr. Grant was speaking. Is this the first  
15 time you have spoken this morning?

16       A. Yes.

17       Q. So I would have been here the whole time that you  
18 have been presenting your case. So I'm just trying to  
19 make sure I understand.

20           And then are you concerned or is there -- have  
21 you been -- is there some evidence that you're going to  
22 present or has it occurred in the past that these  
23 Applicants are going to use the tree-eating machine that  
24 another utility utilized in the state of Arizona on  
25 saguaros that you referred to by Chairman Mayes?

1           A.    Member Mundell, I do not have any experience or  
2 observation with TEP or SWTC using tree-eating machines.  
3 But UNS Electric I have observed has used the tree-eating  
4 machines, not specifically on saguaros, but I do know that  
5 they use them, and that's the sister company of TEP.

6           Q.    So would your concerns be alleviated if we had a  
7 condition that specifically stated that the Applicants  
8 would not use saguaro-eating machines, tree-eating  
9 machines on these mature saguaros?

10          A.    Member Mundell, I would be happy with that  
11 condition, but the one condition that I would be happiest  
12 with is the three-to-one mitigation on the ones that die.

13                   MEMBER MUNDELL:   Okay.  Well, I guess we'll  
14 discuss that as we go forward, but I just wanted to make  
15 sure I understood your concern.

16                   Thank you, Mr. Chairman.  Thank you Ms. Webb.

17                   CHMN. FOREMAN:  Thank you.

18

19                                   FURTHER EXAMINATION

20

21          Q.    (BY CHMN. FOREMAN)  Just so I understand, what is  
22 wrong with these tree-eating machines?  I mean, I  
23 understand that they eat trees, but if you've got to get  
24 rid of a tree --

25          A.    Mr. Chairman, what they are, actually, is like a

1 claw on a round thing that goes "shhk-shhk" I'm sorry. I  
2 guess she can't put that in the transcript. And it also  
3 digs up the ground. And it's not a selective tree eating.  
4 Like, you don't go out with a claw and you claw the tree  
5 or you claw the saguaro. It just goes continually like a  
6 round -- like those big things you see at the dump with  
7 the little prongs on it. It's very similar to that and  
8 it's just -- they just suck them under and it just  
9 pulls -- it pulls up the ground, it pulls up the -- it's  
10 nonselective.

11 CHMN. FOREMAN: Are we going to have an issue in  
12 this case with regard to tree-eating machines? I mean --

13 MR. DERSTINE: I would say no.

14 CHMN. FOREMAN: So they're not going to be used.  
15 If there are any trees to be eaten, will they be eaten by  
16 nonmechanical means or disposed of by some means other  
17 than a large machine that Ms. Webb is concerned about?

18 MR. DERSTINE: Let me say a couple of things.  
19 One, Mr. Beck, and I think through Ms. Ericson will  
20 testify about saguaro survey, the number of saguaros that  
21 are likely to be impacted by the preferred route, which  
22 has been surveyed, and how saguaros of varying types will  
23 be either harvested, transplanted, or eaten.

24 I don't think we're using a tree-eating machine  
25 as to larger saguaros which can't be transplanted because

1 they won't survive. I'm told that they will be removed in  
2 some fashion. I think it's through a chain saw or some  
3 mechanical means to take these larger saguaros down if we  
4 can't place the structures around them and they absolutely  
5 have to be removed.

6 So there is, as you'll hear from the testimony  
7 from Mr. Beck and Ms. Ericson, there is a saguaro  
8 mitigation plan, saguaro discussions with U.S. Fish &  
9 Wildlife over how saguaros are to be mitigated, the level  
10 of mitigation, of transplanting, et cetera. And so I'm  
11 not aware of any plans, certainly on behalf Tucson  
12 Electric Power, to be using a tree-eating machine to go  
13 out and clear vast expanses of right-of-way.

14 CHMN. FOREMAN: All right.

15 Member Mundell.

16 MEMBER MUNDELL: Thank you, Mr. Chairman, and  
17 thank you for that clarification, because there really  
18 were two different issues. One, you know, how many  
19 saguaros were going to be destroyed, whatever the  
20 mechanism was going to be utilized, and then two, I  
21 think -- I can't speak for her, but Chair Mayes was  
22 concerned about just the overuse of the tree-eating  
23 machine. We're calling it a tree-eating machine, but it  
24 was used to chop up, I think, you know, centuries old  
25 saguaros.

1           So you have two different issues sort of  
2 intermingled here. How do you destroy them, if they have  
3 to be destroyed, number one. And number two, how many are  
4 going to be actually have to be destroyed. And my  
5 preference would be, obviously, as few as possible, and  
6 we'll get into that, I guess, in the testimony.

7           MR. DERSTINE: Correct.

8           CHMN. FOREMAN: Yeah. And hopefully now we only  
9 have one issue, and that is how to minimize the impact on  
10 the saguaros.

11          MEMBER MUNDELL: Right.

12          MR. GRANT: Mr. Chairman.

13          CHMN. FOREMAN: Yes, sir.

14          MR. GRANT: Could I just quickly add, I certainly  
15 agree with everything that Mr. Derstine just said. I  
16 wanted to note, to the best of my knowledge -- and the  
17 witnesses can confirm this -- for Segment 1 there are no  
18 saguaros in the construction path at all. So as I  
19 understand it, it is a nonissue for Southwest construction  
20 in Segment 1.

21          CHMN. FOREMAN: We might, however, look to the  
22 language that we put in the condition for the last  
23 Southwest application as a place to start to attempt to  
24 minimize the impact on saguaros. So maybe we'll revisit  
25 that, because that's, I'm sure, a matter of concern to the

1 members of the Committee.

2 Why don't we take the morning recess. We'll take  
3 about 15 minutes. We'll come back at 11:10.

4 (A recess was taken from 10:56 a.m. to 11:11 a.m.)

5 CHMN. FOREMAN: Back on the record.

6 We have had public comment. We have had  
7 testimony from two folks. We're going to start now with  
8 the Applicants' case.

9 Counsel, you may call your first witnesses.

10 MR. GRANT: Mr. Chairman, the Joint Applicants  
11 would call Ed Beck and Jim Burson as a panel.

12 CHMN. FOREMAN: All right.

13 Mr. Beck, do you wish an oath or affirmation?

14 MR. BECK: An oath, please.

15 (Edmond Beck was duly sworn.)

16 CHMN. FOREMAN: State your name and spell your  
17 last name for the court reporter.

18 MR. BECK: My name is Edmond Beck, B-e-c-k.

19 CHMN. FOREMAN: Okay. Mr. Burson, do you wish an  
20 oath or affirmation?

21 MR. BURSON: An oath, please.

22 (James Burson was duly sworn.)

23 CHMN. FOREMAN: Give us your name and spell your  
24 last name for the court reporter.

25 MR. BURSON: My name is James Burson,

1 B-u-r-s-o-n.

2 CHMN. FOREMAN: All right. Counsel, you may  
3 proceed.

4 MR. GRANT: Mr. Chairman, Members of the  
5 Committee, thanks very much.

6

7 EDMOND BECK and JAMES BURSON,  
8 called as witnesses on behalf of TEP and SWTC, having been  
9 sworn by the Chairman to speak the truth and nothing but  
10 the truth, were examined and testified as follows:

11

12

DIRECT EXAMINATION

13

14 Q. (BY MR. GRANT) Mr. Burson, are you the same  
15 James Burson that caused to be filed in this docket direct  
16 testimony on behalf of Southwest Transmission Cooperative?

17 A. (BY MR. BURSON) I am.

18 Q. And Mr. Burson, for record purposes, we have  
19 asked that that be marked for identification as TEP/SWTC  
20 No. 4. Mr. Burson, is the information set forth in  
21 Exhibit TEP/SWTC-4 true and correct to the best of your  
22 knowledge, information, and belief?

23 A. (BY MR. BURSON) It is.

24 Q. And Mr. Burson, if I were to ask you the  
25 questions that are set forth in that direct testimony,

1 would you give me the answers that are set forth in that  
2 testimony?

3 A. (BY MR. BURSON) I would.

4 Q. Do you have any corrections or additions to that  
5 testimony?

6 A. (BY MR. BURSON) No, I do not.

7 Q. And do you adopt TEP/SWTC-4 as your direct  
8 testimony in support of the application in this matter?

9 A. (BY MR. BURSON) Yes, I do.

10 Q. Mr. Burson, let me just go very quickly to a  
11 couple of points made earlier by Ms. Webb and ask you to  
12 respond on those subjects.

13 First, Ms. Webb suggested that for Segment 1 of  
14 this construction that a dull gray color for the  
15 structures -- right now I just want to deal with the  
16 color -- a dull gray color be specified for the monopole  
17 structures in Segment 1.

18 Were you present for that suggestion by Ms. Webb?

19 A. (BY MR. BURSON) Yes, I was.

20 Q. Mr. Burson, does Southwest Transmission  
21 Cooperative have any objection to specifying dull gray as  
22 a color for those structures?

23 A. (BY MR. BURSON) Not as a color.

24 Q. Does it recommend necessarily that the Committee  
25 specify any color?

1           A.    (BY MR. BURSON)  Southwest -- I mean, I hope the  
2  Committee realizes that the existing transmission line  
3  that will stay in the adjacent corridor is wood and  
4  self-weathering corten.  There is an existing transmission  
5  line that will stay in place.  It's a TEP transmission  
6  line just 100 feet away from our project, Segment 1.  That  
7  particular line segment will remain wood and  
8  self-weathering corten, which is what it is built of as of  
9  today, just to make you aware of that.  But in respect to  
10 the color, the color, Southwest has no objection to that  
11 color.

12          Q.    I guess I -- and I may have badly phrased the  
13 question, Mr. Burson.  I realize that you testified you  
14 don't have an objection to it.  Do you necessarily  
15 recommend that the Committee specify a particular color?

16          A.    (BY MR. BURSON)  Well, to minimize the cost  
17 impact to its members, our standard is to use corten,  
18 which is self-weathering steel and it turns brown.  
19 Anything above and beyond that adds cost to the project  
20 and, therefore, costs to the members.

21          Q.    And that goes to the construction material to be  
22 used.  Does Southwest Transmission Cooperative, however,  
23 object to galvanized steel?  And if so, what material  
24 would you recommend or does Southwest intend to use in the  
25 construction?

1           A.    (BY MR. BURSON)   Our intention is to use  
2 self-weathering corten.  Now, there are processes that can  
3 be done to that.  We would prefer not to be having to use  
4 galvanized steel.  It has operational issues of its own.  
5 We prefer to use -- our standard is as long as -- my  
6 understanding with Tucson Electric Power is to use the  
7 corten product, but there are steps you can do to affect  
8 the color of that pole.

9           Q.    And second, Mr. Burson, if this case is approved,  
10 specifically if the preferred option is approved as  
11 Southwest Transmission Cooperative and TEP recommends,  
12 would that restrict in any way the options that would be  
13 available in relation to considering the CAP joint project  
14 application which will be filed later this year before the  
15 Committee?

16          A.    (BY MR. BURSON)   I feel like it would not  
17 restrict that at all.

18          Q.    So the approval of this case would not restrict  
19 interconnection options that might be available or might  
20 want to be considered by the Committee or the Commission  
21 in relation to that future filing; is that correct?

22          A.    (BY MR. BURSON)   That's correct.

23          Q.    Let me just make sure that the record is clear on  
24 this point.  Southwest Transmission Cooperative does, in  
25 fact, have a recommendation that the interconnection in

1 that case come off of the structure north of North Loop  
2 where this line will terminate; is that correct?

3 A. (BY MR. BURSON) That's correct. That's our  
4 recommendation.

5 Q. But favorable action on this application would  
6 not restrict consideration of some other option; would  
7 that be true?

8 A. (BY MR. BURSON) That's correct.

9 MR. GRANT: All right, Mr. Chairman. With those  
10 questions, we would move TEP/SWTC-4. And I think  
11 Mr. Derstine will now question Mr. Beck for the balance of  
12 the panel.

13 CHMN. FOREMAN: Is there any objection to  
14 TEP/SWTC-4?

15 MR. ROBERTSON: No objection.

16 CHMN. FOREMAN: No objection, good cause  
17 appearing, it's ordered admitting TEP/SWTC-4.

18 (Exhibit TEP/SWTC-4 was admitted into evidence.)

19 CHMN. FOREMAN: Counsel, you may proceed.

20 MR. DERSTINE: Thank you, Mr. Chairman.

21 Q. (BY MR. DERSTINE) Mr. Beck, will you please  
22 state your name for the record.

23 A. (BY MR. BECK) Edmond Beck.

24 Q. You're the director of line siting for Tucson  
25 Electric Power Company; is that correct?

1 A. (BY MR. BECK) That is correct.

2 Q. And you have previously testified before the Line  
3 Siting Committee?

4 A. (BY MR. BECK) Yes, I have.

5 Q. Mr. Beck, please briefly describe your  
6 involvement with this project.

7 A. (BY MR. BECK) My involvement with this project  
8 started really with the concept of the project in that at  
9 the time that this project was conceived I was the  
10 superintendent of transmission planning for Tucson  
11 Electric Power. And in the role of transmission planning,  
12 we were looking at the needs between Tortolita and North  
13 Loop and identified a need to reconstruct the two circuits  
14 that exist today, as well as add another 138kV circuit.  
15 So I started at that point.

16 Approximately eight months ago, I changed  
17 positions to become director of line siting to oversee  
18 siting cases, and so I've been involved in this project  
19 from a siting perspective also once the planning portion  
20 was completed.

21 Q. As the director of line siting for Tucson  
22 Electric Power, did you oversee the preparation and filing  
23 of the application for this case?

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

25 Q. The CEC application has been marked as Joint

1 Applicants' Exhibit 1 for identification. Do you have  
2 that in front of you?

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

4 Q. Who else played a role in the preparation of the  
5 application, Applicants' Exhibit 1?

6 A. (BY MR. BECK) The project is a joint project, as  
7 you know, between TEP and Southwest Transmission  
8 Cooperative, and so SWTC was a party to preparing the  
9 application. Jointly, we hired CH2M Hill as our  
10 environmental consultant to run the public process, as  
11 well as do the environmental work that is required as part  
12 of the application.

13 Q. Now, Mr. Beck, there was a notice of errata filed  
14 in the docket concerning the application. Can you explain  
15 that, please.

16 A. (BY MR. BECK) Yes, after we had filed the  
17 application, we realized that the table of contents that  
18 got included in the application was from a previous  
19 project. We had used the previous project as a template  
20 for developing the application, and the table of contents  
21 inadvertently got overlooked to get updated.

22 Q. And that notice of errata contained the correct  
23 table of contents to the application?

24 A. (BY MR. BECK) That is correct.

25 Q. All right. Mr. Beck, let me also direct your

1 attention to what has been marked as TEP/SWTC-Exhibit 9.  
2 Do you have that exhibit?

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

4 Q. The first page of Exhibit 9 is identified as a  
5 sign posting, and it's followed by a page with the  
6 heading, "Notice of Hearing." Is that a copy of the sign  
7 that was posted along the route that publicized this  
8 hearing?

9 A. (BY MR. BECK) Yes, it is.

10 Q. What was the size of that sign?

11 A. (BY MR. BECK) Two foot by three foot. Two foot  
12 in width, three foot in height.

13 Q. And did you oversee the posting of the signs  
14 along the project route that publicized this hearing?

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

16 Q. Do you have a map that we can put up on the  
17 screen that shows the location of those sign postings?

18 A. (BY MR. BECK) Yes, we do. On the right screen  
19 you'll see a map that shows the 20 signs that were placed  
20 along the alignment. We tried to hit key points where  
21 people who are accessing the area would see the signs. So  
22 to the extent there were crossroads or trails that were  
23 likely candidates, we posted signs at those locations.

24 And I think if we just stay with the map  
25 probably, we do have photos of each of the signs at each

1 location. I'm not sure that we need to go through that at  
2 this point, but this is the map that does show the signs.

3 I would point out that TEP is pretty much  
4 standardized on our notice signs. It's been mentioned in  
5 a previous case, but the two-by-three is what we are using  
6 now. We use typically a one-and-a-half inch text for the  
7 header on the sign, and then five-eighths inch text for  
8 the body.

9 Q. Mr. Beck, Exhibit 9 also contains an affidavit of  
10 publication of the notice of this hearing. Do you see  
11 that?

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

13 Q. Does the affidavit establish when and where the  
14 notice of hearing was published?

15 A. (BY MR. BECK) Yes, it does. They were published  
16 August 14 and August 23 in the Arizona Daily Star, and  
17 August 14 and 21 in the Casa Grande Dispatch.

18 Q. Mr. Beck, let me now turn your attention to what  
19 has been marked as TEP/SWTC-Exhibit 2. That's your  
20 prefiled direct testimony. Do you have that before you?

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

22 Q. All right. Was Exhibit 2 prepared by you or  
23 under your supervision?

24 A. (BY MR. BECK) Yes, it was.

25 Q. Have you reviewed Exhibit 2?

1 A. (BY MR. BECK) Yes, I have.

2 Q. If I asked you the questions in Exhibit 2 of your  
3 prefiled testimony, would your answers be the same answers  
4 as set forth in your prefiled testimony?

5 A. (BY MR. BECK) Yes, they would.

6 Q. Do you have any changes to Exhibit 2?

7 A. (BY MR. BECK) No, I do not.

8 Q. Are you adopting your prefiled testimony marked  
9 as Exhibit 2 as your primary testimony before the  
10 Committee today?

11 A. (BY MR. BECK) Yes, I am.

12 Q. Mr. Beck, you also prepared a PowerPoint  
13 presentation for this case?

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

15 Q. That PowerPoint presentation is marked as  
16 TEP/SWTC Exhibit 3 for identification. Do you have  
17 Exhibit 3 in front of you?

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

19 Q. Was Exhibit 3 prepared by you or under your  
20 direction?

21 A. (BY MR. BECK) Yes, it was.

22 Q. Do you intend to adopt and use your PowerPoint  
23 presentation, TEP Exhibit 3, as part of your testimony  
24 before the Committee today?

25 A. (BY MR. BECK) Yes, I do. I will probably

1 present it in two distinct portions. I will use subsets  
2 of the slides in each portion.

3 Q. All right. With that, Mr. Beck, why don't you  
4 discuss and cover the purpose and need for this project  
5 from TEP's perspective using the PowerPoint presentation.

6 A. (BY MR. BECK) Okay. From TEP's perspective, we  
7 have an issue today with ground clearance underneath the  
8 existing lines between Tortolita and North Loop, the two  
9 most westerly lines.

10 The capacity issue was brought to light when we  
11 were doing some field surveys and we realized the ground  
12 clearance was minimal. And, in fact, when we started to  
13 investigate, we determined that at a high load condition  
14 in the middle of summer when it's really hot out, that  
15 there was a likelihood that the lines would be sagging  
16 within the clearance zone that is required by the NESC  
17 code.

18 On the screen you will see a topology map of what  
19 the system looks like today. And in particular, up on the  
20 northern end is the Tortolita substation. And about the  
21 middle of that slide you'll see the North Loop substation,  
22 and here are the three lines that go between Tortolita and  
23 North Loop.

24 I will point out that approximately just over a  
25 year ago, the connectivity for the most easterly line, or

1 the one labeled 125, actually connected to what is labeled  
2 as Line 122 and went to Rancho Vistoso. So at that time  
3 we had two lines between Tortolita and North Loop and a  
4 line between Tortolita and Rancho Vistoso.

5           When we identified the capacity issues related to  
6 the clearance, we made a change approximately a year ago  
7 to reconfigure the system so that Line 125 would run all  
8 the way down to North Loop, and then Line 122 would begin  
9 at North Loop and run to Rancho Vistoso. We were able to  
10 do that because Line 122 and Line 125 basically were a  
11 T-connection.

12           And depending on how you had the jumpers, the  
13 jumpers either went to the north to Tortolita from Rancho  
14 Vistoso, or it could come down to North Loop. So we  
15 changed the configuration of those jumpers, and that  
16 allowed us to reconfigure those lines. That gave us some  
17 time to go through the process of coming up with this  
18 project and making the application, and still meet the  
19 code requirements in the interim.

20           But as we move forward in time, our load  
21 continues to grow, and we do have a need for additional  
22 capacity over and above that little bit of increment we  
23 got from reconfiguring. We need to deal with the  
24 clearance issues as well as add a third circuit between  
25 Tortolita and North Loop. And --

1 Q. Can I ask you to clarify, Mr. Beck? So even with  
2 rebuilding and reconfiguring those two existing 138kV  
3 lines, your testimony is that TEP needs an additional  
4 circuit between Tortolita and North Loop?

5 A. (BY MR. BECK) That is correct.

6 Q. Okay.

7 A. (BY MR. BECK) Moving on to show what the  
8 topology would look like after construction of this  
9 project, TEP would have the three lines between Tortolita  
10 and North Loop, providing us with the capacity we need  
11 coming out of the North Loop substation to serve our loads  
12 in our service territory, as well as we will move the  
13 jumpers back so that the line from Tortolita, Line 125,  
14 will connect back to Rancho Vistoso and give that a direct  
15 feed from Tortolita.

16 In addition, you'll notice that we're showing the  
17 Southwest Transco line as part of this project with the  
18 Adonis substation, which you will hear more about,  
19 basically in the middle of the project.

20 Q. Mr. Beck, moving from the purpose and need for  
21 this project from TEP's perspective, can you provide the  
22 Committee with an overview of the project and the routes  
23 and engineering options that we've already touched on  
24 through the opening statement and comment?

25 A. (BY MR. BECK) Yes, I can. Basically, we can

1 look at the slide on the right-hand side -- actually, let  
2 me find the slide.

3           Okay. This again is the project area map. It's  
4 the same map that you have on your placemats. We've  
5 identified the project as consisting of two segments. The  
6 first segment is between Saguaro and Tortolita. And so  
7 that's the oval that popped up on that screen shows what  
8 is considered Segment 1.

9           Then, Segment 1 we would rebuild -- or Southwest  
10 Transco would rebuild the existing line, which today is a  
11 138kV line on wood H-frame structures. They're going to  
12 be building that to be a 115kV line, and they've  
13 determined the need to replace all of the structures but  
14 for three lattice towers that are included in that  
15 segment.

16           Segment 2 is the portion that continues on from  
17 Tortolita down to North Loop. And you will see that --  
18 back to Segment 1, I'll point out that you do not see any  
19 alternative routes for that, because originally the intent  
20 was to utilize the line that was there. Subsequently,  
21 upon review, Southwest Transco determined that they needed  
22 to replace the structures, but the plan is to replace the  
23 structures in the alignment that's there today, and,  
24 therefore, we didn't bring any alternatives forward for  
25 that particular segment.

1           Alternative -- or the preferred option, as well  
2 as our Alternative 1, utilize existing TEP rights-of-way,  
3 which are that red line that's kind of moving on the  
4 screen running between Tortolita and North Loop, utilizing  
5 the western edge of our existing 360-foot-wide right-of-  
6 way.

7           Alternative 2 is the blue line that popped up.  
8 It on the north portion of the segment follows the  
9 existing alignment until you hit the CAP canal, and then  
10 deviates from the existing alignment at the CAP crossing  
11 to follow the eastern edge of the CAP right-of-way.

12           Now, keep in mind that one of the pieces of this  
13 project is to connect the Adonis substation, which is  
14 shown approximately at the middle of Segment 2, so that  
15 Alternative 2 deviates from the CAP alignment back over to  
16 enter the Adonis substation. And then as it comes out of  
17 Adonis, it's approximately 500 foot to the west of the  
18 existing alignment and heads in a southeasterly direction,  
19 allowing it to skirt around the CAP proposed reservoir,  
20 which is the hashed or dashed area that is in  
21 approximately the middle of that map. Those little  
22 crosshatches represent a future reservoir that we couldn't  
23 put structures in.

24           As soon as we get around the reservoir, that  
25 alternative would come back down, meet up with the CAP

1 alignment, head along the western -- the eastern edge of  
2 the CAP alignment down to approximately Tangerine Road,  
3 and then head east on Tangerine until it meets up with the  
4 existing alignment and heads south into North Loop.

5 I would just like to point out that the  
6 structures, the existing structures for the first two  
7 lines TEP intends to replace are 1963 vintage, whereas  
8 Line 125 was built in the mid-'80s. So one of the  
9 additional reasons for TEP to replace those structures is  
10 just due to age.

11 Q. Mr. Beck, you have some slides that show the  
12 different configurations of these structures?

13 A. (BY MR. BECK) Yes, I do. This is the -- again,  
14 going back to the topology. Are you referring to --

15 Q. Did we call them cross-sections?

16 A. (BY MR. BECK) I'm sorry, yes, we did.

17 Okay. Here is -- this is a diagram showing what  
18 the existing cross-section, looking at the three lines  
19 that exist today, looks like. In the left side of that  
20 diagram you'll see two H-frame structures. Those are the  
21 two that are vintage 1963 that are the subject of this  
22 application for rebuild. The H-frame that you see on the  
23 right in red is what was identified in the previous  
24 topology maps as Line 125. That is the line that will  
25 remain and isn't being touched at all by this construction

1 project.

2           As you'll notice, there's a good gap between the  
3 H-frame structures. This is a representation of what the  
4 preferred project will look like. It's a quad-circuit  
5 structure built on the western edge of the existing  
6 right-of-way. We would have a temporary construction  
7 easement to the west of that just for access purposes  
8 during construction. It would only be used and purchased  
9 for the period -- or at least for the period of  
10 construction activity.

11           One of the main reasons for TEP proposing the  
12 quad-circuit structure is to open up this area in the  
13 middle for future needs that TEP has identified for an EHV  
14 connection between Tortolita and North Loop. And by  
15 putting the quad circuit in on the far western edge of the  
16 right-of-way, it opens up a lot of space in between for  
17 future use.

18           Here is a representation of what Option 1 would  
19 look like with two double-circuit structures in parallel.  
20 As you can see, it would reduce the area available for  
21 future development between structures and adds a second  
22 set of structures along the whole alignment. So a  
23 secondary issue that TEP identified was that from an  
24 environmental perspective, building a quad circuit -- half  
25 of the structures that would be required if we built two

1 double-circuit structures -- had a considerable  
2 environmental savings relative to cultural and  
3 archaeological issues along the alignment.

4           And lastly, this is a cross-section just showing  
5 the quad circuit adjacent to the CAP right-of-way. As  
6 you'll notice, it would be just adjacent to and east of  
7 the right-of-way for the Central Arizona Project.

8           Q. Now, Mr. Beck, I know that I forced you to kind  
9 of reshuffle the deck on your PowerPoint presentation, but  
10 I would like you to take a moment to address the  
11 reliability issue relating to the quad circuit.

12 Mr. Robertson touched on the reliability issues associated  
13 with the quad-circuit configuration, and I think you do  
14 have some slides that address the company's analysis of  
15 the reliability of the quad circuit; is that correct?

16           A. (BY MR. BECK) That is correct. And we're  
17 pulling those up right now.

18           Again, these are the topology maps, but then  
19 associated with that you will see some load flow results  
20 from studies that TEP ran. Now, here again, this slide  
21 shows the 2009 topology as it exists today without  
22 construction.

23           If you go to the next slide -- and these are a  
24 part of the PowerPoint that was part of my testimony --  
25 you'll see just the load flow results of a study that was

1 done. The first line, the ALIS represents all lines in  
2 service. So when everything is working correctly, that  
3 would be the flows into the TEP system at the three major  
4 import points that were mentioned earlier.

5 In particular for this project, it's the  
6 Tortolita import that would be of interest. You can see  
7 that TEP's total load that's being imported at that time  
8 is 2,062 megawatts. Now, there will be a slight  
9 difference between that import number and what our total  
10 load is because we do have some local generation, but this  
11 is what is coming from the outside world into TEP's  
12 service territory. We are importing 2,062 megawatts, 706  
13 of which are coming into Tortolita. So roughly a third of  
14 the total comes in at Tortolita.

15 We took all lines between Tortolita and North  
16 Loop out of service. It's an extreme contingency. The  
17 only thing that the NERC and WECC criteria say is that you  
18 must analyze the consequences of such an extreme outage,  
19 so that's what we did.

20 As you can see, in this case we're showing zero  
21 import, then, into Tortolita. The majority of the import  
22 moves over to Vail, and south goes up somewhat from what  
23 it was, but we're still serving 2,006 megawatts of the  
24 2,062 that was originally there. So we've lost  
25 approximately 50 megawatts of load.

1           And when I say lost, it is blacked out. That  
2 portion, 50 megawatts of load is shut off. We have a  
3 system within our TEP system that is called a tie open  
4 load shed system, and for various contingencies we program  
5 into our computers what the response of our system will be  
6 for loss of various line segments. In this instance, with  
7 the loss of all three lines into Tortolita, we would have  
8 automatically through the computer program dropped that  
9 56 megawatts of load. It would have shut it off. Various  
10 feeders and substations get turned off for that initial  
11 outage condition.

12           Immediately, our operators would then start  
13 turbine generators that are available in town, and we  
14 would have some excess reserve capacity within Tucson that  
15 we would bring on line. In this instance, we brought back  
16 probably 40 of the 56 megawatts. So we would still have a  
17 little bit that would be out until we further adjust the  
18 system.

19           The system would not have any failures. We would  
20 not black out Tucson or any of the surrounding region,  
21 which is one of the considerations of NERC and WECC.

22           Q.   So if I'm understanding, what this slide  
23 basically represents is that if you were to lose all of  
24 the 138kV lines, the existing 138kV lines between  
25 Tortolita and North Loop today, the company could still

1 serve its customers within the service territory; is that  
2 right?

3 A. (BY MR. BECK) We would serve the majority of our  
4 customers. We would have a small outage. Keep in mind  
5 this is an extreme outage condition. This isn't taking  
6 into account the N-1 or N-2 criteria where we lose one or  
7 two lines that we have to meet NERC and WECC criteria.  
8 And that is our issue with needing to upgrade the lines,  
9 as well as the need to add another line, is to meet the  
10 N-1 and N-2 criteria as we move forward with load growth.

11 Q. Now, have you performed a similar analysis using  
12 the circuits in the configuration of the preferred route  
13 for this project?

14 A. (BY MR. BECK) Yes, we have. In the topology  
15 we're showing now, this is the 2010 to 2014 time frame.  
16 So this would be post construction of the project that is  
17 proposed in this application.

18 Again, I'll point out we would have the three TEP  
19 lines between Tortolita and North Loop and one between  
20 Tortolita and Rancho Vistoso, as well as the Southwest  
21 Transco connection from Saguaro. And by the 2014 time  
22 frame, I believe they plan to have Rattlesnake energized.  
23 So similarly you'll see a load flow set of numbers for  
24 analysis of that system configured the way I just showed  
25 you.

1           In this instance you'll see we're out in that  
2 2010 to 2014 time frame. We're showing a total import  
3 load of 2,148 megawatts, and 800 of that would be coming  
4 into Tortolita. It's probably gone up slightly  
5 percentage-wise, but still approximately a third of our  
6 import capability.

7           Now, in this case we did an N-5 extreme  
8 contingency. We said, Okay, what if we lost the whole  
9 corridor? And the reason we did this study is -- I know  
10 there's been some concern about a quad-circuit structure.  
11 I'll point out that TEP has no concerns about putting quad  
12 circuiting. We don't think the impact on reliability is  
13 of any significance.

14           But to demonstrate the effect of losing all of  
15 the circuits, all of them in a corridor, which is the four  
16 for TEP, as well as the Southwest Transco circuit, that  
17 under that extreme contingency, again, we go down to zero  
18 import at Tortolita, but you can see we've dropped about  
19 approximately 160 megawatts of load in the TEP system  
20 initially. There again, we would bring on some local  
21 turbines and we would pick up a portion of that, and, you  
22 know, again maybe we pick up 40 megawatts of that. So we  
23 would have 120 megawatts customers out of service until we  
24 could do something to remedy the situation.

25           But there again, this is a very extreme

1 contingency to lose all of those circuits in that  
2 corridor, assuming you had a quad circuit on the western  
3 edge, and then 260 feet, I believe, over to the other  
4 line. That's a big wide swath to take out of service,  
5 very extreme.

6           Likewise, we went on to look at the 2019 time  
7 frame. Basically, the only difference here is relative to  
8 the Southwest Transco system. There's no differences in  
9 the TEP system, but there again we did the extreme  
10 analysis. Out at 2019, we project our imported load would  
11 be 2,855. Approximately 1,068 of that load would be  
12 coming in at Tortolita. So you're inching up in the  
13 percentage. You're over a third now. It's still  
14 relatively approximately a third.

15           If we lose all of those circuits, at zero import  
16 at Tortolita you'll see that our import capability is  
17 still at 2,636. So 230 megawatts of load lost. There  
18 again, we'll have some local turbines and pick up maybe  
19 40 megawatts. So we're down to approximately 190  
20 megawatts customers out of service, absent any other  
21 changes to the system in that intervening 10-year period.

22           So we would not black out the Tucson system. We  
23 would not black out the regional grid. We would have some  
24 local loss of load, and we would restore that as we  
25 reconfigured the system.

1 Q. Do you have some slides that summarize your study  
2 results of the quad-circuit analysis?

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

4 Q. And before you pull those up, let me simply ask  
5 you this. It's my understanding that Tucson Electric  
6 Power has some limited experience using a quad-circuit  
7 structure. Do you know of other utilities that have  
8 greater experience using quad-circuit structures, and what  
9 has that experience been?

10 A. (BY MR. BECK) Probably the biggest user of quad  
11 circuits that we have identified at least regionally is  
12 the Nevada -- the old Nevada Power Company. I believe  
13 they're now called NV Energy.

14 But they have used quad circuits since the early  
15 '90s. They have a considerable number of quad circuits on  
16 their system. They have extensive experience in both  
17 construction as well as maintenance now. In discussions  
18 with them, their maintenance really has been nonexistent,  
19 because the lines are new enough that they really haven't  
20 had to do anything.

21 But they did relate an experience where they had  
22 a Suburban, a drunk driver in a Suburban run head on into  
23 one of their quad-circuit structures at 60 miles an hour.  
24 It destroyed the Suburban, but the pole was still  
25 standing. They also had an instance of a forklift

1 actually putting the fork through a structure, which they  
2 were able to go in and just basically patch up or weld on  
3 some plate to put the strength back to where it needed to  
4 be. So their experience has been very good with quad  
5 circuits.

6 TEP itself has a single quad structure on its  
7 system. So I can't say we really have much experience in  
8 quad circuits, but we do have one structure that has four  
9 circuits on it. There are a few other companies that have  
10 used quad circuits, but the most extensive, as I  
11 indicated, was NV Energy. They've provided us pictures  
12 and dates and locations of their installations, and they  
13 are extensive.

14 Q. So I guess as a wrap-up, should the Committee  
15 have any concerns regarding the reliability of using and  
16 approving the quad-circuit structure, which is the  
17 preferred option for this case?

18 A. (BY MR. BECK) TEP's position is that there  
19 should be no concern relative to the quad circuits.  
20 Arguably, putting only two circuits on a structure versus  
21 four theoretically has a small impact on reliability. But  
22 with our experience and the experience of our neighbors,  
23 we don't see losing those structures. So it kind of takes  
24 that reliability aspect out of the equation.

25 When you look at the cost differential, it's over

1 \$4 million difference to build the quad circuit than to  
2 build two double circuits, as well as the impact to the  
3 environment that would occur building two lines versus  
4 one. Our recommendation is for the quad circuit.

5 CHMN. FOREMAN: Member Palmer.

6 MEMBER PALMER: Mr. Chairman, Mr. Beck, isn't it  
7 true there's a number of variables that determine the  
8 likelihood of an N-3 or N-5 event? Those variables might  
9 include vehicular traffic adjacent to or near the poles or  
10 the proximity of an airport, and in this case there's no  
11 airports that are nearby that I can recall.

12 What is the proximity to the nearest roadway?

13 MR. BECK: Probably the nearest major roadway is  
14 the Tangerine crossing, which we do have a Google and we  
15 can get a little bit better feel of where that is relative  
16 to the line, but that is one crossing point, and we would  
17 have the structures back from the roadway.

18 MEMBER PALMER: Yeah, you would be able to use  
19 the span length and avoid having close proximity to the  
20 actual roadway.

21 MR. BECK: That is correct.

22 MEMBER PALMER: I would compare this to -- or  
23 differentiate this from situations where we've sited lines  
24 along roadways and they are in close proximity to the  
25 actual roadway and they are vulnerable to exposure to

1 vehicular accidents.

2 MR. BECK: That is correct. And, in fact,  
3 NV Energy pointed out that they do place structures  
4 basically right at the curb line in a few instances. And  
5 when they do that, they put some barriers up around the  
6 pole to help alleviate some of that concern.

7 MEMBER PALMER: Thank you.

8 CHMN. FOREMAN: Member Youle.

9 MEMBER YOULE: Mr. Beck, you had mentioned  
10 leaving space for future EHV lines?

11 ME. BECK: Yes.

12 MEMBER YOULE: Had you considered at all  
13 upgrading the -- I know you love 138, but upgrading them  
14 to 345 at this point and eliminating the need for a quad  
15 circuit?

16 ME. BECK: We did look at that. The cost of  
17 going to EHV at this point is very expensive. We would  
18 have to rebuild the North Loop substation to a 345  
19 substation, as well as add 345 equipment at the Tortolita  
20 end, which doesn't exist today.

21 So from a cost and economic standpoint, it made  
22 sense to do the 138 upgrade, the quad circuit at this  
23 time, and leave the EHV for future development. And even  
24 at the time that we put in that EHV, the 345, then the  
25 quad circuit would serve as back up to that EHV line.

1 MEMBER YOULE: I see. Thank you.

2 Q. (BY MR. DERSTINE) Mr. Beck, can I ask you to --  
3 Member Palmer raised, in addition to road traffic,  
4 aircraft traffic and associated airports. There is one  
5 local airport in the area?

6 A. (BY MR. BECK) Yeah. And I was going to mention  
7 that there is a small regional airport in Marana, small  
8 planes. It is basically on Avra Valley Road west of the  
9 interstate. So it's a considerable distance from this  
10 alignment, but there is that airport, as well as on the  
11 very far north end there's the Evergreen Airpark, which is  
12 also considerably west of the interstate. But those two  
13 do exist. We don't foresee any issues with air traffic  
14 coming over our line from either of those. But just for  
15 the record, there are two different airports in the  
16 general vicinity.

17 MEMBER PALMER: If I may, Mr. Chairman, that's  
18 substantially different from the case that we're still  
19 active in involving a major airport and flight patterns  
20 and those kind of variables. The distance is sufficient  
21 that it's not a landing/takeoff issue at all.

22 ME. BECK: That's correct.

23 If I may have the study results slides up.

24 Q. (BY MR. DERSTINE) If you want to briefly cover  
25 those.

1           A.     (BY MR. BECK)   Basically, the results of our  
2 study were that whether you put quad or two double-circuit  
3 configuration for the project, that TEP can meet the NERC,  
4 FERC, WECC planning standards and criteria.

5                     Under Category D, extreme contingencies, as I  
6 said, they require evaluation for consequences. We did  
7 that. And as I pointed out, some local loss of load, but  
8 no regional impacts, which is a major concern for extreme  
9 contingencies.

10                    The load shed or the tie open load system that I  
11 mentioned, the requirements for arming that range from 100  
12 to 275 megawatts for the various years that were studied.  
13 The likelihood of a catastrophic event taking out all of  
14 the structures across that corridor are pretty slim.  
15 About the only thing that I could really foresee doing  
16 that would be a major plane crash, or potentially if there  
17 were a fire in the area and there were enough vegetation  
18 to actually sustain a fire, that could create an issue.  
19 But there's not sufficient vegetation to cause us any  
20 concerns or problems in that area.

21                    So as I mentioned, a similar impact whether you  
22 use the quad or the two double circuits, and we feel  
23 there's very little reliability benefit from going to the  
24 two double-circuit configuration.

25           Q.     Mr. Beck, I understand you also have a Google

1 Earth simulation that shows the preferred option in the  
2 corridor that you would like to present to the Committee.  
3 Why don't you do that now.

4 A. (BY MR. BECK) Okay. Just briefly, to give you a  
5 bit of an overview --

6 CHMN. FOREMAN: Why don't we wait until after  
7 lunch to do that, because we have a couple of other  
8 members who may be here then. I had a couple of questions  
9 that I'll ask now to just sort of finish up on the morning  
10 session.

11

12

EXAMINATION

13

14 Q. (BY CHMN. FOREMAN) With regard to using the one  
15 quad versus the two double alignments, from a construction  
16 point of view you said that you wanted a temporary  
17 easement that would be roughly to the southwest of the  
18 present alignment.

19 Why would you not be able to use the present  
20 roads and so on to do that construction?

21 A. (BY MR. BECK) To the extent possible, we would  
22 use the existing roads. But as we build that line west of  
23 the existing lines, there is room required to maneuver the  
24 cranes and equipment that would be required to set the  
25 poles. So that's the purpose of the 75-foot construction

1 easement.

2           It would not be a clear cut of 75 foot of  
3 clearing adjacent to the line. There would be -- wherever  
4 we had a pole location, to the extent needed where we had  
5 to pull the crane out onto that temporary easement to set  
6 the pole and for actually assembling the pole on the  
7 ground, it would probably be done in the temporary  
8 construction easement.

9           So that would be the purpose of that temporary  
10 construction easement is just to provide a buffer as the  
11 construction crews are actually setting the structures  
12 along the alignment, because there would not be sufficient  
13 room between the new structure location and the existing  
14 line when that line is in service.

15       Q.    Would there be a need for fewer poles with the  
16 quad line setup than with the two doubles?

17       A.    (BY MR. BECK) Generally, it would be half the  
18 number of poles, because the spans would be very similar.

19       Q.    All right. Would you be able to use the present  
20 pole locations as locations for the new quad poles, or  
21 would your span length be different enough so that you  
22 would be using different locations for the poles as you  
23 went along?

24       A.    (BY MR. BECK) The poles in some instances would  
25 probably not line up with the existing poles. We would

1 try and maximize the economy of the lines so they would  
2 span out to the most economical span length, but because  
3 we would be using steel versus wood, likely our spans  
4 would be longer on the newer structures, and so you would  
5 start getting misalignment as you moved along the line.  
6 They would start stretching it out.

7 Q. But if you used -- if you compared the tall pole,  
8 the quad pole versus the two shorter double-circuit lines,  
9 would your span length be approximately the same, or would  
10 it be greater with the taller pole?

11 A. (BY MR. BECK) It would be greater with the  
12 taller pole because of the steel construction.

13 Q. Okay. Now, is there any -- Mr. Burson talked in  
14 his testimony about operational issues associated with  
15 galvanized poles. What operational issues?

16 A. (BY MR. BURSON) Mr. Chairman, galvanized is a  
17 protective coating on the pole. If the pole was shot,  
18 damaged by any way, you lose that protection so you have  
19 got to go back and repair it, where the corten is  
20 self-healing. Those type of issues.

21 Q. Well, self-healing, I guess, if the wound isn't  
22 from a forklift that requires some sort of --

23 A. (BY MR. BURSON) That's true. If the pole is  
24 structurally jeopardized, you've got to --

25 Q. So it's the -- it doesn't require new treatment

1 from a corrosion prevention point of view?

2 A. (BY MR. BURSON) That's correct.

3 Q. As far as the electrical conductivity or  
4 nonconductivity, I guess you're not hoping the electricity  
5 doesn't go down the pole. So as far as serving as a  
6 support for the conductors, the corten and the galvanized  
7 are equivalent?

8 A. (BY MR. BURSON) Do the same function, that's  
9 correct.

10 Q. All right. And is TEP going to take a position  
11 with regard to corten versus galvanized?

12 A. (BY MR. BECK) Well, as the Committee has heard  
13 in the past, TEP's standard is to use corten. And we  
14 understand color is in the eye of the beholder, and in  
15 some instances a lighter color may make sense.

16 Our position on this project regarding Segment 2,  
17 and actually regarding Segment 1, is that because we are  
18 paralleling an existing line that is either wood and/or  
19 corten replacement poles that have been intersert in a few  
20 locations, that it would make sense to match the color of  
21 the pole to that existing.

22 To the extent the Committee were to ask us to go  
23 with a colored pole, TEP's current position is -- and it  
24 changed from in the past -- is rather than going to a dull  
25 galvanized, we would suggest that we would use a painted

1 pole that would match the dull gray color.

2           And it goes to Mr. Burson's point that if there  
3 is any damage to a galvanized structure, that's a point  
4 where you will get corrosion. And during construction,  
5 extra care has to be taken when you erect a galvanized  
6 structure. Then, after the fact, when it's in place, if  
7 it gets shot at or even just hit by a vehicle and you  
8 damage that protective coating, there's no way to  
9 effectively repair that coating.

10           And in particular, for example, with the  
11 forklift, which I wouldn't expect to happen in this  
12 situation, but if there is damage that actually damages  
13 the structure of the pole, with a corten pole we can go in  
14 and we would weld on reinforcement plates as needed, and  
15 then the corten will basically self-heal. It will weather  
16 over and protect the pole.

17           With a galvanized pole, once you breach the pole,  
18 you can go in and weld on a patch and you can maybe coat  
19 the outside with some type of a paint or coating to try  
20 and protect it, but you have no protection on the inside  
21 of the pole and the pole will then start to deteriorate  
22 from the inside.

23           Q.    So of the grayish poles that you now have, how  
24 many are galvanized and how many are painted?

25           A.    (BY MR. BECK) The majority of our poles at this

1 time that are not corten would be painted poles, because  
2 that was our previous standard until we had so many  
3 problems with maintenance on those poles. We have just  
4 recently started using some galvanized, and the first  
5 galvanized line to be constructed will be built within the  
6 next year based on the Committee's decision. So we have  
7 very few galvanized poles on our system today.

8           Within our substations we have a lot of  
9 galvanized structures, the bus supports and so on, and all  
10 of our lattice steel has been galvanized. But for the  
11 steel poles themselves, the majority of our poles today on  
12 our system are painted. But all of the new stuff going in  
13 has been, in the last several years, corten.

14           CHMN. FOREMAN: All right. Member Mundell, go  
15 ahead.

16           MEMBER MUNDELL: Thank you, Mr. Chairman, this  
17 will be quick.

18           You said that you'll use the existing road to the  
19 greatest extent possible. Is that what I heard you say?

20           ME. BECK: That's correct.

21           MEMBER MUNDELL: Could you be a little more  
22 specific? I mean, you have gone out there and looked at,  
23 you know, obviously, the different routes. What are we  
24 talking about?

25           ME. BECK: Well, there again, at each pole

1 location where we're putting a pole up, we're going to  
2 have to set a crane. And it's not feasible to put the  
3 crane to the interior side of the existing structures and  
4 reach over two energized lines to put the new pole in  
5 place. So we need to get that crane over to the west side  
6 of the existing alignment.

7 We can to some degree be within the alignment,  
8 but there's only roughly 50 feet to work with. So we need  
9 some clearance to maneuver a crane and get it in place, as  
10 well as a place to lay the pole down before it gets picked  
11 up and set either on its foundation or into the hole if  
12 it's direct buried.

13 MEMBER MUNDELL: So I guess I didn't ask -- let  
14 me just try again.

15 Is that for the majority of the route, or is that  
16 just for a small percentage? Again, because you said that  
17 you would use the existing road to the greatest extent  
18 possible.

19 ME. BECK: It is for the majority of the route.  
20 And it may become clearer when we go to the Google. It  
21 might be a good question to try to address at that point.

22 CHMN. FOREMAN: But how many poles do you plan  
23 for the entire segment, one end to -- for the preferred  
24 option using the quad poles?

25 ME. BECK: I will have to check on that. I'm not

1 sure.

2 CHMN. FOREMAN: All right. Then let's check over  
3 lunch. We'll take a break. We'll return at 1:30.

4 (A recess was taken from 12:06 p.m. to 1:30 p.m.)

5 CHMN. FOREMAN: Let's see if we can get everybody  
6 sat down and get started back on the record here and deal  
7 with a housekeeping matter.

8 Ms. Webb, you provided me with some materials.  
9 Why don't you tell us what you provided in the way of  
10 questions.

11 MS. WEBB: Mr. Chairman, for clarification, did  
12 you want me to read the questions or just to tell you  
13 their --

14 CHMN. FOREMAN: No.

15 MS. WEBB: Mr. Chairman, these are questions that  
16 I sent to the Applicants, SWTC and TEP, and then answers  
17 that I did receive.

18 CHMN. FOREMAN: All right. And those have been  
19 marked, or a place for those, as Committee Exhibit 5. And  
20 there was one packet that was five pages, and then one  
21 packet that was one page; is that correct?

22 MS. WEBB: Mr. Chairman, you should have more  
23 than that. I can just give you another one.

24 CHMN. FOREMAN: I'm sorry. There's one packet  
25 that says five pages, and then the one attached to that is

1 Page 1 of 5, and there are three pages there, and then  
2 there's another page. So it looks like there are nine  
3 pages; is that accurate? I just want to make sure that we  
4 have them all.

5 MS. WEBB: Mr. Chairman, that's correct.

6 CHMN. FOREMAN: All right. So that is Committee  
7 Exhibit 5, and those are the questions that you posed and  
8 the answers that you received from the Applicant; is that  
9 correct?

10 MS. WEBB: Correct, Mr. Chairman.

11 CHMN FOREMAN: Thank you very much for  
12 accumulating that and giving that to us.

13 Now, are there other housekeeping matters we need  
14 to address before we resume Mr. Beck's testimony?

15 We need a microphone for Mr. Derstine.

16 MR. DERSTINE: Mr. Chairman, I was just going to  
17 touch base with you on what I think I have left for  
18 Mr. Beck. I think, as I indicated before the lunch break,  
19 Mr. Beck does have a Google fly-over presentation, and  
20 then my plan was to cover with him the questions that were  
21 raised by Ms. Webb in her -- or the five points in her  
22 memo she presented this morning.

23 And I think that would -- I would make Mr. Beck  
24 then available for cross-examination. I think the entire  
25 panel would then be available for cross.

1 CHMN. FOREMAN: All right. Why don't we address  
2 Ms. Webb's questions first.

3 MR. DERSTINE: Okay. I think I'm correct,  
4 Mr. Chairman, in that Ms. Webb's memo that she presented  
5 this morning has been marked as Committee Exhibit 4.

6

7 DIRECT EXAMINATION (Cont'd)

8

9 Q. (BY MR. DERSTINE) Mr. Beck, do you have  
10 Committee Exhibit 4 before you?

11 A. (BY MR. BECK) No, I do not.

12 Q. You were present this morning when Ms. Webb  
13 outlined her concerns relating to this project, were you  
14 not, this morning?

15 A. (BY MR. BECK) Yes, I was.

16 Q. What I would like to do is walk through Committee  
17 Exhibit 4, which is a letter addressed to Chairman Foreman  
18 and members of the Committee, and presents an outline of  
19 concerns or comments of Ms. Webb regarding this case.

20 Let's start with the pole finish plan. Committee  
21 Exhibit 4 goes on to state that especially in areas near  
22 the substation, considering the vast amount of existing  
23 galvanized steel. It ends there, but I think Ms. Webb's  
24 point was that she would like to see a condition of  
25 galvanized steel as it pertains to Segment 1.

1 I don't know if TEP has any position on that. I  
2 think Mr. Burson has addressed that from Southwest's  
3 perspective.

4 A. (BY MR. BECK) Well, from TEP's perspective, I  
5 agree with Mr. Burson that the existing TEP line that is  
6 parallel and adjacent to the new line that Southwest  
7 Transco will be reconstructing is already wood and/or  
8 corten steel today. And to put galvanized next to that  
9 doesn't seem to make a lot of sense.

10 Yes, there are some galvanized lattice structures  
11 up in the area of both Saguaro and Tortolita substations,  
12 but for this particular project I'm not sure if it makes  
13 sense to do other than corten for that area.

14 CHMN. FOREMAN: The wood poles are going to be  
15 replaced; is that correct? It's the cortens that will  
16 remain?

17 MR. BECK: No. The wood poles today -- today  
18 there are two-pole H-frame structures that are wood  
19 between Saguaro and Tortolita. And those will get, for  
20 the most part, replaced by steel corten colored poles is  
21 what is proposed.

22 In that stretch between Saguaro and Tortolita,  
23 which you'll see when we do the video review, there are  
24 two H-frame structures required for clearance purposes.  
25 So it will be two new steel H-frames put in, and the

1 balance of the structures in that stretch will be  
2 monopoles.

3 CHMN. FOREMAN: Okay.

4 Q. (BY MR. DERSTINE) And again, you're specifically  
5 addressing Segment 1?

6 A. (BY MR. BECK) That's correct, for Segment 1.

7 Q. And as it relates to Segment 2, I understood and  
8 I think I heard Ms. Webb suggest that a pole finish plan  
9 for Segment 2 and a condition similar to what was used in  
10 and adopted by the Committee in the Vail to Valencia case  
11 would be appropriate here.

12 Do you have any thoughts, or what is your  
13 position on that?

14 A. (BY MR. BECK) Well, on the Vail to Valencia  
15 case, the Committee heard quite a bit of input from the  
16 public relative to color, both for and against going --  
17 doing something different than corten.

18 In this particular case, and we haven't heard  
19 about our public outreach process to any great degree yet,  
20 we had three comments regarding color in that public  
21 process. One person suggested painted poles of a desert  
22 color, which that color was undefined. And then the two  
23 other commenters said absolutely we do not want a dull  
24 gray or galvanized pole.

25 So the input we've received from the public, to

1 the extent they addressed color, no one said they wanted  
2 galvanized or a gray pole, and, in fact, said that they do  
3 not want galvanized or gray.

4 The existing line that will be remaining,  
5 Line 125 in that corridor, is today wood H-frames and/or a  
6 few corten poles intersert in that line where there was  
7 some -- to the extent there were any maintenance  
8 replacements, and this new project will be paralleling  
9 that existing wood color transmission line.

10 Q. All right. Thank you. Let's move on to Point  
11 No. 2 in Committee Exhibit 4, saguaro mitigation.  
12 Ms. Webb was absolutely correct in her comment this  
13 morning that there was no saguaro plant survey referenced  
14 in the application, but it's my understanding that since  
15 the filing of the application, and actually probably  
16 within a matter of the past week or so, a saguaro survey  
17 has been completed; is that accurate?

18 A. (BY MR. BECK) In fact, there have been two  
19 surveys that have been completed. The first survey was by  
20 TEP construction personnel who went out, walked the line,  
21 identified what saguaros were in the vicinity of the  
22 alignment for the new quad-circuit construction,  
23 determined what saguaros were there from basically 6-inch  
24 in height on up through whatever height were out there,  
25 did a count, and identified those that would need to be

1 removed.

2 Let me state that our position and our standard  
3 is that anything 20 feet and below can be salvaged.  
4 Harvested is the term we use. We have a contractor that  
5 we work with that when we're working with saguaros we turn  
6 the saguaros over to them in exchange for them removing  
7 them off the site as needed. They get to take the  
8 saguaros and go out and sell them on the market. So  
9 there's no cost to TEP to do that.

10 For anything 20 feet and below, they have said  
11 that those can survive that transplant, reuse, harvesting.

12 CHMN. FOREMAN: And I assume that the contractor  
13 that does this has the appropriate permits and  
14 authorizations to do that?

15 MR. BECK: Correct. Subject to all of the  
16 permits that we are required to obtain and they are  
17 required to obtain. Anything greater than 20-foot has a  
18 low survivability rate, and they just don't have the  
19 equipment or the ability to really transport those. So  
20 anything greater than 20 feet will be removed from the  
21 site, destroyed, however you want to term it. We can't  
22 transplant them. They go away.

23 Now, we do not typically go in with the hydro-axe  
24 type of equipment to do this harvesting. If they're  
25 greater than 20 feet, we're going to cut them down and

1 remove the pieces. That's what we do with them. If  
2 they're 20 feet and below, the contractor will take them,  
3 remove them to their yard and then sell them from there.

4           Of the two surveys, the survey that was done by  
5 the TEP personnel identified approximately 700 saguaros.  
6 And there again, this is primarily in the construction  
7 area. This isn't getting in so much to the temporary  
8 construction easement.

9           There were 700 saguaros in that area. There were  
10 of those 57 slated for removal, 30 of which were in poor  
11 condition and likely aren't going to make it whether we  
12 touch them or not. The other 30 that because they're over  
13 20 feet, we just don't transplant them. 385 of the 700  
14 were identified as we don't touch them, we leave them  
15 alone, because they're out of the way of construction and  
16 they're not going to present any problems underneath the  
17 line. So of that 700, roughly half are going to be  
18 touched, and only about 60 of those would be eliminated,  
19 removed; the balance would be given to the contractor to  
20 move off site.

21           We also had a consultant go in and do the  
22 additional work to look at the temporary construction  
23 easement, and the total number of saguaros when you look  
24 at both counts together totals 1,200 saguaros. So that's  
25 between the temporary construction easement as well as all

1 of the construction area for the line.

2           And when you look at that count, the number that  
3 are greater than 20 feet was about 285 saguaros out of  
4 1,200 are greater than 20 feet. What I do not have in  
5 front of me today is how many of that 285 are actually out  
6 of the construction zone. A portion of the 385, I  
7 mentioned before, are a part of that 285, but I can't tell  
8 you sitting here today how many of the 1,200 would not be  
9 removed. I just don't have that information in front of  
10 me.

11           Q.    (BY MR. DERSTINE) Mr. Beck, one of Ms. Webb's  
12 suggestions was that this Committee create a condition to  
13 the CEC that would follow and adopt language recommended  
14 by the U.S. Fish & Wildlife letter, which is at  
15 Exhibit J29 to the application, where the Fish & Wildlife  
16 Service says that if saguaros must be impacted by  
17 construction and cannot be transplanted on site, we  
18 recommend the replacement on site at a ratio of three to  
19 one.

20                   What about using that as a condition for this  
21 project?

22           A.    (BY MR. BECK) Well, the concern that TEP has  
23 with that is that, first of all, we have a lot of  
24 conditions in our CEC as it is. This would be another  
25 added condition that is already covered by the permits and

1 the permissions we need to get from the Fish & Wildlife  
2 service, Game & Fish, State Land. All of the various  
3 agencies that we have to deal with and get permits and  
4 rights from, we'll handle that.

5           And as you mentioned, there's the U.S. Fish &  
6 Wildlife letter. That's a recommendation early on in the  
7 project. We are in consultation with them. And once a  
8 final CEC is granted, we'll be into some very detailed  
9 discussions with all of these agencies regarding the very  
10 specifics of what we can and can't do.

11           So to put that condition into this case is kind  
12 of the cart before the horse, because we don't have  
13 direction from Fish & Wildlife as to what they're really  
14 going to require. As I said, they gave an early-on  
15 recommendation, but there is a lot more consultation that  
16 will go on before we finalize on what their mitigation  
17 measures will be.

18           Q. Is it -- am I correct in understanding, however,  
19 that because of the listed species that use the saguaro  
20 cactus as a habitat, and because of the federal connected  
21 action relating to this project, that U.S. Fish & Wildlife  
22 will ultimately make a determination on what both  
23 Applicants must do in the way of mitigation of saguaro  
24 cactus, and that those directives from U.S. Fish &  
25 Wildlife will then be followed when they come down from

1 the agency?

2 A. (BY MR. BECK) Yes, they will be followed. In  
3 fact, we will be required to follow those. More  
4 particularly, Southwest Transco, based on the RUS  
5 provisions, has to abide by those requirements.

6 Q. But TEP, just to make the record clear, TEP would  
7 abide by those requirements for construction as well?

8 A. (BY MR. BECK) Absolutely.

9 Q. So your concern with regard to the Committee,  
10 this Committee crafting a condition with regard to  
11 mitigation or replacement, would be that U.S. Fish &  
12 Wildlife has jurisdiction, has the final say over saguaro  
13 mitigation, and we should leave that to U.S. Fish &  
14 Wildlife to make that final determination which has not  
15 yet been made?

16 A. (BY MR. BECK) That is correct. And I think the  
17 comment was made earlier about maybe looking back at a  
18 previous case where there was a condition specific to  
19 saguaros. I understand that condition is out there, and  
20 something along those lines is absolutely workable. But  
21 the very specifics of mitigation measures should be left  
22 up to the various agencies that have control over those,  
23 in my opinion.

24 Q. All right. Let's move on and have you address  
25 Point 3 in Committee Exhibit No. 4. Ms. Webb raises the

1 concern over the cultural resources in the area and  
2 suggests an independent archeologist for a pre-survey to  
3 help with pole placement and to monitor contractor work.

4 Am I correct in understanding that the Applicants  
5 are already in consultation with the State Historic  
6 Preservation Office and that the State Historic  
7 Preservation Office, SHPO, is the agency that is charged  
8 with and will have the final say in what mitigation  
9 measures will be used for this project?

10 A. (BY MR. BECK) Yes, that is correct. And we are  
11 in current consultation with them and working with them to  
12 get the information they need to make their decisions to  
13 then identify mitigation measures to us.

14 Q. And am I correct also in understanding that a  
15 Class 1, Class 3 surveys have already been performed along  
16 the preferred route?

17 A. (BY MR. BECK) I believe it's the Class 1. The  
18 existing literature search has been done for sure. And  
19 for the preferred alignment, we have actually done -- I  
20 believe it's the Class 3, the on the ground.

21 Q. And I guess it's important to note here that the  
22 subject of saguaro mitigation, the archaeology, and  
23 cultural resource concerns are matters that Ms. Ericson or  
24 Mr. Horst can and will testify to in the next panel?

25 A. (BY MR. BECK) That is correct.

1 Q. All right. Let's touch, then, on access roads.  
2 If I read Point 4 in Committee Exhibit 4, it says: Please  
3 require a specific mitigation for old access and  
4 construction roads.

5 Do you want to address that in some way?

6 A. (BY MR. BECK) Well, there again, for the most  
7 part this is state land that we're talking about, and  
8 State Land will dictate to us what we can or can't do  
9 road-wise. And to the extent they want us to try and  
10 close up roads, they will tell us that and we will work  
11 with them.

12 Keep in mind that anybody that has a fishing or a  
13 hunting license has access to this state land and we  
14 cannot block that access. And to the extent that we try  
15 to, that would probably be overcome by the ingenuity of  
16 those trying to access these areas. But we will work with  
17 the property owners as they indicate to us the need to.

18 Q. And the final point raised by Ms. Webb in her  
19 Committee Exhibit No. 4 relates to a condition that  
20 specifies a type of standardized sign size and font to  
21 notify the public about construction. And I heard her in  
22 her comments before the Committee this morning suggesting  
23 that there should be a certain type of signage or position  
24 of signage along the interstate. Do you have anything  
25 that you need to say to address that issue?

1           A.     (BY MR. BECK) Well, relative to the interstate,  
2 and in particular to this project, the first requirement  
3 or restriction is that we can't place anything in the  
4 control of access that ADOT has. So you can't be within  
5 their right-of-way. That would push us outside of their  
6 right-of-way. And along some of this route I believe that  
7 the railroad right-of-way probably abuts the ADOT  
8 right-of-way. And therefore, that would push us even  
9 further east to the other side of the railroad. To have a  
10 sign large enough to be seen from the freeway on the other  
11 side of the railroad for somebody driving 75 miles an hour  
12 is probably not doable.

13                 Now, the issue of signage, we understand that's a  
14 big concern to everyone. As I mentioned, we standardized  
15 on what we're using for notice of hearings and so on.  
16 We're developing our standard for construction  
17 notification to make it as consistent and legible to the  
18 public as we can.

19                 MR. DERSTINE: Mr. Chairman, I don't have any  
20 more questions for Mr. Beck concerning Committee  
21 Exhibit No. 4. And if it's appropriate, we can move to  
22 the Google simulation.

23                 CHMN. FOREMAN: Let's do that.

24                 Oh, I'm sorry. Member Noland.

25                 MEMBER NOLAND: Thank you, Mr. Chairman.

1

## EXAMINATION

2

3 Q. (BY MEMBER NOLAND) Just before we move on,  
4 Mr. Beck, several of the points that we've just gone over  
5 in Ms. Webb's document and exhibit were actually also  
6 stated in Pima County's response to you and the line  
7 siting. Have you been in discussions with Pima County at  
8 all?

9 A. (BY MR. BECK) We have not had specific  
10 discussions following up on the letter that they sent to  
11 us. We will have more discussions with them as the  
12 project moves forward. But we did take their information  
13 into account as we went through the process, and I believe  
14 you will hear some more about that when we talk about our  
15 public process. But we did take their positions or points  
16 into consideration as we went through our process for  
17 coming up with our alignments.

18 MEMBER NOLAND: Thank you.

19 CHMN. FOREMAN: Member Mundell.

20

21

## EXAMINATION

22

23 Q. (BY MEMBER MUNDELL) Well, just to follow up on  
24 Member Noland's question, are there any outstanding issues  
25 between you and Pima County?

1           A.     (BY MR. BECK) Relative to this project, as I  
2 said, we'll have more dialogue with them, but I'm not sure  
3 there's what we would call outstanding issues.

4           Q.     Well, I guess we're here to try to work through  
5 the issues that may involve this project, so I'm trying to  
6 understand what, if any, issues still remain that we  
7 should at least know about.

8           A.     (BY MR. BECK) Well, relative to Pima County,  
9 they made some references to looking at some routes  
10 effectively west of the interstate. And I believe you  
11 will hear some more about the issue of environmentally why  
12 that didn't -- wasn't the panacea that on the surface it  
13 might appear to be. There are some other archaeological  
14 and cultural issues west of the interstate, just as the  
15 ones that they've identified east of the interstate.

16          Q.     And then just to sort of crystallize your  
17 position on the saguaros, you don't have a problem with  
18 the condition that was in one of the other CECs dealing  
19 with saguaros? I wasn't really clear. I mean, you talked  
20 about sort of you're going to be meeting with other  
21 agencies in the future and they're going to be putting  
22 conditions on. I'm not really clear what your position is  
23 as we sit here today.

24          A.     (BY MR. BECK) My understanding of the condition  
25 that precedes this case was that there was a limitation to

1 the number of saguaros that could be -- I'm not sure --

2 Q. Destroyed.

3 A. (BY MR. BECK) Destroyed.

4 Q. Destroyed. That's the word.

5 A. (BY MR. BECK) Okay. And to the extent the  
6 Committee wants to put such a limitation on this case,  
7 we're -- that's fine.

8 Q. Okay. So we just have to figure out the number?

9 A. (BY MR. BECK) Correct.

10 Q. And then before lunch you gave us a lot of really  
11 helpful information on reliability and if we had an N-3  
12 situation; is that correct?

13 A. (BY MR. BECK) In the case of today, the N-3. In  
14 the future, N-5, yes.

15 Q. And just so, again, I can succinctly understand  
16 your position, if, in fact, the quads are used, you don't  
17 have a concern about reliability going forward?

18 A. (BY MR. BECK) No.

19 MEMBER MUNDELL: Okay, thank you.

20 CHMN. FOREMAN: Member Eberhart.

21 MEMBER EBERHART: Thank you, Mr. Chairman. And  
22 for the record, I showed up late, but I'm here now. And I  
23 have a couple of questions, Mr. Beck, regarding the  
24 Committee-4 exhibit.

25

## 1 EXAMINATION

2

3 Q. (BY MEMBER EBERHART) On the pole finish, I seem  
4 to recall from the previous case you testified regarding  
5 additional expense and additional care and installation  
6 required for galvanized poles versus corten poles. Could  
7 you talk about that for a minute?

8 A. (BY MR. BECK) I believe that the cost for  
9 galvanizing structures is approximately 10 percent of  
10 additional cost. There is additional cost for handling  
11 during construction because you have to be more careful.  
12 There are maintenance issues. If you do scratch it, that  
13 creates a problem.

14 The point I didn't mention relative to painting  
15 of poles is that if you paint a pole, you have to go back  
16 somewhere between 5 to 10 years out to repaint the poles.  
17 And with the new standards and requirements, it's not as  
18 simple as just going out, wire brushing them and painting  
19 them. You have to go in and collect everything you take  
20 off of that pole as hazardous waste. And so the cost is  
21 extremely great for painting the poles. And the fact that  
22 you then have to go back and do that maintenance every 5  
23 to 10 years is another trip out, and particularly in this  
24 case, in a culturally sensitive area.

25 Q. Thank you. And one other point. Oh, I know what

1 it was. Regarding the signage from the freeway,  
2 Interstate 10. Looking at the map, the preferred  
3 alignment and the existing alignment of Segment 2 runs  
4 roughly parallel to Interstate 10.

5 Do you know how far away, approximately, that  
6 line is from Interstate 10?

7 A. (BY MR. BECK) Approximately two miles.

8 MEMBER EBERHART: Thank you.

9 I know when I was driving in this morning, it was  
10 almost impossible to see from two miles away. I was able  
11 to -- and the only thing I saw was the galvanized  
12 conductors. I wasn't able to hardly see the poles at all.  
13 But maybe we'll get a -- the rest of the Committee will be  
14 able to see that if we go on a tour tomorrow. So thank  
15 you.

16 CHMN. FOREMAN: Let me follow up on a point  
17 raised by Member Mundell.

18

19 FURTHER EXAMINATION

20

21 Q. (BY CHMN. FOREMAN) How many saguaros do you  
22 anticipate would need to be destroyed if the preferred  
23 route was used?

24 A. (BY MR. BECK) Well, as I indicated, the number  
25 of saguaros over 20 feet in both the temporary

1 construction easement as well as the western edge of the  
2 existing right-of-way, there's a total of 1,200 saguaros  
3 in that strip, of which 285 are greater than 20 feet.

4 It's hard to sit here right now and say that  
5 anything less than 285 are potentially destroyed in the  
6 process. I fully expect that to be the case, but I don't  
7 have any numbers to back that up.

8 Q. You indicated, or I understood your testimony to  
9 be that if you just took a look at the line itself, not  
10 the construction easement, that your staff's count was 57  
11 that would need to be removed; is that correct?

12 A. (BY MR. BECK) That's correct.

13 Q. So the number would be someplace between 57 and  
14 285; is that correct?

15 A. (BY MR. BECK) Correct.

16 Q. And in the surrounding area, how much are we  
17 talking about? In other words, if you remove 285 saguaro  
18 along the full length of this line, are you going to  
19 significantly impact the density of saguaro?

20 A. (BY MR. BECK) Well, again, that swath, there's  
21 1,200 today. So it's roughly a quarter, a little over a  
22 quarter of the saguaros that are greater than 20 feet.

23 But there again, in the temporary construction  
24 easement, a lot of those cacti can be avoided. And, in  
25 fact, this might be a good time to point you to Page B26,

1 and it's Figure 6 in Exhibit B of our application, and  
2 that is trying to identify the ground disturbance that  
3 would occur. And I apologize we don't have it put on the  
4 screen. It's Page B26.

5           You'll see in that diagram the area along the  
6 left side of that is the temporary construction easement.  
7 It has the little blue symbols to identify it as the  
8 construction easement.

9           The area that will be disturbed are basically at  
10 the pole locations. As I mentioned previously, we would  
11 run a crane down that temporary construction easement for  
12 placement of the poles. The reason we can't run the crane  
13 down the existing construction roads that are there today  
14 are they are east of the existing alignment, and to try  
15 and bring a crane underneath two energized lines would be  
16 difficult. So the concept would be we would start the --

17       Q.   It might create a problem for your liability  
18 insurer, too.

19       A.   (BY MR. BECK) This is true. We would start the  
20 crane from one end or the other and have it meander its  
21 way along the line, along that temporary construction  
22 easement, with as minimal clearing as we can do.

23           So as you can see, we have kind of indicated a  
24 meandering path between the little clear rectangles.  
25 You'll see there's a 300 by 75 foot area identified

1 adjacent to each of the new pole locations. It's called  
2 a -- we've identified them as staging areas. So within  
3 that staging area, we pretty much clear everything in  
4 those regions in that 300 by 75 foot strip.

5 But between those staging areas, all we would  
6 have to do is have enough space to get the crane from one  
7 pad location to the other. So as you can see, we're  
8 showing it meandering so it can avoid as much vegetation  
9 as possible. We'll try to avoid saguaros and other  
10 vegetation as we can.

11 So a lot of the additional cactus greater than  
12 20 feet that was identified when we included the temporary  
13 construction easement likely will remain. But because our  
14 construction crews weren't out there to say these will  
15 remain, I just don't have good numbers for that.

16 Q. All right. Why don't we go, then, to our tour.

17 A. (BY MR. BECK) Okay. Just as a little bit of  
18 setup for the Google file that you're about to see, our  
19 consultant, CH2M Hill, prepared this using the Google  
20 Earth platform, and they created a rendition of the quad-  
21 circuit structure, the preferred project, and placed it  
22 into that Google file, as well as the existing line that  
23 will remain. So what you're going to see in this Google  
24 file is pretty much the preferred project as we have  
25 presented it in the application.

1           If you look real, real close, and it will be very  
2 hard to see, the existing lines are shadows in the picture  
3 that goes along with Google, but you really don't see the  
4 structures. So you can't see what is there today. I'll  
5 point it out to the best of my ability as we go along, but  
6 the structures you'll be seeing are the proposed new  
7 structures.

8           Okay. Let's go ahead and start. We're heading  
9 south on I-10 as you're approaching the Saguaro  
10 substation. So this is the Saguaro station. It's the  
11 power plant, APS's power plant, as well as two  
12 substations. If you can just pause it there for a minute,  
13 please.

14           The interstate runs along west of this  
15 substation. There's an access road that we just crossed  
16 over. It's right off the edge of this picture. And the  
17 access road to get to Tortolita sub is this road that  
18 parallels the railroad and then comes around. And  
19 Tortolita is off in the distance over to the left about a  
20 mile away.

21           The project that we're contemplating for  
22 Southwest starts at this position here. Today, this is  
23 the transformer that TEP has that converts from 115kV,  
24 which is what Saguaro substation is right here on the  
25 bottom left of this picture.

1           We have a 115 to 138 transformer just outside of  
2 the APS yard, and then our line, the existing line, takes  
3 off and goes down to Tortolita. There's another line that  
4 comes from over to the east, comes out and meets up  
5 parallel and adjacent to the one that I'll be showing you  
6 here.

7           Let's move on just a little bit. Stop there,  
8 please.

9           You can't really see it, but I mentioned that  
10 there are two H-frame structures involved in this project  
11 for Southwest Transco. One is underneath the lettering  
12 here. There's an existing lattice structure that will  
13 remain and continue to be utilized as part of the new  
14 line.

15           And this here is the other H-frame structure just  
16 before you get to the turning structure, which again is a  
17 steel lattice tower. So you'll come out of the  
18 substation, TEP's transformer will be removed, the line  
19 will go to the H-frame onto this lattice structure, one  
20 more H-frame, and then to this lattice structure where it  
21 turns.

22           The reason for these H-frame structures is due to  
23 lines that are crossing over. So for clearance purposes  
24 in order to keep flat construction, low-level  
25 construction.

1 Q. And the H-frames are wood?

2 A. (BY MR. BECK) These H-frames will be new steel  
3 corten poles to make the H-frames.

4 Continue on. Just pause for a minute, please.

5 After the turning structure you'll see this line  
6 just basically heads straight down to a point where it's  
7 going to turn into -- today it turns into Tortolita.  
8 That's the point where this line will start connecting  
9 with the quad circuit, which you'll see when we get down  
10 there.

11 Just to orient you, there's a solar field  
12 approximately in here that APS has, and it's along the  
13 road going back to Tortolita.

14 Parallel and adjacent to this line is the  
15 existing TEP line that will remain. And so it is on wood  
16 H-frame structures, but we didn't model it to represent it  
17 in here just because of the level of effort required in  
18 modeling these. But it is parallel and adjacent and just  
19 to the north and slightly east of this alignment.

20 Continue on.

21 So all of these poles along this stretch are the  
22 steel monopoles that will be replacing the H-frames that  
23 are there today.

24 If you could just pause it there for a moment.

25 The last lattice structure that is utilized as

1 part of the Southwest line sits right here. It's the  
2 turning structure that today turns the TEP line into the  
3 Tortolita substation. Southwest Transco will not be going  
4 into Tortolita substation as part of this project. So  
5 this line will go from this lattice structure, jump onto  
6 the new quad-circuit structures with that pole right  
7 there, and so then the Southwest line will continue down  
8 along the western edge of the quad circuits.

9 Continue on.

10 Now we'll kind of loop back around so you can see  
11 Tortolita substation. If you could pause briefly.

12 I mentioned before, at the Saguaro substation  
13 there's a 115kV yard, which is kind of on the southwest  
14 corner of their property. On the northeast corner is a  
15 500kV yard, and that's the connection out to the major  
16 grid. And TEP has two 500kV lines, and that's the  
17 structures that you see in this picture. There's two  
18 500kV lattice parallel lines that bring power from the  
19 Saguaro 500 yard down into Tortolita substation. That is  
20 the major import for TEP.

21 Continue.

22 Looking west, we're coming around to where you  
23 will start looking to the south. The three lines will  
24 come out of Tortolita substation, and they will all come  
25 in and get onto the quad circuit of that turning

1 structure, and then it runs down the western side of this  
2 right-of-way.

3 I'll just point out very low shrub-type  
4 vegetation for the most part where this line is located.

5 Just pause briefly.

6 Just to point out, this is the construction  
7 maintenance access road that exists along -- for the lines  
8 that TEP has today. And you really -- I can't even make  
9 them out, but there would be two faint shadows in here.  
10 If you got real close you might see them, the existing  
11 line.

12 Continue.

13 As you can see, we do cross some roads. This  
14 coming up is the Missile Base Road. It's a paved road.  
15 And I think that actually was the old missile base right  
16 there.

17 MEMBER EBERHART: Mr. Beck.

18 MR. BECK: Yes. Stop, please.

19 CHMN. FOREMAN: Member Eberhart.

20

21 FURTHER EXAMINATION

22

23 Q. (BY MEMBER EBERHART) I had a question right  
24 there. You talked about not being able to use the  
25 existing access roads because you couldn't get a crane

1 under the existing line?

2 A. (BY MR. BECK) Correct.

3 Q. Couldn't you at this Missile Base Road, couldn't  
4 you access those roads with the crane at that point and  
5 not need the construction easement?

6 A. (BY MR. BECK) Well, the issue with -- we can't  
7 build -- there's two existing lines in here, and a large  
8 part of this is crossing underneath those existing lines  
9 today. So we would be crossing back and forth under the  
10 energized conductors, so there would be a clearance issue  
11 to the crane.

12 For movement purposes, on some portions of this  
13 we could use the existing road to get the crane, but  
14 somehow we need to get it over to the west side of those  
15 existing lines to actually set the towers, the new poles.  
16 That's the issue is the crossing back and forth.

17 Q. So would TEP be opposed to where there is access  
18 to the existing maintenance roads if there were a  
19 condition in the CEC that said that you had to use that  
20 instead of a construction easement? Would that save any  
21 saguaros?

22 A. (BY MR. BECK) We're willing -- yes. I mean,  
23 there's potential to possibly save some saguaros. The  
24 intent of TEP is to, to the extent possible, utilize the  
25 existing roads, because we don't want to go out and clear

1 something we don't need to do to begin with.

2 Q. Sure.

3 A. (BY MR. BECK) So wherever there is sufficient  
4 clearance to come underneath the line to get over there  
5 for construction, or if there's access, for example, off  
6 of Missile Base Road, we will minimize the use of that  
7 temporary construction easement.

8 Q. Isn't there a FERC or some other regulation on  
9 the ground clearance, 25 feet for the conductors from the  
10 ground?

11 A. (BY MR. BECK) There is a requirement. And I  
12 believe you missed the points this morning that these two  
13 lines do not have sufficient ground clearance today.  
14 That's one reason for rebuilding these two lines.

15 Q. I see.

16 A. (BY MR. BECK) So we're trying to resolve an  
17 issue with minimal ground clearance.

18 Q. Even at the existing pole structures there's not  
19 sufficient clearance?

20 A. (BY MR. BECK) Close to the poles there is. One  
21 of the issues you get when you try to get too close to the  
22 poles is maneuvering this long-bedded, long-wheel-base  
23 crane. But our intent would be, to the extent possible,  
24 to utilize those existing roads and only cross over as  
25 needed.

1 MEMBER EBERHART: Okay. Thank you.

2 CHMN. FOREMAN: Let me follow up on that,  
3 Mr. Beck.

4

5

FURTHER EXAMINATION

6

7 Q. (BY CHMN. FOREMAN) Looking at Page B26 of the  
8 application that you showed to us earlier, that indicates  
9 a 300-foot area as a staging area for the placement of one  
10 of the new poles, and then it shows the crane would walk  
11 or drive down the west side of the alignment to the next  
12 staging area.

13 Would there be a problem with running the crane  
14 under the lines to the east of the present lines, then  
15 making use of that road down to the next staging area,  
16 then running them back across underneath the lines to the  
17 next staging area, and then in that way saving the impact  
18 on the construction easement that you've proposed between  
19 the staging areas?

20 A. (BY MR. BECK) There will be some opportunities  
21 to do that along the route. Where you have existing poles  
22 that are relatively in alignment that provide sufficient  
23 clearance that you can get a crane under it, and you have  
24 the right maneuvering room to be able to turn the crane  
25 and get it from one road to the other or from one side to

1 the other off the existing road, that would be the intent  
2 and that would be what TEP would do.

3 But there will be some stretches where the poles  
4 will not line up such that we have the clearance to bring  
5 the crane in underneath the line. And so in those areas,  
6 the only way that we could do it is to walk the crane  
7 along --

8 Q. On the west side?

9 A. (BY MR. BECK) -- on the temporary construction  
10 easement.

11 Q. On the west side of the line?

12 A. (BY MR. BECK) Correct.

13 Q. I'm sorry. Go ahead.

14 A. (BY MR. BECK) Okay. Continue.

15 Here we're approaching the CAP canal. So this  
16 would be the divergence point from the south side of the  
17 canal where the alternate option would take off, but the  
18 preferred and Alternate 1 stay in this existing  
19 right-of-way.

20 As you'll notice, there are other trails, and in  
21 some cases more or less dirt roads that go through the  
22 area.

23 Now, we just passed one residence, but there's  
24 very little in the way of residences or people out in this  
25 area.

1 Q. Stop a moment, if you would.

2 And just to get the scale, the distance from the  
3 line that you've put up there out to the existing line is  
4 in the neighborhood of 250 feet, if my memory serves me  
5 correctly. So if we're talking about a 500-foot corridor  
6 on both sides of the proposed line, we have found one  
7 house so far that would fit into that 500-foot corridor;  
8 is that correct?

9 A. (BY MR. BECK) I believe that's the case, yes.  
10 And I believe it's approximately 275 feet, center line of  
11 this existing H-frame line and the quad circuit proposed.

12 Continue.

13 You'll see where we're coming up to the proposed  
14 substation right up here. Now, if you could pause just  
15 briefly.

16 Here you'll see there's Owl Head Ranch Road that  
17 crosses underneath the line. The substation is proposed  
18 for here for Southwest Transco. And as we go up by it,  
19 you'll see there's a line drop into the substation and  
20 then a line exiting the substation that continues south.

21 Q. Would there be a need for a pole between the  
22 presently designated path for the preferred option and the  
23 Adonis substation?

24 A. (BY MR. BECK) Yes. And as we get closer, we can  
25 show that.

1           If we could go just a little bit further on it.  
2   Pause it right there.

3           You'll see there's two structures here, one for  
4   dropping into the station and one for exiting the station.  
5   So there is a pole in between the alignment and the  
6   substation. And I think we actually circle around this,  
7   if you continue.

8       Q.   Okay. Now I can see it better.

9       A.   (BY MR. BECK) Maybe just pause for a second.  
10           You can see where the line comes in from the  
11   north coming from Saguaro and drop into the station here.  
12   Then it exits the station to continue on in a southerly  
13   pattern.

14       Q.   Maybe Mr. Burson will have the answer to this.  
15   The Adonis substation is solely for Southwest's future  
16   use; is that true?

17       A.   (BY MR. BURSON) That's correct, Mr. Chairman.  
18   It's for Trico, one of our members. And I might add that  
19   this is conceptual. I mean, we were -- this is our best  
20   guess to date of the orientation within our footprint for  
21   the substation. So we might be able to eliminate one of  
22   those small poles, but we don't know that until we get to  
23   the final design.

24       Q.   Okay.

25       A.   (BY MR. BECK) And in fact, to that point, it's

1 likely that this pole location would shift a little  
2 further to the south to have some straight droppings right  
3 underneath.

4 Continue.

5 As you noticed, or maybe noticed, the bottom  
6 position on the west side was the one that Southwest  
7 Transco would have. So the upper circuit on the west side  
8 would be TEP, and then the two circuits on the east side  
9 of the quad circuit would be TEP.

10 Q. And that would be to ease the dropping out at  
11 that substation?

12 A. (BY MR. BECK) That's correct. Now, you'll  
13 notice we do cross various washes. Again, there's not a  
14 lot of vegetation in this area, and the vegetation that  
15 does exist for the most part is closer to the washes.

16 Q. If I read the application correctly, you said  
17 that you did a Class 3 survey of the preferred line. You  
18 found no archaeological or historical indications of note;  
19 is that correct?

20 A. (BY MR. BECK) I probably would defer that to --

21 Q. I would like an answer on that when we have  
22 testimony on it.

23 A. (BY MR. BECK) Just to point out, in between  
24 these two lines you can see this lighter area. That is  
25 actually one of the existing H-frame lines. You don't

1 really see it there, but that basically is it. And then  
2 the other one is right along here.

3           If you could just pause it here.

4           This is the turning point which on the map on  
5 your placemat is just north of Tangerine Road or the  
6 Thornydale substation, so it's that approximately  
7 45-degree angle point.

8           Continue.

9           So at this point we turn to the south, and then  
10 we'll head pretty much directly south into North Loop.

11           Pause just for a minute.

12           Here is Tangerine Road, which was brought up  
13 earlier. That's probably the major road that we will  
14 cross with this line. It will be the closest traffic  
15 point. And we do have, just to point out, that's a key  
16 observation point. There's a photo that goes with that in  
17 the application.

18           Continue.

19           We continue on south of Tangerine and up to  
20 another turning point, which is coming up.

21           And if you just pause it there for a minute.

22           It's kind of hard to see on here. You'll get a  
23 better view as we swing around. But three of the lines,  
24 the TEP lines will come across and come into North Loop  
25 sub, but the intent is at this point for the line for

1 Southwest Transco to peel off of the quad circuit and head  
2 west to its future line.

3 And as was mentioned earlier, that turning point  
4 could be any of these structures along here. So the plan  
5 at this point is to come off of that structure and go  
6 west. It doesn't preclude if a future case were to say we  
7 come in at a different structure that we're restricted to  
8 that structure.

9 Q. But that selection and that corridor is not a  
10 part of this application; correct?

11 A. (BY MR. BECK) That is correct. It would be a  
12 separate application.

13 CHMN. FOREMAN: Member Eberhart.

14 MEMBER EBERHART: Thank you, Mr. Chairman.

15

16 FURTHER EXAMINATION

17

18 Q. (BY MEMBER EBERHART) Mr. Beck, is there any  
19 intertie into Thornydale substation?

20 A. (BY MR. BECK) At this point, no. And I don't  
21 know if Jim wants to address, you know, it could be tapped  
22 in there in the future. I don't know if that's in your  
23 future plans at this point.

24 A. (BY MR. BURSON) It's in our long-term future  
25 plan. Right now, Thornydale is fed out of TEP's 46kV

1 system. And Adonis, one of its primary needs is to  
2 off-load that substation.

3 And as the regional area grows -- as you can  
4 tell, this is kind of rural now. But with the economy  
5 boom, there was a lot of speculation of developers in the  
6 area. Thornydale could require more capacity than we can  
7 deliver currently from the 46. And there we would utilize  
8 our asset, our 115 transmission line right next to it, and  
9 loop in and out of Thornydale. But the timing is not --  
10 we haven't defined a definite time.

11 Q. If there was a need to do that in the future,  
12 would you need to get a CEC in order to do that?

13 A. (BY MR. BURSON) Well, it's a substation, and I  
14 don't think we would require an extension. I'm not the  
15 legal, but I think you need two or more structures, and I  
16 think we could accomplish that without the two or more  
17 structures.

18 Q. Thank you.

19 A. (BY MR. BECK) It's likely even closer than  
20 Adonis is to the line, so it would be a very similar drop.

21 A. (BY MR. BURSON) Yeah.

22 A. (BY MR. BECK) And there is a 46 line that comes  
23 out of the North Loop and basically comes near this  
24 corridor and heads up to Tangerine. That is what is  
25 feeding Thornydale today and has been for years.

1 Continue on.

2 Here again, we turn the corner and do a loop  
3 around North Loop.

4 Pause it right there for me, please.

5 Again, it's kind of hard to see, but that's the  
6 turning structure there on the quad circuit. As we come  
7 around a little further, there will be more definition of  
8 the Southwest Transco line coming off, and then you'll see  
9 the three TEP lines coming over to the substation.

10 Continue.

11 Pause there. That actually shows you a little  
12 bit better. There's the Southwest line on the bottom, and  
13 the TEP lines are coming in here and then down to drop  
14 into the station.

15 Continue.

16 That was the proposed project. We do have a  
17 couple of quick views going down the road just to show you  
18 what the perspective would be like for somebody driving  
19 down the road that will cross under the line.

20

21 FURTHER EXAMINATION

22

23 Q. (BY CHMN. FOREMAN) What was the large tank that  
24 was there?

25 A. (BY MR. BECK) At North Loop, TEP has some

1 turbine generators, and those were oil for those  
2 generators. It's an alternate source. We run them on gas  
3 today, but there is the capability to run them on oil.

4 Q. Diesel or --

5 A. (BY MR. BECK) Yeah. Fuel oil.

6 Okay. This is a video that's going -- headed  
7 east on Missile Base Road and just shows you as you cross  
8 under the line.

9 CHMN. FOREMAN: Before we depart, Member Mundell.

10 MEMBER MUNDELL: How often, let's say in the last  
11 few years, have you had to fire them up and use diesel  
12 oil?

13 MR. BECK: I don't believe we've used them in the  
14 last five years on diesel. We run them on gas.

15 MEMBER MUNDELL: Even when you had the fire up in  
16 New Mexico a few years ago?

17 MR. BECK: Yeah. We still had a gas supply and  
18 we were able to run them on gas.

19 MEMBER MUNDELL: Thank you.

20 MR. BECK: If we could run that. It's kind of  
21 fast, but it gives you a little bit of perspective of what  
22 the line would look like.

23 Q. (BY CHMN. FOREMAN) This is a perspective if you  
24 were flying a plane underneath it.

25 A. (BY MR. BECK) Maybe it goes back to the airport

1 issue.

2 Can we slow that one down? It's control-shift.

3 That's slightly better.

4 Q. It's a slow plane. And the clearance, the level  
5 from the lowest conductor to the ground surface is how  
6 many feet?

7 A. (BY MR. BECK) It's 25 to 27 feet minimum  
8 clearance. We typically put a buffer in there.

9 Then I think we have one more, the Tangerine  
10 Road, I believe. These two roads were selected because  
11 they're the two paved roads that cross under the line.

12 An interesting thing about Google is you kind of  
13 run over vehicles along the way.

14 Now, just to point out, the line that you're  
15 seeing here, this is along the southern side of Tangerine  
16 Road that's heading east. That's the line that I talked  
17 about. It was labeled as 122. It's the one that goes  
18 over to Rancho Vistoso.

19 What we didn't get a good look at was right at  
20 the corner of Tangerine where I had talked about changing  
21 jumpers. That was the location where the jumpers were  
22 relocated.

23 So that was our canned presentation. We have the  
24 Google Earth, the full package, if there's anything in  
25 particular that you would like to look closer at or see.

1 CHMN FOREMAN: Any member of the Committee?

2 (No response.)

3 CHMN. FOREMAN: All right. I think that will do  
4 it. Does the -- well, let me call the roll. That would  
5 be a good thing for me to do now.

6 Member Eberhart.

7 MEMBER EBERHART: Here.

8 CHMN. FOREMAN: Member McGuire.

9 MEMBER MCGUIRE: Here.

10 CHMN. FOREMAN: Member Mundell.

11 MEMBER MUNDELL: Here.

12 CHMN. FOREMAN: Member Noland.

13 MEMBER NOLAND: Here.

14 CHMN. FOREMAN: Member Palmer.

15 MEMBER PALMER: Here.

16 CHMN. FOREMAN: Member Rasmussen is still  
17 convalescing.

18 Member Whalen.

19 MEMBER WHALEN: Here.

20 CHMN. FOREMAN: Member Wong, not here.

21 Member Youle.

22 MEMBER YOULE: Here.

23 CHMN. FOREMAN: All right, very good. Let me ask  
24 my fellow Committee members now, do you want to talk about  
25 whether we want to take a tour tomorrow? Does anybody

1 want to take a bus tour?

2 MEMBER MUNDELL: Do we want to talk about it or  
3 do we want a tour?

4 CHMN. FOREMAN: Both. We're going to have to  
5 talk about it if we're going to have the tour.

6 MEMBER MUNDELL: I was just kidding,  
7 Mr. Chairman.

8 MEMBER EBERHART: Mr. Chairman, is there an  
9 estimate on how long it would take?

10 MR. BECK: Approximately three hours is what we  
11 estimated if you selected the full itinerary that we have  
12 identified.

13 CHMN. FOREMAN: Anybody else want to be heard on  
14 the tour?

15 (No response.)

16 CHMN. FOREMAN: All right. Do I have any -- is  
17 there anybody here -- I'm comfortable making a decision  
18 without the physical tour. Because after viewing the  
19 slides, I do not see any encroachment of residential  
20 dwellings except for the one house that we saw in the  
21 entire length of the project. And I'm assuming that we're  
22 going out at least 500 or perhaps 1,000 feet each side of  
23 the proposed path.

24 I don't see any significant changes in  
25 vegetation. The waterways are alluvial waterways that can

1 be spanned within the span of the poles. And so I'm just  
2 not seeing that there would be an artifact along the  
3 proposed route that I would want to eyeball close enough  
4 to necessitate a tour, but I'm willing to have one if  
5 somebody wants one.

6 Member Mundell.

7 MEMBER MUNDELL: Mr. Chairman, can I just ask  
8 Mr. Beck one clarifying question?

9 CHMN. FOREMAN: Sure.

10 MEMBER MUNDELL: Mr. Beck, how close will the  
11 line be to that one residence?

12 MR. BECK: You know, we can pull it up on Google  
13 and try to get that distance.

14 MEMBER MUNDELL: I wasn't clear.

15 MR. BECK: Can we pull that up?

16 He's rebooting his computer, so we'll have that  
17 shortly. We're estimating it's about a quarter of a mile  
18 based on having looked at it before. But if you would  
19 like to see it, we can actually pull it up and measure it  
20 if this helps with your decision.

21 MEMBER MUNDELL: No. I mean, if your testimony  
22 is that it's approximately a quarter of a mile, I mean,  
23 I'll --

24 MR. BECK: That is the testimony.

25 MEMBER MUNDELL: That's sufficient for me. I

1 don't know about the other members.

2 CHMN. FOREMAN: If this was a new line, there had  
3 not been poles and conductors down this line before, then  
4 perhaps it's a different story. But when we're with --  
5 and if anybody is seriously considering Alternative 2,  
6 then maybe we ought to take the tour, because that would  
7 be a new area, an area that was not covered by the  
8 fly-over.

9 But it seems to me that the preferred route and  
10 Alternative 1 are more than adequately addressed by the  
11 Google Earth presentation that we've had, and I just don't  
12 see anything along the route that would merit a closer  
13 eyeball inspection.

14 Member Palmer.

15 MEMBER PALMER: Yes, Mr. Chairman.

16 Mr. Beck, in order to mitigate any potential  
17 collision between a car and a pole, I notice that on the  
18 south side of Tangerine as depicted here, the poles are a  
19 little closer to the roadway than the ones on the north  
20 side for the crossing.

21 Is it possible to be mindful of the risk involved  
22 with a quad-circuited system and make sure that there's an  
23 equal distance between the poles on one side of the road  
24 and on the other so that the span maximizes the distance?

25 MR. BECK: Yes, Mr. Palmer, we can definitely

1 account for that. And, in fact, on both sides of  
2 Tangerine Road there are fences with gates to get into  
3 that right-of-way. So it is fenced off from the roadway,  
4 so we could make it an equal distance.

5 MEMBER PALMER: The Committee is as unfamiliar  
6 with quad circuiting as you are, so it's a new experience  
7 for all of us.

8 CHMN. FOREMAN: All right. Well, I'm thinking --  
9 did you have something to say?

10 MEMBER MUNDELL: Just a couple of follow-ups.  
11 Mr. Palmer made me think of it.

12 I assume at some point in the future Tangerine  
13 Road is going to be expanded, as I recall. So we've taken  
14 that into consideration in what you're asking for?

15 MR. BECK: Yes. In fact, as we move forward with  
16 permitting for individual poles, we'll be looking at any  
17 plans for road construction in the area. And one of the  
18 reasons that -- there was a couple of public comments  
19 relative to Option 2 as related to the Tangerine  
20 interchange and that road work.

21 MEMBER MUNDELL: Thank you, Mr. Chairman.

22 CHMN. FOREMAN: All right. I'm going to then  
23 exercise the prerogative of the Chair and indicate that  
24 we're not going to go ahead on the physical tour in the  
25 morning. So we'll plan on reconvening at 9:30, and you

1 can cancel the plans that you had.

2           Again, I appreciate the inconvenience that we  
3 forced you to go through in order to keep that option  
4 open. I hope you understand we're doing it just so that  
5 we can preserve the opportunity to take a look at the  
6 route firsthand if we see something that we think needs to  
7 be seen firsthand. And we are doing it this way so that  
8 we can try and get a decision made on your application as  
9 quickly as possible.

10           MR. BECK: I would point out that we do have the  
11 Google back up now. And just measuring off, it's  
12 .23 miles to that particular residence.

13           CHMN. FOREMAN: So it isn't a quarter of a mile.  
14 It's .23 miles; is that correct?

15           MR. BECK: Apparently, it is .23 miles. I stand  
16 corrected.

17           CHMN. FOREMAN: All right. I'm glad we got that  
18 straight. Why don't we take the afternoon break and we'll  
19 reconvene at 3:00 p.m.

20           (A recess was taken from 2:44 p.m. to 2:59 p.m.)

21           CHMN. FOREMAN: Let's go back on the record. We  
22 were continuing with the examination of Mr. Beck and  
23 Mr. Burson.

24           Counsel, do you have other questions?

25           MR. DERSTINE: I just have -- I want to double

1 back with Mr. Beck on one issue, and I think then my  
2 examination of Mr. Beck will be concluded.

3 MEMBER MUNDELL: Is that a new term? Instead of  
4 redirect it's double back?

5 MR. DERSTINE: We have a double-double circuit,  
6 and I'm going to double back on an issue. So there's a  
7 lot of doubles going on.

8

9 DIRECT EXAMINATION (Cont'd)

10

11 Q. (BY MR. DERSTINE) Mr. Beck, you had a number of  
12 questions regarding the impacts on saguaros as well as, I  
13 guess, other vegetation from the temporary construction  
14 easement, the movement of the crane, as well as what other  
15 measures or steps could be taken to minimize the impacts  
16 on saguaros through the construction process.

17 I wanted to direct your attention, and I think  
18 the attention of the members of the Committee, to  
19 Condition 12 of the proposed CEC, which should be in your  
20 exhibit binder. And that calls out and requires a  
21 construction mitigation and restoration plan.

22 Let me hand you this CEC, and ask you to describe  
23 generally what will occur through the construction  
24 mitigation plan, and then if there is language in  
25 Condition 12 that directly addresses the company's use of

1 existing roads to minimize environmental impacts from new  
2 construction.

3 A. (BY MR. BECK) Yes. As I had indicated before,  
4 we have a lot of conditions in these cases, and to some  
5 degree we tend to forget even what the conditions are in  
6 here.

7 But this particular condition points out that we  
8 will file a construction mitigation/restoration plan with  
9 Docket Control once we have developed one, once the CEC is  
10 approved. It will specify the Applicants' plans for  
11 construction access and methods to minimize impacts to  
12 wildlife, minimize vegetation disturbance outside of the  
13 project right-of-way, particularly in drainage channels  
14 and along stream banks, and shall revegetate unless waived  
15 by the land owner native areas of construction disturbance  
16 to its preconstruction state outside of the power line  
17 right-of-way after construction has been completed.

18 That will be done and specified by the  
19 Applicants' plans for coordinating with Arizona Game &  
20 Fish Department, as well as the State Historic  
21 Preservation Office.

22 And it also points out that the Applicants shall  
23 use existing roads for construction and access where  
24 practicable, and the plans shall specify the manner in  
25 which the Applicants make use of roads. And all of the

1 parties will have the opportunity to comment on this once  
2 it's been filed with Docket Control.

3 Q. Thank you for that. We've gone through your --  
4 your direct examination started this morning and then  
5 continued after lunch. I wondered if you could summarize  
6 your direct testimony on need and the purpose and the  
7 benefits of this project, and in particular the preferred  
8 route.

9 A. (BY MR. BECK) Yes. Ultimately, TEP has a need  
10 to provide additional capacity for our system -- that is  
11 the purpose of this project that we have brought  
12 forward -- as well as the opportunity to work with  
13 Southwest Transmission Cooperative to meet their needs in  
14 a joint fashion.

15 We feel that the proposed project balances our  
16 ability to construct and maintain facilities, while  
17 minimizing the impact to the environment, impact to  
18 existing residents, and the cost of acquiring a new  
19 right-of-way. The proposed project provides for future  
20 expansion potential for TEP, in particular relative to  
21 future needed EHV transmission between Tortolita and North  
22 Loop.

23 MR. DERSTINE: That concludes my direct  
24 examination of Mr. Beck, as well as my double back  
25 examination of Mr. Beck. I make him available for

1 cross-examination, but I want to reserve my rights for  
2 rebuttal.

3 CHMN. FOREMAN: Double-double back?

4 MR. DERSTINE: Exactly.

5 CHMN. FOREMAN: Mr. Grant, do you wish any double  
6 back?

7 MR. GRANT: I hate personally doubling back, so  
8 I'm going to waive that.

9 CHMN. FOREMAN: All right.

10 Mr. Robertson, do you have any cross-examination?

11 MR. ROBERTSON: Yes, I do. Thank you,  
12 Mr. Chairman.

13

14

CROSS-EXAMINATION

15

16 Q. (BY MR. ROBERTSON) Mr. Beck and Mr. Burson, good  
17 afternoon.

18 A. (BY MR. BECK) Good afternoon.

19 Q. Do you gentlemen happen to have with you a copy  
20 of the responses to Pinal County's data requests that were  
21 prepared by TEP and SWTC? They are attached as Appendix A  
22 to Pinal County Exhibit 1, which is the September 29, 2009  
23 letter from Chairman Snider of the Pinal County Board of  
24 Supervisors to Chairman Foreman and this Committee.

25 A. (BY MR. BECK) During the -- we're in the process

1 of getting copies.

2 Q. The transcript shows no passage of time.

3 A. (BY MR. BECK) I believe we both have copies.

4 Q. Very good. Thank you.

5 I'm going to be asking you gentlemen a series of  
6 questions that pertain to the subject of electrical  
7 reliability. As you'll recall in my opening remarks this  
8 morning, I mentioned that as a consideration that Pinal  
9 County wants to be sure is fully addressed.

10 And I think as background, Jay, if we might put  
11 up on the screen that part of the Google fly-over that is  
12 looking in a northeasterly direction towards the Saguaro  
13 substation.

14 And I think actually, Jay, we can stop right  
15 there. If we look at the right-hand screen, that may  
16 suffice for my question.

17 Mr. Beck, my first question will go to you.  
18 Directing your attention to the right-hand screen where  
19 I'm pointing with the laser, which puts the red dot on the  
20 screen, is that where the 500kV portion of the Saguaro  
21 substation is?

22 A. (BY MR. BECK) No. The 500kV portion is  
23 basically where the hand is, or in the upper right corner.  
24 It sits back a little bit from the power plant and the  
25 115 yard that sits kind of in the center portion of this

1 picture.

2 Q. Now, did I understand you correctly in your  
3 direct testimony earlier today to indicate that a major  
4 feed for the Tucson Electric Power system comes in to the  
5 500kV portion of the Saguaro station?

6 A. (BY MR. BECK) That is correct. The 500kV is the  
7 primary way that power gets imported to Tortolita, which I  
8 had indicated was approximately a third of our total  
9 import.

10 Q. And what are the power resources that come into  
11 the TEP system through the Saguaro 500kV and then into  
12 Tortolita?

13 A. (BY MR. BECK) It's basically a mix of all power  
14 flowing in the region. The electrons are not color-coded,  
15 so you can't say that the power actually is from any  
16 particular generator. But one of our main resources that  
17 we bring in on that path is our Four Corners power  
18 allotment. We're a participant in the Four Corners plant.  
19 That power specifically is tagged to come down the path  
20 that comes into Saguaro and on into Tortolita.

21 Q. Okay. I believe you indicated about a third of  
22 TEP's power comes through Saguaro and Tortolita; is that  
23 correct?

24 A. (BY MR. BECK) That's correct.

25 MR. ROBERTSON: Now, Stuart, if we could on the

1 left-hand screen go to the slide that related to system  
2 flow for 2009, and then on the right-hand screen if we  
3 could have the table that relates to that particular  
4 slide, if that's possible. And if it's not, that's fine.  
5 What we'll do is take this slide first, and then I'll move  
6 to the second slide. We'll do that with each of the other  
7 two years.

8 Q. (BY MR. ROBERTSON) Mr. Beck, would you indicate  
9 on this slide again the lines that were assumed to be out  
10 of the service for purposes of the analysis for the 2009  
11 system flow?

12 A. (BY MR. BECK) It would be the lines that are  
13 labeled 117, 118, and 125. So the three lines, 138kV,  
14 between Tortolita and North Loop.

15 Q. All right. Now let's go to the next slide that  
16 relates to this, which is the table.

17 And if I recall your testimony correctly, you  
18 indicated that if the N-3 3 extreme event assumed for  
19 purposes of this analysis should occur, that there would  
20 be a loss of approximately 56 megawatts on TEP's system  
21 that would have to be offset or dealt with in order to  
22 maintain system balance; is that correct?

23 A. (BY MR. BECK) The difference between the total  
24 import before and after the contingency is -- that  
25 difference is what I referenced, the 56 megawatts. And

1 that would be load that is dropped off our system, turned  
2 off by TEP, for the short period right after the  
3 contingency. Then, as I mentioned, we would start  
4 bringing on our local generation, recover a portion of  
5 that, and then do some reconfiguration of the system to  
6 bring the balance of that back on.

7 Q. Now, this particular 2009 analysis assumes a loss  
8 of just TEP lines; is that correct?

9 A. (BY MR. BECK) That is correct.

10 Q. Okay. So Mr. Burson, would it be appropriate to  
11 conclude that under this assumed scenario there would be  
12 no impact on electric service within Pinal County?

13 A. (BY MR. BURSON) Yes, that's correct. I would  
14 make that assumption.

15 Q. All right. Let's move, then, to the system flows  
16 analysis for 2010. And Mr. Beck, could you describe again  
17 what lines were assumed to be out for purposes of your  
18 analysis?

19 A. (BY MR. BECK) For this particular analysis, we  
20 actually took all of the lines in this corridor between  
21 Tortolita and North Loop out of service. So that includes  
22 four 138kV lines of TEP, and the one 115kV line of  
23 Southwest Transco.

24 Q. Let me ask you, Mr. Beck, with regard to TEP's  
25 lines, would the assumed outage of those four lines have

1 any impact on electrical service within Pinal County?

2 A. (BY MR. BECK) I believe -- did you ask me --

3 Q. Only as to TEP lines. I'll get to Mr. Burson  
4 next.

5 A. (BY MR. BECK) Yes. We have no load in Pinal  
6 County, so it would have no impact.

7 Q. So there would be no impact from the outage of  
8 TEP lines; is that correct?

9 A. (BY MR. BECK) That is correct.

10 Q. Now, Mr. Burson, let's move to you. If I  
11 understand this particular slide correctly, the analysis  
12 assumes the outage of Southwest Transmission's line; is  
13 that correct?

14 A. (BY MR. BURSON) That is correct. Now, under the  
15 assumption that the outage -- and in Mr. Beck's  
16 discussion, he looked at losing all five lines in the  
17 corridor. If that happens above between Saguaro and  
18 Adonis, we will be able to serve the load out of  
19 Rattlesnake, and, therefore, no loss of customers in Pinal  
20 County. If it happens below Adonis to Rattlesnake, we  
21 will be able to continue to serve the load out of Saguaro  
22 and, therefore, no impact to customers in Pinal County.

23 Q. All right. Thank you.

24 Now let's move to the analysis for 2019. And  
25 gentlemen, my interest is the same. So with the purpose

1 of moving my cross-examination along, Mr. Beck, under this  
2 slide, which TEP lines are assumed to be out of service?

3 A. (BY MR. BECK) All of the ones between Tortolita  
4 and North Loop. So there's four individual lines would be  
5 out of service.

6 Q. And under that assumption, would there be any  
7 impact on electric service in Pinal County?

8 A. (BY MR. BECK) No, not from TEP's perspective.

9 Q. Mr. Burson, in the context of this slide, what  
10 Southwest Transmission lines are assumed to be out of  
11 service?

12 A. (BY MR. BURSON) With the same relationship or  
13 holds, depending on where the outage is, either from  
14 Saguaro to Naviska, again no impact to Pinal County. In  
15 between Naviska and Adonis, no impact. And likewise,  
16 Adonis to Rattlesnake, there still would be no impact to  
17 Pinal County.

18 Q. All right. Thank you. Now, gentlemen, you  
19 indicated that you have a copy of the responses to data  
20 requests submitted by Pinal County. And you two were the  
21 individuals responsible for preparing the responses for  
22 TEP and Southwest Transmission, were you not?

23 A. (BY MR. BECK) Yes.

24 A. (BY MR. BURSON) That's right.

25 Q. I'm going to have you turn to the last page of

1 the response to Pinal County Data Request LVR 1.2. And on  
2 the top of that page there is a subsection with the  
3 heading, "Circuit Reliability."

4 And the first sentence in that subsection reads  
5 as follows, quote, the design of the 14.6-mile long quad  
6 circuit will incorporate multiple dead-end structures  
7 which will dramatically limit potential impacts under  
8 extreme events, close quote.

9 Now, just a few moments ago before our afternoon  
10 recess, Committee Member Palmer had indicated that  
11 probably most people, if not everyone in this room, has  
12 very little experience with quad circuits. It would seem  
13 to me that this sentence is intended to address any  
14 reliability concerns.

15 Could you expand on how multiple dead-end  
16 structures can dramatically limit potential impacts under  
17 extreme events?

18 A. (BY MR. BECK) Sure. I'm not quite sure where  
19 you were at in the document, but relative to dead-end  
20 structures and what purpose they serve, they will be --  
21 you can consider them stoppers for loss of the line.

22 To the extent you have a dead end, you shouldn't  
23 see any cascading beyond that structure if you were to  
24 lose adjacent structures. So it's just an extra level of  
25 protection in the line to prevent cascading of the line.

1           Now, with steel structures you're not going to  
2 see cascading. It typically just doesn't happen. But by  
3 having dead-end structures, it's just an extra precaution  
4 against having a cascade.

5           CHMN. FOREMAN: And by cascading you're referring  
6 to one pole falling over and pulling another pole over,  
7 pulling another pole over?

8           MR. BECK: Basically, that's it. It's kind of a  
9 domino effect that one goes down and puts enough  
10 additional load on the next structure to pull it over.

11          CHMN. FOREMAN: And you had indicated that your  
12 experience with non-quad circuit poles indicates that's  
13 not a problem. Is there a reason that we should believe  
14 that that also extends to quad-circuit poles?

15          MR. BECK: Yes. I think we can point to, for  
16 example, Nevada, who has had a lot of experience and has  
17 not had any issues with cascading of structures. When you  
18 look at the design loading for a quad-circuit structure  
19 and the materials that go into those poles, those poles  
20 are much, much heavier than your double-circuit structures  
21 would be so --

22          CHMN FOREMAN: Nevada hasn't had any experience  
23 with any of them falling down, much less having a  
24 cascading effect; is that true?

25          MR. BECK: That is correct, yes.

1 CHMN. FOREMAN: I'm sorry, Mr. Robertson. I have  
2 a bad habit of interrupting your examination.

3 MR. ROBERTSON: Not at all, Chairman Foreman. I  
4 appreciate your interest.

5 Let me borrow my crib notes back from Mr. Beck  
6 and I'll continue.

7 Q. (BY MR. ROBERTSON) Mr. Burson, let me shift to  
8 you for a moment. You were describing earlier how,  
9 depending on where an outage occurred, for example,  
10 between Saguaro and Adonis or Adonis and Rattlesnake, that  
11 Trico and Southwest Transmission Cooperative would be able  
12 to feed in from different directions; correct?

13 A. (BY MR. BURSON) That's correct.

14 Q. Would the use of these multiple dead-end  
15 structures between those areas, between Saguaro and Adonis  
16 or Adonis and Rattlesnake, further minimize and mitigate  
17 the potential adverse effects of any loss of your circuit  
18 in that area?

19 A. (BY MR. BURSON) Well, the multiple dead-end, as  
20 Mr. Beck said, minimizes the magnitude of any catastrophic  
21 type of failure. So in that respect, yes.

22 Q. Okay. Now, I'm not sure which one of you  
23 gentlemen is the cost expert, but on the same page that  
24 you were just looking at, Mr. Beck, which is the one that  
25 talked about circuit reliability and the design of the

1 long quad circuit to include multiple dead ends, the last  
2 subsection on that page is transmission costs. Do you  
3 have that in front of you?

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

5 Q. Do you also have a copy of your prepared direct  
6 testimony in front of you?

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

8 Q. The costs for the quad circuit indicated in the  
9 response to Pinal County Data Request LVR 1.2 was  
10 \$13,997,000; correct?

11 A. (BY MR. BECK) That is correct.

12 Q. And when I subtract that from the total cost  
13 shown for the preferred option on Page 12 of your prepared  
14 testimony at Line 1, which is \$21,820,000, I get a cost  
15 differential of or a difference of \$7,823,000.

16 Would you be willing to accept that subject to  
17 check?

18 A. (BY MR. BECK) Yes.

19 Q. Now, if I do that same mathematics and I take the  
20 projected costs for alternative Option 1 shown on Line 2  
21 of Page 12 of your prepared direct testimony of  
22 \$26,509,000, and I subtract from that the costs for the  
23 two double circuits for the preferred alignment of  
24 \$16,869,000 shown in the response to Pinal County Data  
25 Request LVR 1.2, I get a difference of \$9,640,000.

1           And I was curious why the difference, once you  
2 subtract construction costs, the difference between those  
3 two, when if I take the large placemat that's been  
4 provided us today and I look at the legend information on  
5 the left-hand side of it for the preferred option and  
6 Alternative Option No. 1, there don't appear to be, at  
7 least on the face of it, any significant differences.

8           A.    (BY MR. BECK) I apologize. You say on the  
9 placemat there are some cost numbers?

10          Q.    Yes. What I was looking at, Mr. Beck, on the  
11 left-hand side, this is that side of the placemat that has  
12 the map showing the study area and the different  
13 alternatives. It has certain information for Segment 1  
14 which appears to be common to all three routes.

15               And then Segment 2, which is broken down between  
16 the preferred option, the Alternative Option No. 1, and  
17 Alternative Option No. 2, when I look at the information  
18 for the preferred option and Alternative Option No. 1, at  
19 least in terms of broad category descriptions, they appear  
20 to be the same.

21               And when I did this mathematical calculation  
22 earlier today, I was surprised to see that cost  
23 differential once you back out construction costs between  
24 the preferred option and Alternative No. 1, and I just  
25 wondered what accounted for the difference.

1           And it's not that major a point. That's  
2 something -- it looks like we're probably going to be  
3 continuing into tomorrow. If you would like to provide  
4 that for the record at that time, that would be fine.

5           A.     (BY MR. BECK) That would probably be better.  
6 The differentials in cost are related to on the double-  
7 circuit tower you have two structures versus one.

8           Q.     No. I understand the difference between the  
9 preferred option and Alternative 1. That's not my  
10 question.

11           My question is once you back out the construction  
12 cost, I had assumed that the other costs would be  
13 right-of-way and such, and they would essentially be the  
14 same both for the preferred option and Alternative No. 1.  
15 But my line of inquiry is simply to find out why that is  
16 not the case.

17           A.     (BY MR. BECK) Again, I think maybe the more  
18 definitive place to look for the costs is in the early  
19 part of the application where we identify construction  
20 cost, right-of-way cost, and I think there's a third  
21 category, that totaled up make the total construction  
22 cost. And I believe the answer that's in the response to  
23 you is strictly construction costs.

24           Q.     Okay.

25           A.     (BY MR. BECK) So in the application it spells

1 out the three different components of costs that need to  
2 be added together.

3 CHMN. FOREMAN: Member Eberhart.

4 MEMBER EBERHART: Thank you.

5 Mr. Beck and Mr. Robertson, maybe I can help  
6 clarify. It looks like in your response to Pinal County  
7 the cost differential that he's talking about is about  
8 \$3 million. It appears that that is for the structures  
9 only.

10 MR. BECK: That is for the construction only of  
11 the structures.

12 MEMBER EBERHART: Of the structures. It does not  
13 include the cost of the additional conductors; is that  
14 correct.

15 MR. BECK: No. I believe that -- I would have to  
16 go back and look specifically, but I believe that's all of  
17 the construction costs for all of the materials, but it  
18 doesn't include the land piece and the substation  
19 component for Adonis substation, which was added into some  
20 of our total cost numbers in the application.

21 MEMBER EBERHART: Thank you.

22 MR. BECK: So there's a large difference that's  
23 related to the right-of-way for Option 2 that makes a  
24 difference, and the difference between the preferred and  
25 Option 1 is just the fact that you're building twice as

1 many structures.

2 MR. ROBERTSON: Let me approach it a different  
3 way without the intent of taking much time.

4 Q. (BY MR. ROBERTSON) If we set the construction  
5 costs aside for the preferred option and Alternative  
6 No. 1, should the other costs associated with those two  
7 alignments be the same for right-of-way and whatever else  
8 might be involved in the total cost?

9 A. (BY MR. BECK) There are some differences  
10 relative to expected -- what is called the stumpage  
11 payments for vegetation and so on between the two, but  
12 they should be very similar.

13 Q. That's why I was surprised when I did the math  
14 subtracting the construction costs from the costs  
15 indicated in your prepared testimony, but I'll conclude my  
16 pursuit of that line of examination.

17 One last question. When were these studies done  
18 that produced the flow studies for 2009, 2010, and 2019?

19 A. (BY MR. BECK) The particular numbers that you're  
20 seeing here were produced approximately a month and a half  
21 ago.

22 Q. Was that before or after you received the data  
23 request from Pinal County?

24 A. (BY MR. BECK) I believe it was just before.

25 MR. ROBERTSON: Okay. That's all I have. Thank

1 you, Mr. Chairman.

2 CHMN. FOREMAN: Member Mundell.

3 MEMBER MUNDELL: Thank you, Mr. Chairman.

4

5

FURTHER EXAMINATION

6

7 Q. (BY MEMBER MUNDELL) For both the witnesses, sort  
8 of going to 50,000 feet, Mr. Beck, is the usage of quads  
9 in this case, is that a change in philosophy for TEP going  
10 forward, or is it somehow unique to this application?

11 A. (BY MR. BECK) I would say it's pretty unique to  
12 this application because of the limited right-of-way,  
13 future needs. We don't plan to go forward with a lot of  
14 quad circuits, but that is subject to change.

15 The one reason that Nevada Power has gone to quad  
16 circuits and is using so many quad circuits is the  
17 right-of-way issue, the ability to obtain right-of-way to  
18 expand their system. And so they have a lot of them in  
19 their urban areas where they've gone to quad circuits for  
20 that reason.

21 Q. Well, I appreciate your answer. When I say  
22 appreciate, because you and I have been around for a while  
23 now, and I remember in some cases where there's been even  
24 a concern about double circuits. So I'm trying to  
25 understand the thought process, and that's why I asked the

1 question.

2           And I'll ask Mr. Burson the same thing. Is this  
3 a change in philosophy at Southwest Transmission  
4 Cooperative, or is it unique to this case?

5           A.    (BY MR. BURSON) Member Mundell, at Southwest  
6 Transmission, we have very little experience with quad  
7 circuits. We do have some double-circuit towers and  
8 they've been very successful.

9           What we looked at is the number of conductors the  
10 quad circuit hold. They hold 12 conductors. I think  
11 throughout the industry there have been applications where  
12 the monopole is holding up that number of conductors  
13 successfully for long periods of time.

14           So on an engineering aspect where we're able to  
15 design a structure that can physically support the weight  
16 and the stresses, I feel that the quad circuit is just as  
17 reliable as any other circuit that you can design.

18           The big thing to Southwest is the cost. This  
19 partnership of Southwest with TEP from our original plan  
20 of a self-build, stand-alone easement saves us money, and  
21 the quad circuit further saves us money. So I mean, that  
22 sharing of one-fourth of the quad is the lowest cost to  
23 our members, and that's why we liked it.

24           Q.    Let me ask it differently, then. If this is cost  
25 savings and you're not concerned about reliability, why

1 has it taken so long for the industry to suggest it to  
2 this Committee and then, ultimately, the Commission?

3           Because I just recall in other cases it seems  
4 like there was a concern just even about double circuits,  
5 let alone quad. So either of you can jump in there and  
6 answer the question.

7           A.    (BY MR. BECK) Well, from TEP's perspective, this  
8 is unique to this case, and it's because we have an  
9 existing right-of-way where we have the ability to  
10 consolidate these lines into one set of structures,  
11 allowing for future expansion of the system. So it's very  
12 unique to this particular situation for TEP.

13           I don't anticipate us coming forward with quad  
14 circuit structures across our system at least until we  
15 have an extensive level of experience with the quad  
16 circuit. There are some additional issues with the height  
17 of the structures from maintenance and operational  
18 purposes that you have to deal with. They can all be  
19 dealt with, but we want to see how that all plays out over  
20 time.

21           Q.    Then to refresh my memory, other than Nevada,  
22 where else are they being used extensively?

23           A.    (BY MR. BECK) I know in Texas. We found some  
24 users in Texas. Southern California there are some users.  
25 There are some situations in the Phoenix area where there

1 are four-circuit structures. Not necessarily all four  
2 circuits are transmission, but they do have quad circuit  
3 structures in place.

4 Q. Is that SRP or APS?

5 A. (BY MR. BECK) SRP.

6 Q. In the Phoenix area?

7 A. (BY MR. BECK) yes.

8 Q. Okay. Then same question.

9 A. (BY MR. BURSON) I didn't do a survey. I allowed  
10 TEP to do that. But it seemed to me, my recollection,  
11 that there are some circuits in the Valley area that are  
12 bundled, three bundled, 500 on one side, 230 on the other  
13 side, which has 12 conductors, which is a more stressful  
14 engineering feat to pull off than an evenly distributed  
15 quad circuit.

16 MEMBER MUNDELL: Okay, thank you, Mr. Chairman.  
17 Thank you.

18

19 FURTHER EXAMINATION

20

21 Q. (BY CHMN. FOREMAN) Mr. Beck and Mr. Burson,  
22 something that's just occurred to me as I was listening to  
23 this testimony and discussion of the width between the  
24 poles. The Commission Staff has from time to time raised  
25 the issue of pole separation between parallel collocated

1 lines, and my recollection of their position is they would  
2 like to see parallel collocated lines be at least as far  
3 apart as the tallest structure in the parallel lines.

4 Now, as I look -- and my recollection is that  
5 that is not a safety standard that has been adopted by  
6 WECC or any of the other WECC, NERC, FERC, any of the  
7 various safety acronyms that are involved here.

8 Is my recollection correct on that.

9 A. (BY MR. BECK) That is correct. And, in fact,  
10 you probably recall that we have taken exception to that  
11 in past cases.

12 Q. And so as far as I know, this Committee has not  
13 adopted that standard for parallel structures, but let me  
14 call your attention to Alternative 1. It appears to me  
15 that Alternative 1 clearly violates that safety concern of  
16 the Commission; would that be fair?

17 A. (BY MR. BECK) That would not meet their idea of  
18 a criteria, correct.

19 Q. In fact, you've got a -- if I'm reading this  
20 correctly, you have 112-foot high structures that would be  
21 within 50 feet of each other. Is that -- am I reading  
22 the --

23 A. (BY MR. BECK) That is correct. That would be  
24 TEP's proposed construction for that double-circuit  
25 construction.

1 Q. So if there was a safety issue, we have, I guess,  
2 something of a safety unknown with regard to the taller  
3 quad-circuit poles. But based against that, I guess we  
4 have a potential safety issue with regard to the  
5 paralleling double-circuit poles, at least in the mind of  
6 some.

7 A. (BY MR. BECK) That's correct, yes.

8 CHMN. FOREMAN: Okay. Yes, Member Eberhart.

9 MEMBER EBERHART: To that point.

10

11

FURTHER EXAMINATION

12

13 Q. (BY MEMBER EBERHART) Mr. Beck, looking at  
14 Figure 4-5 of the application, which shows the  
15 Alternative 1 cross-section, if you will. I don't know if  
16 they can put that on the screen.

17 A. (BY MR. BECK) Well, is it also the one on the  
18 placemat, Mr. Eberhart? I know you haven't had a chance  
19 to study that.

20 Q. On the back side of the placemat?

21 A. (BY MR. BECK) Yeah.

22 Q. Yes. Alternative Option 1, there seems to be  
23 some arbitrary separation between the proposed poles of,  
24 what, 50 feet? I can't quite --

25 A. (BY MR. BECK) Yes, it's 50 feet. And that's

1 based on our 100 foot of right-of-way for a standard 138kV  
2 double-circuit line. So typically we would have a  
3 100-foot right-of-way for a double-circuit line and build  
4 the line in the middle of that.

5 Q. But don't you own this whole right-of-way?

6 A. (BY MR. BECK) Yes, we do. And one of the points  
7 of trying to consolidate these lines on the quad circuit  
8 in particular was to open up all of that middle space for  
9 future needs for an EHV line.

10 Q. Bear with me for a second, though. Say, for  
11 example, you did put a double-circuit, for example,  
12 30 feet off the west edge of the right-of-way. It appears  
13 to me that there would be room to put in the second line  
14 90 feet or 100 feet away, and even a future third line  
15 90 feet or 100 feet away.

16 In other words, it seems to me that you could  
17 almost achieve what Staff is trying to get at with a wider  
18 spacing and still have room for the future line that  
19 you're talking about. Would you agree with that?

20 A. (BY MR. BECK) What we are trying to do is  
21 maintain larger separations between the 138kV system and  
22 the EHV 345 in the future. Could you fit them all in that  
23 right-of-way? Yes. But we do see a value in having more  
24 separation between the 345 and the 138 than you would  
25 between 138kV circuits. That's why in this case we would

1 propose 50 feet between the structures, especially based  
2 on our experience that we have not lost 138kV steel pole  
3 structures with this type of construction in the past. We  
4 have no expectation that those poles would fall over such  
5 that they would fall in and damage the other adjacent  
6 line.

7 Q. What value does TEP see in providing greater  
8 separation between different voltage lines? In other  
9 words, between the 138 and the 345.

10 A. (BY MR. BECK) Well, the 345 is definitely a bulk  
11 transmission level voltage. And you typically would  
12 protect those more so than you would the 138kV lines that  
13 are more of a subtransmission level.

14 Q. But did you not just testify that you have never  
15 had any experience with any outages on any poles?

16 A. (BY MR. BECK) No, we have not lost any steel  
17 poles having them fall over in a crossways direction to  
18 the line.

19 Q. So there may be a perceived benefit by having  
20 greater spacing between the different lines, but your  
21 experience has been -- TEP's experience has been that  
22 there's no real need for greater spacing.

23 Would you agree with that?

24 A. (BY MR. BECK) Definitely in the case of the  
25 138kV lines we have not had any issues that would push us

1 to greater spacing. But there again, there is this  
2 perception, especially from Staff, that on the bulk  
3 transmission system you should protect it even more so  
4 than you do your subtransmission system.

5 Q. And I'm not necessarily disagreeing with that.  
6 I'm just asking about that.

7 Now, to the point of the 345, have you done any  
8 studies to determine or forecast when that line is going  
9 to be needed?

10 A. (BY MR. BECK) It's beyond the 2019 time frame.  
11 So it's sometime in the 2020s is when we predict the need  
12 for that EHV.

13 MEMBER EBERHART: Okay. I kind of interrupted  
14 you but --

15 CHMN. FOREMAN: That's okay.

16 Member Youle.

17

18 EXAMINATION

19

20 Q. (BY MEMBER YOULE) Mr. Beck, has WECC taken a  
21 look at any of these spacing requirements that is  
22 suggested by the Corporation Commission Staff? Have they  
23 evaluated it in any way?

24 A. (BY MR. BECK) There are some efforts ongoing  
25 within the SWAT group to take a look at it. And one

1 thought that has been placed as a starting point for  
2 separation is you do the shortest span length between  
3 structures, in which case, for lines like this, you would  
4 be separating 700, 800 foot apart. And while from a  
5 conceptual standpoint that would be ideal to deal with the  
6 reliability issues, the practicality of it is you can't  
7 get right-of-ways and separate lines by 700 feet and have  
8 a bunch of parallel lines, you know, in a region chopping  
9 up everybody's property.

10 Q. Okay. But you're not aware of any efforts by  
11 WECC to look at this issue at this point?

12 A. (BY MR. BECK) I think that's the extent of the  
13 efforts. It's at the SWAT level, not at the WECC level.  
14 WECC has not dealt with it.

15 MEMBER YOULE: All right. Thank you.

16 CHMN. FOREMAN: Any redirect or redouble back?

17 MEMBER EBERHART: Mr. Chair, I do have some more  
18 questions.

19 CHMN. FOREMAN: Member Eberhart.

20 MEMBER EBERHART: I'm sorry, I'm not done with  
21 you yet. I'm having too much fun, Mr. Beck.

22

23 FURTHER EXAMINATION

24

25 Q. (BY MEMBER EBERHART) Again, I apologize for

1 being late to the meeting this morning. And if I cover  
2 some areas with my questions that you have already covered  
3 in your testimony or previous questions, I apologize, but  
4 I still would like them answered. So just bear with me  
5 for a few minutes, please.

6 A. (BY MR. BECK) Sure.

7 Q. All of the three 138 TEP lines involved go from  
8 Tortolita substation to the North Loop substation;  
9 correct?

10 A. (BY MR. BECK) That is correct.

11 Q. And they all start at the same place and go to  
12 the same place?

13 A. (BY MR. BECK) Yes.

14 Q. And end at the same place. Okay.

15 What happens with the Southwest line, the fourth  
16 line that ends at the North Loop there?

17 A. (BY MR. BECK) Well, it begins at Saguaro. Its  
18 initial purpose is to serve the Adonis substation, which  
19 is halfway down in Segment 2. And then there will be a  
20 future case that was mentioned this morning that will --  
21 they will extend the line then down to the North Loop  
22 vicinity, and another project is coming forward to connect  
23 that over to the Rattlesnake substation, which is another  
24 part of their system.

25 Q. And that would serve the Tucson area as well?

1           A.    (BY MR. BECK)  It will primarily serve Southwest  
2 Transco's need.  To the degree it isn't parallel with our  
3 system, it may provide a very small amount of support, but  
4 primarily it's to serve Southwest Transco customers.

5           Q.    And Southwest Transco's customers are primarily  
6 outside of the Tucson area?

7           A.    (BY MR. BURSON)  Yes.  Our primary member that we  
8 will be serving with the Adonis and then in that one slide  
9 the future Naviska is Trico Electric, who serves outside  
10 of the surrounding certificated area of TEP.

11          Q.    And some benefit to the Central Arizona Project?

12          A.    (BY MR. BURSON)  Yes, correct.

13          Q.    Thank you.

14                Mr. Beck, I wanted to talk a little bit about the  
15 quad circuits.  I know that's -- in reading the  
16 application, that was probably the only thing that caught  
17 my attention.  There's no rivers on this project, there's  
18 no mesquite bosks or anything like that.

19                So the only unusual thing that caught my  
20 attention was the quad circuit issue.  For the record,  
21 what would you say the megawatt capacity of a 138kV line  
22 is?

23          A.    (BY MR. BECK)  Probably around 250 to 300  
24 megawatts.

25          Q.    Okay.  So for the three 138kV lines, that would

1 be how many megawatts? About 750?

2 A. (BY MR. BECK) No. For the three, approximately  
3 up to 900.

4 Q. Up to 900. What would be the megawatt  
5 equivalency or capacity of a 345kV line?

6 A. (BY MR. BECK) Just from a thermal capacity,  
7 those are in the probably 1,100 to 1,200 megawatt range.

8 Q. So would there be -- let me take a step back  
9 before I ask that question.

10 Did TEP and the other parties study the  
11 possibility of either a 500kV or a 345kV line instead of  
12 the four separate lines?

13 A. (BY MR. BECK) TEP has been undergoing a lot of  
14 long-range transmission studying work over the past  
15 several years. It includes all of the surrounding  
16 entities, including Southwest Transco. We've looked at  
17 EHV, 345kV and/or 500kV lines into the Tucson area.

18 The cost to put that voltage line in is so  
19 extreme that it just doesn't pencil out from an economic  
20 perspective at this time. We're much better off from a  
21 cost perspective to build the additional 138 circuit and  
22 rebuild the two that are there than it would be to try to  
23 build 345 coming down that corridor.

24 And one of the big problems is not only the cost  
25 of the construction of the line itself, but we would have

1 to completely build a new substation at North Loop for the  
2 345kV voltage level, as well as at Tortolita, because  
3 neither of those stations have 345kV today. And you see  
4 that there's a \$6.7 million cost for the Adonis  
5 substation, which is a 115kV. You can magnify that cost  
6 considerably for 345, and then double it, one for each  
7 end.

8 Q. I know you probably don't have anything to do  
9 tonight, but if possible, if you didn't have zany figures,  
10 would it be possible to come up with a ballpark estimate?  
11 I'm not asking for anything definitive, but just something  
12 to look at to compare with the 20-some million dollar  
13 figures we have, to compare providing a 345 or a 500kV  
14 line between the two ending points.

15 A. (BY MR. BECK) Yes, we should be able to do  
16 something overnight.

17 Q. Thank you. I would appreciate that.

18 In your opinion, in your experience, is there a  
19 difference in reliability between the preferred  
20 alternative that you're proposing with three separate  
21 138kV lines as opposed to a single 345kV line?

22 A. (BY MR. BECK) There is a slight improvement from  
23 the standpoint that you're splitting over three separate  
24 lines. And so incidental outages caused by something  
25 blowing into the circuit, if you have a single 345 and you

1 lose it, you lose your whole source. If you have three  
2 138 lines, it's not likely that these small, short-term  
3 outages will affect all three circuits. So multiple  
4 circuits would be a slight improvement over a single  
5 circuit.

6 Now, the 345 system, a much higher voltage. You  
7 have longer insulators, more space between wires, so you  
8 could argue that maybe on a 345 there's less likelihood of  
9 something blowing in and crossing across the circuits.  
10 But we haven't done a study to try to identify the  
11 difference between multiple 138 versus a single 345.

12 Q. As far as comparing the two 345 versus the three  
13 138 lines, are there greater electrical losses in the 138  
14 setup than there would be in the 345 setup?

15 A. (BY MR. BECK) For a given length of line, there  
16 is slightly less losses on the 345 than there would be on  
17 the 138. We're not talking long distances here. If you  
18 were talking long transmission lines, there definitely  
19 would be a big difference. The lines are short enough  
20 there's not a big difference.

21 One additional point I would like to point out  
22 is, you know, we talk about a quad circuit and the impacts  
23 of a quad circuit, but from the perspective of TEP, it's a  
24 triple circuit structure. So we only have three circuits.  
25 And TEP has extensive triple circuit construction on its

1 system, which has worked very well over multiple years.

2 Q. Page 15 of the application, it stated that one  
3 advantage of the preferred option is public,  
4 jurisdictional, and regulatory scoping indicated its  
5 support for the preferred option.

6 Did the public -- or was any of that support  
7 focused in on reliability as the issue, or was it just  
8 from an environmental perspective?

9 A. (BY MR. BECK) I believe that the bulk of those  
10 comments were related to visual, land use, cultural, that  
11 type of impact.

12 Q. Was reliability of the system ever discussed in  
13 any of the public meetings with the quad circuit issue?

14 A. (BY MR. BECK) I believe there may have been a  
15 comment or two. I believe CH2 can probably address that  
16 directly, what the commenters raised relative to  
17 reliability.

18 Q. Okay. If there's an outage of the three 138kV  
19 lines, do you have an estimate on how much time it would  
20 take to get back up to the system being restored?

21 A. (BY MR. BECK) That absolutely depends on what  
22 caused the problem, what the extent of the damage was. To  
23 take all three circuits out, if we have lost a structure,  
24 we would have to go in and replace that structure in some  
25 fashion. So we're probably talking a few days to get some

1 temporary measure in there to replace those structures.  
2 Long-term, you know, six months to order the pole and  
3 replace it. But we would do whatever was needed to get  
4 that back in service in a short period, which would  
5 probably be a matter of days.

6 Q. Well, I think I was more concerned about an  
7 outage and dropping -- having to drop some load.

8 A. (BY MR. BECK) Yes.

9 Q. And I saw on the order of 200 megawatts of load  
10 that would have to be dropped.

11 A. (BY MR. BECK) Out in the 2019 time range, that's  
12 what we showed was in that range.

13 Q. That's the time estimate I think I was looking  
14 for is how long would it take to -- so that you didn't  
15 have to dump load anymore? Would that be the several  
16 days?

17 A. (BY MR. BECK) No. If we have to drop load, if  
18 there's a contingency that requires dropping load,  
19 immediately we would start up any turbines that were  
20 available. And I mentioned this morning that probably  
21 40 megawatts could be recovered in a matter of --  
22 time-wise I didn't say, but probably 20 minutes, what it  
23 takes to get turbines on line and running. So we pick up  
24 a small portion of that load very quickly.

25 The balance of the load would probably be back on

1 line within a day, probably within hours, because we would  
2 totally change the way our system is switched to make sure  
3 we could pick up that load.

4 Q. And if there is -- you know, I'll just use the  
5 numbers, the round number 200 megawatts that has to be  
6 dropped, what does that mean, the load is dropped? Is  
7 there a brownout, or a blackout, or homeowners can go  
8 without electricity for any extended period of time? What  
9 exactly does that mean?

10 A. (BY MR. BECK) What that means -- and we've had  
11 an example of that in the past when there were major fires  
12 along the eastern border of Arizona and western New  
13 Mexico. TEP lost major portions of its 345 system to  
14 those fires for a day or two.

15 During that time, we had rolling brownouts,  
16 blackouts, however you want to term that, where we had  
17 predefined blocks of load that were identified to be  
18 dropped under certain contingencies. When we lost those  
19 lines, we implemented those plans, and so we rotated the  
20 outages throughout our system.

21 So it wasn't that any individual customer was out  
22 for days at a time. In that instance, this lasted a  
23 couple of days, and we had, I believe, a 50 megawatt block  
24 of power that rotated throughout our system. So for a  
25 couple hours for this set of customers, and the next few

1 hours was another set of customers. And that's all  
2 preprogrammed into our energy management system to  
3 identify which customers are dropped under what  
4 contingency, and once we implement that it goes through  
5 that rotation.

6 Q. Has there been any estimate of cost if that would  
7 happen, the impact to the public, the economic cost to  
8 businesses and to the public?

9 A. (BY MR. BECK) No. In fact, I've had some  
10 discussion with Staff about that issue. And, you know, we  
11 could maybe determine lost revenue from a megawatt hour  
12 value, but to try --

13 Q. I know someone that would be interested in that.

14 A. (BY MR. BECK) -- to stretch that out to what it  
15 would mean to customers from loss of business or whatever,  
16 we have not tried to even attempt to do such a study.

17 Q. In the cost estimates between the preferred  
18 alternative and alternative Option 1, I believe there's a  
19 difference in construction cost estimates on the order of  
20 \$3- or \$4 million; is that correct?

21 A. (BY MR. BECK) Based on the numbers that are in  
22 the application, I believe the difference is \$4.7 million.  
23 It's about a 21 percent additional cost to go to two  
24 double circuits versus the quad circuit.

25 Q. Without having any formal calculations been done

1 on the economic cost to customers, would you say that if  
2 we assume that the reliability of Alternative Option 1  
3 with the two poles would be more reliable and less likely  
4 to drop 200 megawatts, that a \$4 million economic impact  
5 to the City of Tucson would be eaten up pretty quickly  
6 with the brownout or a rolling share-the-pain scenario  
7 that you talked about?

8 A. (BY MR. BECK) Well, keep in mind that the 200  
9 megawatts, the round number, is out 10 years down the  
10 road. And that's without contemplating any additional  
11 system changes that might be made in that time period to  
12 lower that potential impact. So we're talking 10 years  
13 out it's 200 megawatts. It's more like 16 or 20, or  
14 whatever number today. So, you know, somewhere in between  
15 100 megawatts, there is an economic value.

16 There again, the time period that this outage  
17 would be for is relatively short. I mean, if it was a  
18 catastrophic loss of a structure where we actually lost  
19 that quad-circuit structure, as I said, within a day or so  
20 we would switch around that and we would be serving those  
21 customers again.

22 And, you know, I mean, you have the potential to  
23 ask for voluntary reductions, which is there an economic  
24 impact to that? I'm not sure. But does that qualify to  
25 spend an additional \$4.6 million? In our opinion, no.

1 But we haven't tried to do an analysis to say this is what  
2 the business loss would be.

3 Q. Okay. I don't have any more questions at this  
4 moment regarding the reliability and quad circuits,  
5 per se. Seeing that my colleague Barry Wong is not here  
6 today, and in his honor, I will ask a question that he  
7 typically asks.

8 We've talked a lot about Las Vegas and Nevada  
9 being experts, quote/unquote, in quad circuit. What kind  
10 of impact to the local economy would this have? I mean,  
11 are these poles available locally? Are the workers and  
12 the necessary expertise available locally to install this,  
13 the quad circuits?

14 A. (BY MR. BECK) Well, you missed the opportunity  
15 to hear the IBEW representative this morning say that TEP,  
16 in fact, has the expertise to do whatever with these  
17 structures. Beyond that, there are contractors locally  
18 that can do the work.

19 The biggest issue is the piece of equipment used  
20 for construction, which we would rent for construction  
21 purposes. One of the things we are actively looking at is  
22 if the quad circuit, in fact, is approved, we will  
23 probably be buying a different piece of construction  
24 equipment or maintenance equipment for maintenance  
25 purposes just because of the height of the structures.

1           So the expertise to install and maintain, so on,  
2 is available locally. The structures themselves come from  
3 the large pole suppliers, which are typically back in the  
4 midwest or the east. It just happens that our head  
5 structural person came from one of those pole  
6 manufacturers. So he has a strong background in the steel  
7 monopoles, and he has absolutely no concerns whatsoever  
8 with going with the quad-circuit structure.

9           MEMBER EBERHART: Thank you very much.

10          CHMN. FOREMAN: Member Mundell, redouble-double  
11 dip back?

12          MEMBER MUNDELL: Double down, Mr. Chairman.

13

14

FURTHER EXAMINATION

15

16          Q. (BY MEMBER MUNDELL) Mr. Beck, I noticed that --  
17 and I know they're not intervening as much as they used  
18 to, but the ACC Staff is not here. Were they aware that  
19 you were going to be suggesting these quad structures?

20          A. (BY MR. BECK) Yes, they were. In fact, I had  
21 met personally with Staff prior to Case 144 and talked  
22 about our upcoming several cases, including this one, and  
23 mentioned the fact that this one we were going to be  
24 proposing the quad-circuit structures.

25           At that time they indicated that they would

1 probably have some questions regarding the reliability.  
2 And, in fact, after we made this application, I know they  
3 looked extensively at whether they should intervene in  
4 this case specifically because of the quad circuit issue.  
5 And for whatever reason, their determination was that it  
6 didn't justify them intervening in the case. But I have  
7 had additional discussions with Staff regarding quad-  
8 circuit structures.

9 Q. And the Staff meaning -- can you put a human  
10 being to that term?

11 A. (BY MR. BECK) Personally, I have talked to Prem  
12 Bahl, who was in discussions, I believe, with Steve Olea.

13 Q. Okay. And then since we have some historical  
14 reference when you had the outages because of the fire in  
15 New Mexico a number of years ago, refresh my memory. Did  
16 you have blackouts and brownouts in Tucson?

17 A. (BY MR. BECK) We implemented a very short-term  
18 rolling brownout process during the peak load of the day,  
19 because it was in the middle of summer over peak load.  
20 And so for several hours for several days, we did cut some  
21 load. And we got the news media involved to alert the  
22 customers, and then we actually implemented some load  
23 reduction.

24 Q. But I mean, that's -- just so we can clarify our  
25 term, you had the load reduction because you have people

1 that are, as I recall, based on their tariff, you have the  
2 ability to go to them and ask them to shed load; correct?

3 A. (BY MR. BECK) We have a minimal amount of load  
4 that is theoretically interruptible.

5 Q. So is that what happened with the New Mexico  
6 fire? That you had those people, the high -- you know,  
7 the industry -- and I'm just trying to remember from  
8 recollection. You have high-usage customers, commercial  
9 customers that will shed load, you know, when you notify  
10 them; correct?

11 A. (BY MR. BECK) We used to have an extensive  
12 number of contracts that had interruptibility in them.  
13 More recently we're strictly tariff for most of our  
14 customers. There are a few that have signed up under an  
15 interruptible load project or policy, but it's a very  
16 small amount of load.

17 And part of what we did when we did those, in  
18 fact, we didn't have to actually drop a lot of the load  
19 that we armed. What we did was turn the switch on that if  
20 this other situation happens, we will drop more load. So  
21 we armed additional load to drop. So we dropped very  
22 little load and actually put customers out, but we had  
23 additional load armed for that next contingency should it  
24 occur.

25 Q. And so the interruptible customers that you have,

1 you don't know off the top of your head what the total  
2 megawatts are?

3 A. (BY MR. BECK) I don't know specifically, but  
4 it's a pretty small number.

5 MEMBER MUNDELL: Okay, thank you.

6 MEMBER EBERHART: Re-, re-, re-?

7 CHMN FOREMAN: This is like WWF or the other tag  
8 team. All right, Member Eberhart.

9 MEMBER EBERHART: One last question.  
10 Mr. Mundell -- actually, two. I'm sorry.

11

12

FURTHER EXAMINATION

13

14 Q. (BY MEMBER EBERHART) You testified that you have  
15 had discussions with Staff, but you didn't testify to what  
16 Staff's opinion was of the quad pole. Did they express an  
17 opinion to you or to TEP in general about what their  
18 thoughts were?

19 A. (BY MR. BECK) They initially indicated that they  
20 had a concern about quad-circuit construction and that  
21 their preference would be for the two double-circuit  
22 construction methodology. We had dialogue back and forth.  
23 We provided them some of the information. And then  
24 subsequently, when Pinal County did their data request, of  
25 course they got the responses to that data request. And

1 we really didn't hear much more after that point once they  
2 got those, the data responses.

3 And then their decision, you know, we heard Staff  
4 was having discussions about maybe intervening, and that  
5 got dropped. My only conclusion would be that they were  
6 satisfied by at least some of the data responses, but I  
7 haven't had any specific discussion regarding that.

8 Q. And one last question, I promise, at least for  
9 the next 20 minutes.

10 We kind of had our arms around 150 megawatts if  
11 you had to drop some load in 2019. Just using that  
12 number, how many residents would that 150 megawatts, how  
13 many houses does that mean? 1,000 homes would be out of  
14 power, or can you -- and I don't even -- if you can come  
15 up with a number later on, that would be fine.

16 A. (BY MR. BECK) We can definitely get back with  
17 you.

18 MEMBER EBERHART: Thank you.

19 CHMN. FOREMAN: All right. Would you like to  
20 open up any more worm cans, Mr. Derstine?

21 MR. DERSTINE: No, thank you.

22 CHMN. FOREMAN: Very good. We thank you  
23 gentlemen for testifying. Please provide the information  
24 that was referred to.

25 We'll take a 10-minute recess, and then we will

1 start with our next witnesses.

2 (A recess was taken from 4:03 p.m. to 4:18 p.m.)

3 CHMN. FOREMAN: Let's see if we can take our  
4 seats and get started again. We're going to go back on  
5 the record now and resume our hearing.

6 I just had a conversation with Member Paul  
7 Rasmussen who severed his Achilles tendon a week ago  
8 Sunday. And he just advised me that he's had surgery for  
9 it and tells me that he's trying to trundle around in a  
10 cast that he described as the size of Mount Everest. So  
11 Paul is not going to be with us for a while.

12 Now, we're ready to start with new witnesses, and  
13 it looks like the Applicants' counsel is into the tag team  
14 mode, too.

15 MR. GELLMAN: There's been a pinch hitter,  
16 Mr. Chairman.

17 CHMN FOREMAN: All right, Counsel, you may  
18 proceed.

19 MR. GELLMAN: Thank you, Mr. Chairman.  
20 Mr. Horst, Ms. Ericson, good afternoon.

21 CHMN. FOREMAN: Well, wait a minute. You want to  
22 call them first, and then I've got to swear them.

23 MR. GELLMAN: I apologize. The Applicants would  
24 call as their next witnesses in a panel, Thomas Horst and  
25 Renee Ericson.

1 CHMN. FOREMAN: All right. Ms. Ericson, would  
2 you prefer an oath or affirmation?

3 MS. ERICSON: Affirmation.

4 (Renee Ericson was duly sworn.)

5 CHMN. FOREMAN: State your name and spell your  
6 last name, please.

7 MS. ERICSON: Renee Ericson, E-r-i-c-s-o-n.

8 CHMN. FOREMAN: Mr. Horst, do you prefer an oath  
9 or affirmation?

10 MR. HORST: Affirmation, please.

11 (Thomas Horst was duly sworn.)

12 CHMN. FOREMAN: Please state your full name, and  
13 spell your last name for the court reporter.

14 MR. HORST: Thomas Horst, H-o-r-s-t.

15 CHMN. FOREMAN: Now, Counsel, let us proceed.

16 MR. GELLMAN: Thank you, Mr. Chairman.

17

18 RENE E ERICSON and THOMAS HORST,  
19 called as witnesses on behalf of TEP and SWTC, having been  
20 sworn by the Chairman to speak the truth and nothing but  
21 the truth, were examined and testified as follows:

22

23 DIRECT EXAMINATION

24

25 Q. (BY MR. GELLMAN) Mr. Horst, I'm going to start

1 with you. Could you state your business address for the  
2 record.

3 A. (BY MR. HORST) My business address is CH2M Hill,  
4 155 Grand Avenue, Oakland, California.

5 Q. And if we could turn to Slide 2 on the left-hand  
6 screen, does that show your background and experience?

7 A. (BY MR. HORST) Yes, it does.

8 Q. And could you briefly describe your background  
9 and experience as it relates to transmission line sitings.

10 A. (BY MR. HORST) Yes, I have an education,  
11 Bachelor, Master's, and Ph.D. in environmental sciences.  
12 I've been applying that educational background to energy  
13 projects for my entire career of 35 years.

14 Q. And how many projects would you say that you've  
15 been involved in over the course of your career?

16 A. (BY MR. HORST) It's in the hundreds and I  
17 stopped counting.

18 Q. As part of this case did you submit prefiled  
19 testimony?

20 A. (BY MR. HORST) I did.

21 Q. And for the record, that has been marked as  
22 Exhibit TEP/SWTC-5 for identification purposes.

23 Was that testimony authored by you or under your  
24 direction?

25 A. (BY MR. HORST) Yes.

1 Q. And is that part of your sworn testimony today?

2 A. (BY MR. HORST) Yes, it is.

3 Q. Do you have any changes, additions, or deletions  
4 to that testimony?

5 A. (BY MR. HORST) No, I do not.

6 MR. GELLMAN: At this time I would move for the  
7 admission of Exhibit TEP/SWTC-5.

8 CHMN. FOREMAN: Is there any objection?

9 (No response.)

10 CHMN. FOREMAN: No objection, good cause  
11 appearing, it's ordered admitting TEP/SWTC-5.

12 (Exhibit TEP/SWTC-5 was admitted into evidence.)

13 Q. (BY MR. GELLMAN) And you also authored a  
14 PowerPoint presentation which is on both the left- and  
15 right-hand screens?

16 A. (BY MR. HORST) Yes, I did.

17 Q. And that, for the record, has been marked as  
18 TEP/SWTC-6.

19 Was that also prepared by you or under your  
20 direction?

21 A. (BY MR. HORST) Yes, it was.

22 Q. And is that part of your sworn testimony today?

23 A. (BY MR. HORST) Yes, it is.

24 Q. Do you have any changes, additions, or deletions  
25 to your PowerPoint?

1 A. (BY MR. HORST) No, I do not.

2 MR. GELLMAN: I move for the admission of  
3 Exhibit TEP/SWTC-6.

4 CHMN. FOREMAN: Any objection?

5 (No response.)

6 CHMN. FOREMAN: No objection, admit TEP/SWTC-6.

7 (Exhibit TEP/SWTC-6 was admitted into evidence.)

8 Q. (BY MR. GELLMAN) With that out of the way,  
9 Mr. Horst, would you describe the project and study area  
10 for this project.

11 A. (BY MR. HORST) The project area, and reference  
12 the figure on the right, which has been described by the  
13 previous panel, has at its two end locations the Saguaro  
14 station and the North Loop station and routes  
15 interconnecting those two end points.

16 Q. And do some of the main features in the project  
17 study area include the I-10 and the Union Pacific  
18 railroad?

19 A. (BY MR. HORST) Yes, they do.

20 Q. And why was this study area selected for this  
21 project?

22 A. (BY MR. HORST) Given the purpose and need of the  
23 project and the end points, we looked for existing  
24 corridors that could conceivably connect those end points,  
25 and we looked to either side of the direct line between

1 the two, which would be the existing TEP right-of-way, and  
2 that encompassed the routes that you mentioned as shown on  
3 the PowerPoint.

4 Q. And was this the study area used that's depicted  
5 on the right-hand screen, was that the basis to start  
6 evaluating alternative routes for this project?

7 A. (BY MR. HORST) I think we need to go to the next  
8 slide on the right.

9 Q. If we could go -- thank you.

10 A. (BY MR. HORST) Yes, that shows the various  
11 routes that we considered in the study area.

12 Q. And turning to the next slide on the left-hand  
13 screen, what alternative routes did you consider as part  
14 of your analysis and did the companies consider?

15 A. (BY MR. HORST) Well, we considered all of the  
16 routes which are shown on the right-hand screen there.  
17 And I know the type is a little small to read, but it has  
18 been referred to on the PowerPoint.

19 And we also worked with the companies to  
20 determine engineering alternatives for each of those  
21 routes, which led to two engineering alternatives which  
22 you heard about before, one being the quad circuit and the  
23 second being two double circuits.

24 So with those in mind, we established criteria to  
25 evaluate those routes, and those criteria we tried to

1 align and did align with the factors to be considered in  
2 issuing the CEC contained in 40-360.06. We had 14 of  
3 those criteria, so we --

4 Q. And -- I'm sorry. Go ahead.

5 A. (BY MR. HORST) So we evaluated those  
6 alternatives against those criteria and rated each of them  
7 to determine the preference for those which best met the  
8 criteria.

9 And as shown on the slide on the left, the three  
10 highest ranked alternatives from the perspective of the  
11 methodology which I referred to, plus looking at the  
12 routes in specific detail, led us to the preferred option,  
13 which is one that we talked about in previous testimony,  
14 the TEP right-of-way with the quad circuit; Alternative  
15 Option 1, the TEP alternative with the two double  
16 circuits; and Alternative Option 2, which runs along the  
17 CAP for a portion of the route, and then for a portion of  
18 the route the existing TEP right-of-way.

19 Q. Now, Mr. Horst, when we're talking about  
20 developing alternatives, we're talking about developing  
21 them from Tortolita to North Loop substation?

22 A. (BY MR. HORST) That's correct.

23 Q. And we've called that Segment 2 of the project?

24 A. (BY MR. HORST) That's correct.

25 Q. Why weren't alternatives looked at between

1 Saguaro and Tortolita or Segment 1 of the project?

2 A. (BY MR. HORST) Well, for Segment 1, as Mr. Beck  
3 testified, it's a transfer from a TEP line to Southwest  
4 Transmission in an existing right-of-way, and Southwest  
5 Transmission has now determined that that line will be  
6 rebuilt, in part, and therefore, we did not consider  
7 alternative routes with that.

8 Q. Turning to the comparison between the preferred  
9 option and Alternative Option 1, are there any differences  
10 besides the engineering options between -- or the  
11 engineering between the quad circuit and the two double  
12 circuits between the preferred option and Alternative  
13 Option 1?

14 A. (BY MR. HORST) There was a slight difference in  
15 the rating, with the quad circuit rating a little bit  
16 higher, but I would not consider that difference to be of  
17 any significance. So essentially, they were the same from  
18 the perspective of the criteria.

19 Q. And looking at the right-hand screen, the route  
20 depicted in orange is for both the preferred option and  
21 Alternative Option 1?

22 A. (BY MR. HORST) Yes.

23 Q. Turning to Slide 7 on the left-hand screen,  
24 that's a photograph. Does that accurately depict how the  
25 corridor looks at present with the two westerly H-frame

1 structures?

2 A. (BY MR. HORST) Yes, it does. If you'll notice  
3 over here -- and hopefully the Google fly-through that  
4 Mr. Beck led you through helps you orient -- this is  
5 looking to the northwest, and that is the Tortolita  
6 substation. And you can see the three structures that  
7 exist there now, the three lines that Mr. Beck referred  
8 to. And I believe he numbered those in his presentation  
9 as 125 and 117 and 118. So that's a typical view.

10 Q. And it's the two westerly lines, the two wood  
11 H-frame structures that we see in the foreground, that  
12 would be eventually replaced by the quad circuit if the  
13 preferred option were selected?

14 A. (BY MR. HORST) That is correct.

15 Q. You have a bunch of key -- what you call key  
16 observation points in your PowerPoint that I also note are  
17 on the placemats, I think the back side of the placemat.  
18 And they are also, I believe, included in the application.

19 Turning to Slide 8 on the left-hand screen, this  
20 is Key Observation Point No. 2?

21 A. (BY MR. HORST) Yes, it is. I'll go over on the  
22 right-hand side, Key Observation Point No. 2 is here. And  
23 the reason for picking this, in a visual analysis you're  
24 trying to pick key observation points that various viewing  
25 groups will experience the transmission line.

1           In this case, as described below, it's an  
2 existing rural subdivision at the interconnection of South  
3 Marylyne Lane and East Sianna Drive looking southeast.  
4 So this is the existing view. This is the experience that  
5 folks would have in this area right now.

6           And as you can see, the area -- the view is  
7 characterized by the current right-of-way and the current  
8 transmission lines. But we do in the static simulation is  
9 to remove the lines which will be replaced. And if we go  
10 to the next slide, you can see then the new structures  
11 that are in it.

12           Actually, if you turn to your placemat, to make  
13 it easier, it's been depicted. We called out the future  
14 transmission lines, because I know these become a little  
15 small and hard to see. So hopefully you'll find this more  
16 helpful.

17           So again, the view looking this way, it's the  
18 same visual characteristic that you saw before, the  
19 difference being that you now have the one pole versus  
20 what you had before. And the one that's called out on  
21 your placemat is this quad circuit right here.

22           CHMN. FOREMAN: Mr. Horst, could you indicate on  
23 the map on the front side of the placemat the location  
24 from which the photographs that are depicted on the last  
25 slides were taken?

1 MR. HORST: Mr. Chairman, if it would be helpful  
2 I'll go to the right-hand slide there, which is different  
3 but has the same orientation. And I know it's hard to  
4 read because it's in green, but this is the location right  
5 here. Is that helpful?

6 CHMN. FOREMAN: It is helpful.

7 MEMBER MUNDELL: It's right above Missile Base  
8 Road.

9 MR. HORST: Yes, I'm sorry. It's at the corner  
10 of -- and we don't have it on this map, so how to show you  
11 exactly the best way to put it, because we don't have the  
12 corner of -- yeah. For ease, it's north of Missile Base  
13 Road and a bit to the east.

14 CHMN FOREMAN: Okay. Very good. That's helpful.

15 MR. HORST: Yeah.

16 Q. (BY MR. GELLMAN) Mr. Horst, you have two other  
17 simulations in your PowerPoint presentation. The next one  
18 is Key Observation 4. As a follow-up to the Chairman's  
19 question, could you show on the map on the right-hand  
20 screen where this observation point is?

21 A. (BY MR. HORST) Yes, I can. On the -- let me go  
22 to the right-hand side first. We have key observation  
23 point -- oops -- 4 and 5 down here in the area of  
24 Tangerine Road. And I think in the Google fly-through we  
25 paused there for a while so that folks could see this.

1           Again, the reason for picking this key  
2 observation point, it's about two-and-a-half miles at this  
3 juncture east of I-10. You're looking west at the  
4 transmission line crossing. And, obviously, Tangerine  
5 Road is a paved road and is one of the most heavily used  
6 roads in the project area.

7           So this is the existing view of the KOP or the  
8 key observation point as it exists today. And you can see  
9 there are a number of transmission and distribution lines  
10 that folks see as a part of their visual experience at  
11 this location.

12           And again, if you focus on the placemat, on the  
13 second from the bottom, which is the Tangerine Road one,  
14 you'll see that -- and if you turn to the next slide,  
15 please, if I could have the next slide, please.

16           This is the simulated view, and I'll point out  
17 the things that have changed. First, we've added the quad  
18 circuit, which is here. And then these two poles here,  
19 which have distribution lines below the current 138 lines,  
20 were topped because the distribution lines will remain.

21           So you can see that the character of the viewing  
22 experience here remains much the same, because there's  
23 quite a number of structures that you see when you're  
24 passing along here, including distribution lines.

25           Q. And turning to the next key observation point

1 that you have in your PowerPoint, No. 5, what is the  
2 significance of this point?

3 A. (BY MR. HORST) Yes. We had three groups of  
4 viewers that we felt would experience this project, one  
5 being commuters along I-10, which represented the Key  
6 Observation Point No. 1, which I didn't show in the  
7 PowerPoint but you have at the top of your placemat.

8 Also, there are folks that hike and use off-road  
9 vehicles. This represents Key Observation Point 5, a view  
10 from the desert area about a half a mile north of  
11 Tangerine Road looking northwest. And you can see the  
12 corridor as it's previously been described with the  
13 H-frames, and then in the next slide as it would look like  
14 when the H-frames have been replaced by the quad-circuit  
15 structures along there.

16 Q. And just so that the record is clear, could you  
17 show on the right-hand screen on the map there where this  
18 viewpoint is located and where we're looking towards in  
19 terms of are we looked northeast? Are we looking  
20 northwest?

21 A. (BY MR. HORST) You're looking northwest. Is  
22 that clear?

23 Q. Could you just point it out again?

24 A. (BY MR. HORST) I know that the laser pointer is  
25 hard to see. It's here, and it's pointed northwest along

1 the transmission line corridor.

2 Q. As part of your analysis and preparation, as part  
3 of CH2M Hill's analysis and preparation, did you do, for  
4 lack of a better term, a side-by-side comparison of how  
5 the preferred option, the quad-circuit structures, would  
6 look as compared to the two double-circuit structures that  
7 are part of Alternative Option 1?

8 A. (BY MR. HORST) Yes, we did. And on this slide  
9 here on the left-hand side, on the left-hand side of the  
10 left screen, is the preferred option. And this is a view  
11 virtually standing underneath what would be the quad  
12 circuit looking straight on. And then on the right-hand  
13 side it would be a similar view for the two double  
14 circuits looking straight on, using the same photographs  
15 so you can have a comparative view.

16 Q. And I notice that we have the figure on the  
17 right-hand screen, the figure that was included in the  
18 application that shows some of the dimensions of the  
19 quad-circuit structure. How are the two different in  
20 terms of height and in terms of other characteristics?

21 A. (BY MR. HORST) Well, as you can see from the  
22 simulation and the Figure 2 shown on the right, for the  
23 quad circuit -- and I think the next one we have is for  
24 the two double circuits, single view.

25 Going back to the previous one, the overall

1 height is somewhere between 115 and 125. Going to the  
2 quad, it's the next slide, it's 80 to 100 feet. So that's  
3 the overall difference in total height from ground level.  
4 There is obviously a difference in the arrangement and the  
5 number of wires on each structure from that perspective.

6 Q. And I note for the record that the diagrams to  
7 the right are also included in the application in  
8 Exhibit G, I believe.

9 A. (BY MR. HORST) Yes, they are. The simulations  
10 are in Exhibit G as well.

11 Q. Thank you.

12 We're showing on the screen right now what we are  
13 calling the Tangerine monopoles. These are the poles that  
14 if the line is going straight would be used to your  
15 understanding?

16 A. (BY MR. HORST) That's correct.

17 Q. Do we also have simulations of turning or  
18 dead-end structures?

19 A. (BY MR. HORST) Yes, we do. If you look at the  
20 next slide on the left-hand side, fashioned in a similar  
21 way using basically the same background photograph on the  
22 left-hand side, would be the preferred option. And on the  
23 right-hand side would be the dead-end turning structures  
24 for the two quad circuits.

25 Q. And I don't believe we have those figures from

1 Exhibit G in your PowerPoint, but for the dead-end turning  
2 structures, those are included in the application as well?

3 A. (BY MR. HORST) Yes, they are.

4 Q. Mr. Beck, during his direct examination, went  
5 through the cross-sections, so I know the next four or  
6 five slides you also have those cross-sections. But in an  
7 effort to move this along, do you have anything to add to  
8 what Mr. Beck has provided in testimony?

9 A. (BY MR. HORST) No. This was simply added for a  
10 different orientation and view to what is existing. If we  
11 just go very quickly, and the next slide is the preferred  
12 option, and I think there's been questions on that. And  
13 then the next one would be the existing -- back to the  
14 existing right-of-way structure, and then followed with  
15 Alternative Option 1.

16 Q. I think we can move to slide, what I think is 20  
17 on the left-hand screen.

18 Mr. Horst, what was CH2M Hill's conclusions based  
19 on their analysis of the advantages of the preferred  
20 option over Alternative Option 1?

21 A. (BY MR. HORST) Well, the preferred option,  
22 obviously, consolidates the lines and reduces the number  
23 of structures in the corridor. It actually reduces it to  
24 one-half. And by having fewer structures in the existing  
25 corridor, it provides flexibility to minimize and possibly

1 avoid any sensitive natural or cultural features that  
2 could be encountered during pole placement. It leaves  
3 more room in the corridor for future projects or  
4 additional uses. And during our scoping process, we had  
5 an indication of support for the preferred option. So  
6 those are generally, from the perspective of our analysis,  
7 the advantages of the preferred option.

8 Q. Turning briefly to what is Alternative Option 2  
9 on the right-hand screen, is that the route that starts  
10 out in blue and then turns to green on the right-hand  
11 side?

12 A. (BY MR. HORST) Yes. It starts out -- this  
13 portion of this alternative is within the existing TEP  
14 corridor. This is the new corridor, which generally  
15 parallels the CAP, and then comes down along Tangerine  
16 Road to rejoin the TEP right-of-way at that point.

17 Q. So on the right-hand screen the portion of the  
18 line or the route depicted in green is where it diverges  
19 from the existing right-of-way and follows the east side  
20 of the CAP right-of-way?

21 A. (BY MR. HORST) That's correct.

22 Q. And you also have, I believe, a cross-section  
23 also of what Mr. Beck used in his PowerPoint presentation  
24 of how -- a cross-section of how this alternative would  
25 look in the CAP right-of-way?

1           A.     (BY MR. HORST) That's correct. This is how we  
2 would expect it to look if it were routed in that  
3 alignment.

4           Q.     And I should state for the record, adjacent to  
5 the CAP right-of-way instead of in the CAP right-of-way.

6                     Do you have anything to add to this cross-section  
7 beyond what Mr. Beck testified to?

8           A.     (BY MR. HORST) I would just add that the last  
9 distinction you made is important. This would be a new  
10 right-of-way. Even though it is adjacent to an existing  
11 right-of-way, it still would require the acquisition of  
12 new right-of-way and all of the associated analyses that  
13 go along with a new right-of-way.

14          Q.     And was that one of the reasons why CH2M Hill and  
15 the companies, quite frankly, looked at Option 2 less  
16 favorably than the other options proposed in the  
17 application?

18          A.     (BY MR. HORST) Well, it's sort of the underlying  
19 reason that a number of the criteria that we looked at  
20 scored less favorably for this option than for Option 1 or  
21 the preferred option.

22          Q.     And on the left-hand screen we see a slide  
23 entitled disadvantages of Alternative Option 2 versus  
24 preferred option. Those basically summarize the  
25 disadvantages of Alternative Option 2?

1           A.     (BY MR. HORST)  Yes, they do.  Basically, again,  
2  the first point is that we use existing transmission  
3  corridor and access roads for a portion of the route, but  
4  it does establish a second utility corridor immediately  
5  proximate to the existing TEP right-of-way, and it  
6  requires acquisition of new right-of-way and associated  
7  environmental studies and effects associated with that.  
8  And then there was less support during our scoping process  
9  for this option compared to the preferred option or  
10 Alternative Option No. 1.

11           MR. GELLMAN:  Mr. Horst, I believe that concludes  
12 my direct of you.

13           And unless there are any questions from the  
14 Committee, I'll move to Ms. Ericson.

15           CHMN. FOREMAN:  I have a couple of questions.  
16 That's my favorite phrase.  That differentiates me from  
17 Mr. Eberhart when he says, "I have just one more  
18 question."

19           MEMBER EBERHART:  This time.

20           MEMBER PALMER:  Just a quick question.

21           MEMBER EBERHART:  Could I remind the Chairman  
22 that my half hour is up?

23           CHMN. FOREMAN:  Yes.

24

25

1

## EXAMINATION

2

3 Q. (BY CHMN. FOREMAN) How many residences are  
4 within one-half mile of the preferred option line?

5 A. (BY MR. HORST) I'm going to defer that question  
6 to Ms. Ericson. Her role on this project was to lead the  
7 detailed resource studies, and that's between Saguaro and  
8 Tortolita, basically at the heart of her testimony for all  
9 of the resources. So she would be a better witness to  
10 address that question, if you don't mind.

11 Q. I don't mind so long as somebody answers it.

12 A. (BY MR. HORST) I know she's prepared to answer  
13 that question.

14 Q. Let me ask you to look at Exhibit 1, the  
15 application, Exhibit G7-B. It's the photograph and  
16 simulation taken from the Owl Creek subdivision towards  
17 the Adonis substation. You have it in your PowerPoint,  
18 and it's also on the back of the application.

19 A. (BY MR. HORST) Yes.

20 Q. Is this the closest subdivision to any of the  
21 routes?

22 A. (BY MR. HORST) No. The subdivision north of  
23 Missile Road would be closer.

24 Q. Up near Key Observation Point 2?

25 A. (BY MR. HORST) Yes.

1 Q. All right. I think that's the -- the photographs  
2 that were taken from Key Observation Point 2, are those  
3 photographs taken from the residences -- the vicinity of  
4 the residences that are closest to the preferred route?

5 A. (BY MR. HORST) We didn't particularly locate  
6 them next to the residence.

7 Q. So this photograph and simulation is not taken  
8 from somebody's yard. It's taken from someplace closer to  
9 the lines than from a residence yard; is that correct?

10 A. (BY MR. HORST) I'll defer to Ms. Ericson.  
11 She's --

12 CHMN. FOREMAN: Then maybe I should defer my  
13 questions, then, to Ms. Ericson.

14 Member Wong.

15 MEMBER WONG: Thank you, Mr. Chairman. I  
16 apologize for the tardiness.

17

18 EXAMINATION

19

20 Q. (BY MEMBER WONG) I want to ask a question about  
21 the pole height of the preferred quad circuit transmission  
22 line. Is this the trend? Is this a new idea or new  
23 technology of a pole design?

24 A. (BY MR. HORST) I'm not a transmission engineer,  
25 and I think that subject was covered by Mr. Beck, and he

1 talked about other experience with this type of design.

2 MEMBER WONG: Okay. Mr. Chairman, and I don't  
3 want to revisit this for all of the members, so I might go  
4 off-line on this, but just will there be issues with pole  
5 height of lightning strike? Is that an issue here for  
6 safety issues?

7 CHMN. FOREMAN: Well, the lightning strike issue  
8 has not been raised so far. We have talked about the  
9 reliability of the quad-circuit pole, the fact that it is  
10 higher, and the fact that we have a taller quad-circuit  
11 pole for the preferred option and we have two shorter dual  
12 circuit poles for Option 1. And the discussion that we've  
13 had has dealt with the relative trade-offs that are  
14 associated with the reliability and electric utility of  
15 those two options.

16 But I don't know. Mr. Beck, do you have a -- is  
17 there information about variable lightning strike on  
18 quad-circuit poles, taller poles, as opposed to shorter  
19 poles?

20 MR. BECK: I'm not aware of any study work that  
21 was done for quad versus double circuit. The fact that  
22 the poles are taller could increase the likelihood of  
23 lightning striking them.

24 CHMN. FOREMAN: But correct me if I'm wrong here,  
25 but the extra high voltage carriers for 500 and 345kV may

1 exceed the height of the quad poles that you have proposed  
2 in this case; is that true?

3 MR. BECK: That is correct. And so there's no  
4 unusual issue with the quad circuit relative to lightning,  
5 other than the fact that it would be taller than the  
6 double circuit and it would be a little more likely to  
7 attract lightning.

8 CHMN. FOREMAN: Do you have lightning strikes on  
9 your yet taller poles with the extra high voltage lines?

10 MR. BECK: Yes. We have lightning strikes on all  
11 of our poles.

12 CHMN. FOREMAN: And is there any particular  
13 problem that you have had as a result of that?

14 MR. BECK: Typically, the worst case is that the  
15 line will trip out and then you have to close the breaker  
16 and reenergize the line. It's a momentary blip in the  
17 system usually.

18 CHMN. FOREMAN: Okay.

19 MEMBER PALMER: Mr. Chairman. Isn't that the  
20 purpose of a static line, to reduce the probability of a  
21 strike on the conductor?

22 MR. BECK: Yes. The static is -- one of the  
23 reasons for the static is to shield; therefore, we tend to  
24 call them a shield wire. It shields the conductor from a  
25 direct lightning strike.

1           MEMBER PALMER: Sometimes you have them at the  
2 highest point and also the lowest point. I have seen them  
3 done both ways to prevent strikes from the ground bouncing  
4 back up into the conductor.

5           MR. BECK: I believe those -- certainly on some  
6 distribution lines there will be a neutral wire below.  
7 Typically, on a transmission, we only have them above the  
8 lines.

9           MEMBER PALMER: Thank you.

10          MEMBER WONG: And thank you, Mr. Chairman, for  
11 posing those questions. But I would like to know the  
12 history, what are the -- what have been the probabilities  
13 of the lightning strikes and the frequency, because I  
14 think that goes to the issue of safety as well.

15          And, you know, I know you addressed their issue  
16 of reliability before I arrived, so I don't want to  
17 belabor that, but that is an issue. Because if there's  
18 outages and tripping of these transmission circuits, and  
19 if there is an increased frequency of that, that goes to  
20 some serious concerns about reliability. So I would like  
21 to hear more about that subject matter.

22          MR. BECK: I don't believe you would see a very  
23 big increase in the number of outages due to lightning.  
24 It would be slightly more likely to get a lightning strike  
25 to the structure. But there again, just lightning hitting

1 a structure won't necessarily take the line out. It has  
2 to jump across the installation to do that.

3 And with the steel poles, if they're grounded  
4 correctly, you have a pretty good source right to ground.  
5 So it's not necessary, just because you're getting more  
6 lightning strikes, that you'll have more outages on any  
7 particular line.

8 MEMBER WONG: So are you saying, Mr. Chairman,  
9 Mr. Beck, that it comes down to the engineering, the  
10 appropriate grounding effect, the grounding technology;  
11 right? You have to properly ground these poles to  
12 minimize the negative impact on the transmission wires?

13 MR. BECK: Yes, that's a very important component  
14 of transmission design is the grounding of the structure.

15 MEMBER WONG: And that's built in, and your  
16 company has a good track record; is that correct? Do you  
17 have a good track record of grounding poles?

18 MR. BECK: Yes, we do.

19 MEMBER WONG: So if Mr. Eberhart goes and  
20 researches this at the Corporation Commission, he won't  
21 find a lot of tripping, right?

22 MR. BECK: He may find some tripping, but not  
23 necessarily due to lightning and ground issues.

24 MEMBER WONG: Thank you.

25 And Mr. Chairman, I want to ask about the cost

1 impact. Was that asked earlier?

2 CHMN. FOREMAN: We did talk about that.

3 MEMBER WONG: I'll go off-line on that, but thank  
4 you.

5 CHMN. FOREMAN: Yes. We're trusting Member  
6 Eberhart to keep the placement of this line out of the  
7 riverbed this time.

8 MEMBER EBERHART: I do have a couple of questions  
9 for Mr. Horst.

10

11

EXAMINATION

12

13 Q. (BY MEMBER EBERHART) And one is regarding you  
14 mentioned in your prefiled testimony the different  
15 alternatives considered. And I think there was seven, and  
16 then two engineering alternatives, so a total of 14  
17 alternatives that were looked at.

18 It appears that you did some ratings of each of  
19 those alternatives. Could you describe how those ratings  
20 were -- could you describe for the Committee Table 2 in  
21 section -- in Exhibit B? Because I think it's very good  
22 to have this in the CEC, and we've had quite a few cases  
23 recently where something like this matrix could have been  
24 very helpful. So I would like it, if you could, to just  
25 very briefly for the Committee's benefit talk about that

1 Table 2.

2 A. (BY MR. HORST) Sure. I'll be brief. And if you  
3 would like some more, just keep asking.

4 Again, what we did was we took the alternative  
5 routes and the engineering alternatives. We developed  
6 criteria. As I said, you see 14 of them, which we tried  
7 to encompass, as I said before, the factors that need to  
8 be considered in issuing a CEC.

9 And then we convened a group of folks within  
10 CH2M Hill and the companies that had expertise in these  
11 various criteria and we set up three ratings: The first  
12 being acceptable without mitigation; acceptable with  
13 mitigation, which would be a two; and then a one, which  
14 would be prohibitive either because of its impact or  
15 because of its cost.

16 These folks met in workshop to discuss their  
17 ratings, because by their nature they are qualitative, and  
18 that's really the origin of this table.

19 And then what we did is to recognize that we need  
20 to look at this from a number of perspectives, what you  
21 see on the second part of Table 2. First, we totaled it  
22 up, the highest being the highest ratings, but then we  
23 also looked deeper. We looked into the total number of  
24 1's, which would have a major effect or impact, and the  
25 total number of 2's, and the total number of 3's. And we

1 were looking for flaws or issues associated with each of  
2 them.

3 And then we met one final time where each person  
4 presented the results and we talked through it to try to  
5 understand the robustness of their conclusions. So that's  
6 essentially how we used this table.

7 Q. Were these ratings done before, after, or during  
8 public meetings? In other words, during the process, or  
9 was this done way before there was any input from the  
10 public?

11 A. (BY MR. HORST) It was not done way before. We  
12 did take input. And then the results in terms of which of  
13 the alternatives became the preferred and the first  
14 alternate and the second alternate were presented at  
15 public meeting, as well as within the newsletters.

16 Q. And I see from this table that the preferred  
17 alternative and the engineering alternative of the  
18 preferred alternative came out very close in the ratings,  
19 within one point of each other, the first two. And they  
20 were significantly higher than all of the other  
21 alternatives. Would you agree with that?

22 A. (BY MR. HORST) Yes, I would.

23 Q. And looking at the difference between the two  
24 alternatives and the preferred alternative, the only  
25 difference in the scoring was that the quad pole, based on

1 the rating, would provide greater flexibility for future  
2 right-of-way use?

3 A. (BY MR. HORST) That's correct.

4 Q. So that was the only one-point difference and  
5 that was the only difference between the two alternatives?

6 A. (BY MR. HORST) That's correct.

7 Q. Thank you. Were you involved in the  
8 environmental analysis of the inventory of the saguaros?

9 A. (BY MR. HORST) I was not.

10 Q. Okay. Was Ms. Ericson?

11 A. (BY MR. HORST) Ms. Ericson has been working with  
12 that, but she did not lead that.

13 MEMBER EBERHART: Okay. I'll reserve my question  
14 for her. Thank you.

15 CHMN. FOREMAN: We're getting close to 5:00.  
16 What I would propose is we try to ask questions, if we  
17 have them, of Mr. Horst and see if we can get finished  
18 with him.

19 Are there other questions from the Committee to  
20 Mr. Horst? Any questions from Southwest to Mr. Horst?

21 Yes, Mr. Robertson. Do you have -- would it be  
22 okay to ask you to address Mr. Horst's issues now, or  
23 would you prefer waiting until Ms. Ericson had concluded  
24 her testimony?

25 MR. ROBERTSON: Mr. Chairman, I would be happy to

1 go now. Actually, Committee Member Eberhart's line of  
2 inquiry goes to one I had wanted to explore, and I can use  
3 it as a segue.

4

5

CROSS-EXAMINATION

6

7 Q. (BY MR. ROBERTSON) Mr. Horst, at the outset of  
8 your direct testimony, 'you identified 14 factors that were  
9 utilized in evaluating the different routes.

10 Are those 14 listed on Exhibit B-15 of the  
11 application?

12 A. (BY MR. HORST) Yes, they are.

13 Q. Now, also at the outset of your testimony you had  
14 occasion to refer to the statutory siting scheme here in  
15 Arizona and you provided an Arizona Revised Statute  
16 citation. May I assume from that you have a working  
17 knowledge of the statutory scheme set forth in A.R.S.  
18 40-360, et seq?

19 A. (BY MR. HORST) Yes, you can.

20 Q. So you would be familiar with the decision-making  
21 factors that the statute prescribes the Siting Committee  
22 shall consider, which are set forth in A.R.S. 40-360.06;  
23 is that correct?

24 A. (BY MR. HORST) That's correct.

25 Q. Now, the 14 criteria that are set forth on Page

1 B-15 of the Exhibit B to the application, what is the  
2 source of those?

3 A. (BY MR. HORST) The source of those is they were  
4 developed by the study team after considering the statute  
5 which we've been talking about and the nature of the area  
6 in which we are studying, and the availability of data to  
7 undertake the analysis. So those factors were considered  
8 to put together these 14 criteria.

9 Q. Would it be accurate to say that the 14 criteria  
10 represent the siting team's interpretation of what might  
11 be relevant within the context of the statutory  
12 decision-making factors?

13 A. (BY MR. HORST) In general, but there are some  
14 components of that which are very broad, and I would refer  
15 to A.9, which generally brings in all additional factors.  
16 So to that extent, we couldn't consider something like  
17 that. We tried to look at those which we could  
18 specifically align with the criteria.

19 Q. And when you refer to A-9, you're referring to  
20 40-360.06.A.9, which refers to the total environment of  
21 the area?

22 A. (BY MR. HORST) Yes.

23 Q. Okay. Now, I wonder if we might have up on the  
24 screen the slide that compared the preferred option with  
25 Alternative No. 1.

1           And I also would like to have you direct your  
2 attention to Page B-19 and B-20 of Exhibit B, and that's  
3 the matrix that Committee Member Eberhart asked you some  
4 questions about.

5           MR. ROBERTSON: Jay or Stuart, I'm not sure which  
6 of you has the control toggle. The one I'm looking for is  
7 the one that listed about four points that identified what  
8 we considered to be benefits or preferences of the  
9 preferred option over Alternative No. 1. That is it,  
10 thank you.

11          Q.    (BY MR. ROBERTSON) Mr. Horst, looking at that  
12 particular screen and also the matrix set forth on Pages  
13 B-19 and B-20, if we step back from the 14 criteria that  
14 your siting team developed and we take just the literal  
15 language of the statutory decision-making criteria,  
16 per se, would it be accurate to say that the preferred  
17 option and Alternative Option 1 are essentially a wash  
18 vis-à-vis one another in terms of their impact as measured  
19 by the nine siting criteria set forth in the statute?

20          A.    (BY MR. HORST) They are very close. And if  
21 you -- the term "a wash" could be applied.

22          Q.    Is it the other factors -- strike that.

23                To what extent from your perspective do other  
24 considerations like reliability and cost have in making a  
25 selection?

1           A.    (BY MR. HORST) Those other factors are obviously  
2 heavily weighed in that decision process. But I think  
3 there is, if you go just to the slide and you look in the  
4 larger context, the preferred option above and beyond the  
5 statutory criteria and the 14 criteria does certainly  
6 represent an incremental advantage relative to the points  
7 made on this slide.

8           Q.    And I think you used a very important phrase in  
9 that last response, that they represent or the preferred  
10 option represents an incremental advantage vis-à-vis  
11 Alternative No. 1; is that correct?

12          A.    (BY MR. HORST) That is correct.

13               MR. ROBERTSON: Mr. Horst, that's all I have.

14               Mr. Chairman, thank you.

15               CHMN. FOREMAN: All right. We're past 5:00.

16 Mr. Gellman completely lost control of his direct  
17 examination through no fault of his own. Let us recess  
18 until 6:00 p.m. for the public comment, and then we will  
19 get back together tomorrow at 9:30 to resume.

20               Are there housekeeping things we need to address  
21 here before we recess for the evening?

22               MR. ROBERTSON: Mr. Chairman, may we leave our  
23 materials here overnight?

24               CHMN FOREMAN: So far as I know, the answer is  
25 yes.

1 MR. ROBERTSON: Thank you.

2 MR. DERSTINE: Mr. Chairman, using the vernacular  
3 of the afternoon, could I double back on a housekeeping  
4 matter and move the admission of Applicants' Exhibits 1,  
5 2, and 9, which I failed to do at the conclusion of  
6 Mr. Beck's direct testimony. I would do that now.

7 CHMN. FOREMAN: All right. That would be the  
8 application, the prefiled testimony of Mr. Beck, and the  
9 notice of sign postings and affidavit of publication,  
10 et cetera.

11 MR. DERSTINE: And let me add 3 to that. So that  
12 would be 1, the application; 2, his prefiled testimony; 3,  
13 his PowerPoint; and then 9, as you referenced.

14 CHMN. FOREMAN: All right. Any objections to  
15 exhibits TEP/SWTC-1, 2, 3, and 9?

16 (No response.)

17 CHMN. FOREMAN: No objection, good cause  
18 appearing, it's ordered admitting Exhibits TEP/SWTC-1, 2,  
19 3, and 9.

20 (Exhibits TEP/SWTC-1, TEP/SWTC-2, TEP/SWTC-3, and  
21 TEP/SWTC-9 were admitted into evidence.)

22 CHMN. FOREMAN: Now, I believe that I have  
23 previously admitted Mr. Burson's prefiled direct  
24 testimony, which is TEP/SWTC-4, and I have previously  
25 admitted Mr. Horst's testimony and PowerPoint

1 presentations, which would be TEP/SWTC-5 and 6. So does  
2 everybody disagree with that?

3 All right. So that leaves us unadmitted with 7  
4 and 8, Ms. Ericson's testimony and PowerPoint, which we  
5 will look forward to in the morning, and the proposed  
6 route itinerary, which is now moot, and then the form CEC,  
7 which will not be admitted but is there for informational  
8 purposes.

9 We have previously admitted, I hope, Committee  
10 Exhibits 1 through 5, which are the materials that were  
11 submitted by our witnesses this morning that the Chair  
12 called.

13 (Exhibits Committee-2, Committee-3, Committee-4, and  
14 Committee-5 were admitted into evidence.)

15 CHMN. FOREMAN: All right. Any other housekeeping  
16 matters that we need to address, then, before our public  
17 comment session this evening?

18 (No response.)

19 CHMN. FOREMAN: We will recess, then, until 6:00.  
20 We will see you folks then or in the morning at 9:30.

21 (The Evidentiary Hearing recessed at 5:10 p.m.)

22

23 (The Public Comment Session commenced at  
24 6:02 p.m.)

25 CHMN. FOREMAN: It's past 6:00. This is the time

1 scheduled for the evening public comment session in our  
2 hearing. Do we have any members of the public here who  
3 would like to comment?

4 (No response.)

5 CHMN. FOREMAN: Ms. Webb has already indicated  
6 that she wants to make a public comment in addition to her  
7 testimony. Is there anybody else here who would like to?  
8 If somebody else wants to make public comment, we ask only  
9 that you come up and give us your name, address, and who  
10 you represent.

11 If there's nobody else, Ms. Webb, what would you  
12 like to tell us?

13 MS. WEBB: Mr. Chairman, members of the  
14 Committee, I had this conversation with someone just last  
15 night, and you can spend hours wordsmithing to get one  
16 word changed. And from reading the letters from Game &  
17 Fish, it says: Recommended, should, suggest.

18 And I don't believe any agency would be opposed  
19 to a more aggressive standard for protecting the saguaros.  
20 The three-to-one is suggested or recommended, and that  
21 could possibly be a baseline. And I'm not even saying  
22 three-to-one, but I think that any agency that is charged  
23 with protecting the environment such as that is not going  
24 to be opposed to more stringent methods than they would  
25 require.

1           And I have to disagree with some of the testimony  
2 earlier about, well, State Land won't let us do this with  
3 the roads. Game & Fish is going to take care of the  
4 saguaro mitigation. There was one other. Oh, SHPO is  
5 going to take care of this.

6           I believe that the Committee's role is to -- need  
7 versus the environment. And in these cases where it would  
8 not be in conflict with the charge of these agencies that  
9 the Committee absolutely has the right to make some  
10 decisions with that.

11           CHMN. FOREMAN: Let's talk about practicality  
12 here. The ratio that you're talking about, my  
13 understanding is that is a suggestion that for every three  
14 saguaro that --

15           MS. WEBB: The other way.

16           CHMN. FOREMAN: For every one saguaro that's  
17 removed, three are planted?

18           MS. WEBB: Correct. Because they're going to be  
19 smaller.

20           CHMN. FOREMAN: Okay. So you're suggesting that  
21 if we have somewhere between 57 and 285 of the 20-foot  
22 plus saguaro that are removed, what should be done there?  
23 You're suggesting that we should have three times whatever  
24 is removed replanted?

25           MS. WEBB: I only have experience of being a

1 gardener in the past. And I don't know the exact  
2 specifications for the size, but obviously -- I mean, not  
3 obviously. It would seem to me that they would have to be  
4 the size that could be transplanted and be viable, and  
5 probably from a nursery. So I think that would be very  
6 reasonable, but I don't know that and so I can't make  
7 that -- what I'm saying is if Game & Fish suggests and  
8 these are suggestions, they're not requirements.

9           So whatever the agency -- when they say  
10 three-to-one mitigation, I would feel more comfortable  
11 saying whatever their rules are. And I'm sure -- I can  
12 look it up tonight what their sheet is if it's not. I  
13 don't believe I saw it for the saguaro other than the  
14 pigmy owl habitats. I'm talking more for what the actual  
15 terminology of three-to-one mitigation means.

16           Because my understanding from the temporary  
17 easement, your percentage is much, much higher. It came  
18 out with my math, which could be wrong, to 228 in the  
19 temporary easement that would have to be removed, and then  
20 the -- not would have to be, but possibly have to be  
21 removed. And then in the existing right-of-way, 57.

22           Additionally, there has not been any comment on  
23 which ones could potentially be destroyed by the removal  
24 of the wood H-frames. But those are just things that I  
25 was talking about.

1           And the other questions that I had submitted to  
2 the Applicant for the Army Corps of Engineers  
3 jurisdictional washes, that was answered just now in  
4 conversation.

5           So that was part of the public comment was to  
6 talk about some of the questions, because I do have  
7 questions. If there are 13 important riparian areas to be  
8 crossed, how many of those would be jurisdictional washes  
9 given the proximity to the Santa Cruz?

10           CHMN. FOREMAN: All right. Any other issues?

11           MS. WEBB: Okay. The poles. Oh, H-frames, my  
12 understanding -- well, at least from driving down the  
13 freeway, and also from what I believe I heard from the  
14 Town of Marana today, is that it's the height differential  
15 that's the problem with the color or the visibility. And  
16 these, even though they be adjacent to a wood H-frame, my  
17 experience has been that they tend to weather lighter as  
18 it is a height problem because of the 130 feet.

19           And given that -- and again, and I talked to  
20 Mr. Grant, and I said that I would not be opposed to just  
21 a general pole finish plan for the entire project and not  
22 requiring gray between the two, that short 1.3 segment and  
23 Segment 1. Because I just don't believe that the public  
24 is aware that there are choices.

25           And I say dull gray galvanized because my

1 conversations in the past with TEP have been that they  
2 don't like the painted finish, and they don't use  
3 concrete, and they don't use fiberglass.

4 CHMN. FOREMAN: Now, would you agree with my  
5 sense after driving up and down the interstate there that  
6 to the extent that the poles are going to be visible from  
7 the interstate, they're going to be visible against the  
8 backdrop of the ground. So there's going to be the  
9 mountains in the background, some sort of earth, brown  
10 tone back there. This is not going to be -- and would you  
11 agree that most of the people who see this line, in fact,  
12 the vast majority of the people who see this line are  
13 going to be people who see it, if at all, from the  
14 interstate?

15 MS. WEBB: Mr. Chairman, I have to agree with  
16 what Member Eberhart said earlier about you can't really  
17 see the line. And that's when I went and looked I wanted  
18 to see, because I am not a total fanatic about this gray  
19 thing. I think there are appropriate places.

20 And if the neighbors don't have a problem with  
21 the dark poles back in off of the interstate, then I think  
22 that that should not be a problem. And what I thought --  
23 and I probably didn't make it clear is that I'm really  
24 concerned about the up and down of the steel lattice now  
25 that I understand that the H-frames would be metal, and

1 then another steel lattice, and then going into -- it's  
2 that jarring visible contrast from the interstate.

3           So it would be more located at the northwestern  
4 substation, and then more located when you're starting to  
5 get into your urban areas down at the more north -- I  
6 guess it's more like the southern-ish, but since it's on  
7 that interstate there it's hard to -- so with the  
8 placemat, my concern is around Saguaro because there is a  
9 huge amount of galvanized in that area to Tortolita.

10           And again, I spoke with Mr. Grant, and he said  
11 that a pole finish plan -- and it probably would have to  
12 be extended further for notification, because it's only  
13 state land and APS, is my understanding.

14           But the area, just as Mr. Eberhart said, it  
15 starts to go out. You can't really see those poles. And  
16 then as it comes down into the Thornydale area down to the  
17 north substation, it's just this existing steel lattice  
18 structure.

19           And then again, as I said, then you get into a --  
20 I call them black, the black corten, and then another  
21 steel lattice. That's what is visually disturbing. You  
22 can see it a little bit further south of here near Ina  
23 where they've put two metal H-frames in between two steel  
24 lattice structures, and that's where my concern is.

25           But the biggest concern is just letting people

1 have an opportunity to make comment on those sort of  
2 things. So in this case I can foresee that the majority  
3 of the project would be corten in those far distant from  
4 the interstate, because that's where you get into it is  
5 your height.

6 CHMN. FOREMAN: Okay. Anything else that you  
7 would like to cover?

8 MS. WEBB: No, Mr. Chairman.

9 CHMN. FOREMAN: All right. And we don't have any  
10 other members of the public here, so we will take the  
11 evening recess and we will return tomorrow at 9:30. Thank  
12 you all.

13 (The Public Comment Session concluded at  
14 6:12 p.m.)

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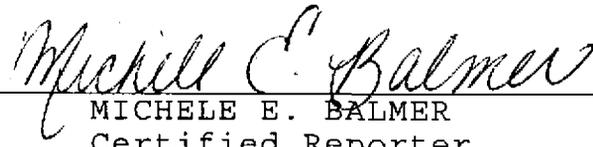
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1 STATE OF ARIZONA )  
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I, MICHELE E. BALMER, Certified Reporter  
 No. 50489 for the State of Arizona, do hereby certify that  
 the foregoing printed pages constitute a full, true and  
 accurate transcript of the proceedings had in the  
 foregoing matter, all done to the best of my skill and  
 ability.

WITNESS my hand this 8th day of October, 2009.



MICHELE E. BALMER  
 Certified Reporter  
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