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BEFORE THE ARIZONA POWER PLANT
AND TRANSMISSION LINE SITING COMMITTEE

In the matter of the Application of)
Tucson Electric Power Company) DOCKET NO.
("TEP"), in conformance with the) L-00000C-17-0365-
requirements of Arizona Revised) 00177
Statutes §§ 40-360, et seq., for)
Certificates of Environmental) CASE NO. 177
Compatibility authorizing the)
construction of the Reciprocating)
Internal Combustion Engine Generation)
Project and the Irvington 138kV)
Transmission Line Relocation Project,)
including the installation of ten)
(10) modular approximately 20 MW)
reciprocating internal combustion)
engine generators and construction of)
approximately 2.2 miles of new 138kV)
transmission lines located within)
TEP's Irvington Campus, Section 3,)
Township 15 South, Range 14 East,)
Pima County, Arizona.)
_____)

At: Tucson, Arizona
Date: January 18, 2018
Filed: January 23, 2018

REPORTER'S TRANSCRIPT OF PROCEEDINGS

VOLUME II
(Pages 189 through 413)

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12 (Please note: Exhibits TEP-2, TEP-7, TEP-9, and
 13 TEP-10 were not utilized.)

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1 BE IT REMEMBERED that the above-entitled and
2 numbered matter came on regularly to be heard before the
3 Arizona Power Plant and Transmission Line Siting
4 Committee, at the DoubleTree Inn Hotel, 455 South
5 Alvernon Way, Tucson, Arizona, commencing at 9:10 a.m.
6 on the 18th of January, 2018.

7

BEFORE: THOMAS K. CHENAL, Chairman

8

LAURIE WOODALL, Arizona Corporation Commission
LEONARD DRAGO, Department of Environmental
Quality

10 JOHN RIGGINS, Arizona Department of Water
Resources

11 GIL VILLEGAS, JR., Counties, Appointed Member

JIM PALMER, Agriculture, Appointed Member

12 JACK HAENICHEN, Public Member

RUSSELL JONES, Public Member

13

14 APPEARANCES:

15 For the Applicant:

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and

20

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By Mr. Marc Jerden and Ms. Megan J. DeCorse

21

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22

23

24

25

1 CHMN. CHENAL: Good morning, everybody.

2 MEMBER HAENICHEN: Good morning.

3 CHMN. CHENAL: All right. This is the time set
4 for continued hearing on the application of TEP for the
5 two CECs they have applied for.

6 Are there any housekeeping items we need to
7 cover before we begin?

8 And we will begin with public comment because I
9 know there are some people here that would like to
10 speak. But before we get into that, are there any
11 housekeeping items today to discuss?

12 MR. DERSTINE: I don't think so.

13 CHMN. CHENAL: Okay. All right. Let's have
14 public comment now, sir. When you come up, would you
15 please state your name. We like to keep the public
16 comments to, you know, try to keep it under five
17 minutes; although, I am not going to cut you off.

18 But understand this is not evidence, and we
19 cannot get into a conversation with you. We are here to
20 listen to your comments. We will take note of your
21 comment. And, as appropriate, we will take the comments
22 that you provide us and will use that in our questioning
23 of witnesses as the hearing continues.

24 So if you will please step up to the microphone,
25 sir, state your name, and we are anxious to hear what

1 your comments are.

2 MR. YANEZ: My name is Ernesto Yanez. I have
3 been living in that area for 40 years.

4 I have just basic questions as far as TEP's
5 intention as far as to expand. But my first question
6 is: Is TEP's intention to rezone that area for city
7 zoning?

8 The next question would be: If that's the case,
9 however that area is zoned, would that have an effect on
10 the property cost or the property, what can I say, the
11 property --

12 MEMBER WOODALL: Value.

13 MR. YANEZ: -- value? And if that's the case,
14 what is TEP -- what is the projected time, if this were
15 to go through, that TEP would purchase the land and
16 people would have to move out and stuff?

17 I mean basically I have lived there 40 years; my
18 roots are hooked in there. So basically I just never
19 had plans to move. I just retired and I had plans to,
20 you know, renovate my home and stuff. But now, with
21 this going on, it is just a question of is it going to
22 happen, is it not going to happen, and basically the
23 time as far as when it does happen. I would like to
24 have some type of idea.

25 CHMN. CHENAL: Thank you.

1 MR. YANEZ: All right. Thank you.

2 CHMN. CHENAL: Thank you, sir.

3 Well, we don't normally take a question from the
4 audiences and then turn it right around to the
5 applicant. But maybe in this case, if someone could
6 provide a little insight as to the future development
7 plans of the site, I think that would be helpful and
8 would be interested in hearing that as well.

9 MS. DARLING: Okay. I think you asked the
10 zoning currently. The site is within the City of
11 Tucson. We were annexed into the city in 1995. It is
12 currently zoned industrial 1 and 2. And we are in the
13 process of doing what is called a planned area
14 development, or a PAD, with the City of Tucson. And
15 what that does is it ensures that future development
16 within the campus will meet all of the City of Tucson's
17 conditions for development.

18 So planned area development is location
19 specific. And it is going to lay out all of the
20 conditions for access, for setbacks, landscaping,
21 parking, lighting, heights of buildings, those kinds of
22 things. So that process is currently going on with the
23 city.

24 It is a separate process for this, the ACC CEC
25 process. There is coming up a zoning examiner hearing

1 where public comment can be taken as well, and then
2 following that a city council hearing. So it still has
3 to go through two additional hearings before it is
4 determined whether or not the PAD will occur or not or
5 whether it will remain an industrial zoning.

6 It doesn't change what is already happening at
7 the campus. So the campus has generation. It has
8 substations. It has shops, buildings, material laydown
9 yards, office buildings. All of those activities are
10 the same and will continue to be the same.

11 The modernization is just the technology, you
12 know, the style of the buildings, trying to bring the
13 campus, you know, more into the future. So it is really
14 a positive thing for the neighborhood, not a negative
15 thing, in that a lot of the visual aspects that you see
16 now, like the really tall lattice structures and things
17 like that, are going to be removed, and it will be a
18 more streamlined or sleeker look to things.

19 CHMN. CHENAL: Let me make this suggestion, sir.
20 Stick around, and when we have a break, if you are able
21 to stay for a few minutes, maybe you can ask a few
22 questions.

23 MR. YANEZ: Okay. But she just said that the
24 area is within the city already, and I live in the
25 county. That's what is confusing.

1 MS. DARLING: I can answer that quickly. Only
2 the campus was annexed into the city. So you are in the
3 county. And, you know, if the city decided to annex
4 your neighborhood south of I-10 -- I assume you are
5 south of I-10 -- that would be a whole city process
6 called an annexation process, and you would be notified
7 of that. So this does not in any way change your
8 jurisdiction or zoning.

9 MR. YANEZ: Sorry.

10 CHMN. CHENAL: All right. Well, thank you for
11 your question, sir.

12 And Ms. Darling, thank you for the explanations.

13 MS. DARLING: Thank you.

14 MR. DERSTINE: Mr. Chairman, can I follow up on
15 just two points?

16 CHMN. CHENAL: Sure, Mr. Derstine.

17 MR. DERSTINE: Ms. Darling, the comment or the
18 concern I heard raised was that through the PAD process
19 TEP would be condemning or acquiring land, residential
20 land in this area. Is that part of the process?

21 MS. DARLING: No. There is no expansion beyond
22 the existing perimeter. It is just changing the land
23 use code for the campus that exists today.

24 MR. DERSTINE: So this gentleman is not going to
25 lose his home through this process?

1 MS. DARLING: Correct.

2 MR. DERSTINE: And all the redevelopment and
3 changes that are occurring are occurring on the campus
4 itself, is that right?

5 MS. DARLING: Correct.

6 MR. DERSTINE: All right.

7 CHMN. CHENAL: Thanks for the clarifications,
8 Mr. Derstine. A little out of order, but I think that's
9 one of the purposes of this hearing, is to answer
10 residents' questions.

11 And so thank you, sir, for --

12 MR. YANEZ: Thank you.

13 CHMN. CHENAL: -- showing up, and I hope the
14 applicant has answered your questions.

15 Are there any other matters we should discuss?

16 There is another person in the audience. Do you
17 have any comments you would like to make?

18 MR. YANEZ: That's my wife.

19 MS. YANEZ: I am just here.

20 CHMN. CHENAL: So she had you ask her questions.

21 MR. YANEZ: Yes.

22 CHMN. CHENAL: Okay. Okay. So I guess with
23 that, we can proceed with the hearing. And I guess
24 Mr. Spencer is in the middle of his presentation.

25 MR. DERSTINE: Mr. Chairman, members of the

1 Committee, with your permission, I guess I would like to
2 start first with a related topic that came up during
3 public comment last night.

4 CHMN. CHENAL: Sure.

5 MR. DERSTINE: And there were comments from a
6 couple members who raised the concern that there were
7 two meetings held generally at the same time on the same
8 evening. And I think the concern was that the company
9 was either playing games or was in some way attempting
10 to limit the amount of public comment or information.
11 And so I would like to have Ms. Darling at least address
12 that and take that head on before we proceed.

13 CHMN. CHENAL: That's fine.

14

15 EDMOND BECK, RENEE DARLING, and CONRAD SPENCER,
16 called as witnesses, having been previously duly sworn
17 by the Chairman to speak the truth and nothing but the
18 truth, were further examined and testified as follows:

19

20 DIRECT EXAMINATION CONTINUED

21 BY MR. DERSTINE:

22 Q. So Ms. Darling, you were here for public
23 comment, correct?

24 A. (BY MS. DARLING) Correct.

25 Q. Okay. And as I just mentioned, there were two

1 meetings last night. One was the public comment in this
2 proceeding and there was another meeting. Tell us about
3 the other meeting, when that meeting was set, and a
4 little bit more background on that issue.

5 A. (BY MS. DARLING) Of course. The other meeting
6 last night was for the planned area development. It was
7 a meeting that was scheduled on October 13th between TEP
8 and City of Tucson. They decided on that meeting date.
9 These hearings were not determined until November 2nd.
10 So at a later date we determined -- and we did have
11 these hearings penciled in at the time that the
12 October meeting was set for last week. But if you
13 recall, we changed it to this week because of Martin
14 Luther King Day, and providing an option for a four-day
15 weekend for folks last week.

16 So the planned area development meeting was
17 scheduled. It was held at the same time, not exactly
18 the same time; it was at 6:00 to 7:30 so that folks that
19 were here last night did make it over to the other
20 meeting and did attend that meeting as well.

21 The planned area development, as I stated
22 earlier, is for the rezoning of the campus from
23 industrial to a PAD, which just sets specific conditions
24 for its future development. And it is not dependent,
25 the RICE project is not dependent on that PAD. It is

1 dependent on this process and the air permit process.

2 There are two additional opportunities for folks
3 to comment on the planned area development project,
4 which I mentioned was the zoning examiner hearing and
5 the city council hearing. And there has been a previous
6 public meeting for the RICE project that was held in
7 October for this project before we filed our
8 application. And there are two other opportunities to
9 comment on the RICE specifically, which is through the
10 air permit process, which will be an open house on
11 February 5th and a public hearing on March 1st.

12 Q. Ms. Darling, you will go into, I guess, greater
13 detail about the PAD process and where we are in the
14 process in your testimony, that is right?

15 A. (BY MS. DARLING) Correct.

16 MR. DERSTINE: Okay.

17 CHMN. CHENAL: All right. Thank you very much.
18 So we will now continue with Mr. Spencer's presentation.

19 MR. DERSTINE: Yes, Mr. Chairman.

20 CHMN. CHENAL: Okay. Could you refresh our
21 recollection what Slide 9 is for those of us who want to
22 pull it up on our iPads.

23 MR. DERSTINE: Slide 9 is where we left off
24 yesterday. But with your permission, I would like to
25 backtrack a bit, because I found myself not fully

1 understanding some of the issues with the graph, the
2 balancing issues, the ramp, what those terms mean and
3 how it drives the need for the RICE project. So with
4 your permission, and maybe it is simply for my education
5 and benefit, but maybe will help the Committee as well,
6 but I would like to backtrack.

7 CHMN. CHENAL: There is a reason some of us who
8 are lawyers and not engineers. So I think that would be
9 good to go over that again.

10 And Mr. Palmer, who is now present today --
11 thank you, Member Palmer -- I think it would be good for
12 him to hear that again, to hear that as well.

13 MR. DERSTINE: Okay. So maybe we can -- why
14 don't we -- Patrick, why don't I have you work your way
15 back to, yeah, start at Slide 3, please.

16 BY MR. DERSTINE:

17 Q. Mr. Spencer, backtracking a little bit, you
18 testified yesterday that one of the drivers of this
19 project, and in fact the need for this project, is TEP's
20 goal of 30 percent retail sales from renewable resources
21 by 2030, right?

22 A. (BY MR. SPENCER) That is correct.

23 Q. Okay. And I asked you yesterday about the
24 challenges that TEP faces in meeting that goal, and you
25 then proceeded to testify about the various issues that

1 increasing use of renewables on TEP's system creates,
2 right?

3 A. (BY MR. SPENCER) That is correct.

4 Q. Okay. So let's move on to the next slide, if we
5 can.

6 So when you showed us this slide yesterday, I
7 had a little bit of difficulty understanding the
8 relationship of the two. And help me with that in terms
9 of -- and tell me if I have got this right. The graph
10 on the left, the historical requirements, that is TEP's
11 base-load, right?

12 A. (BY MR. SPENCER) That is correct.

13 Q. Okay. That's the load that TEP needs to serve
14 from essentially its retail base-load, correct?

15 A. (BY MR. SPENCER) That is correct. That's the
16 total load that TEP serves.

17 Q. All right. But the graph that's paired with it,
18 the 2016 requirements, that shows you have kind of
19 superimposed renewable resources, which is generation,
20 on top of the fluctuations in base-load?

21 A. (BY MR. SPENCER) That is correct. So the one
22 on the left shows the variability of the base-load that
23 TEP serves. And then the one on the left is, just as
24 you stated, it is superimposing the variability of the
25 renewable resource generation to serve that load.

1 CHMN. CHENAL: Excuse me. Member Woodall.

2 MEMBER WOODALL: I am looking at the chart on
3 the left-hand side labeled historical requirements. And
4 I see underneath it it says no renewables.

5 I mean, what was the -- did you eliminate the
6 existing renewables that you have now in order to come
7 up with this chart? Because you have some now.

8 MR. SPENCER: Yes. Once again, as the chart
9 states, this is the movement on a 10-minute basis of the
10 actual demand for electricity. So it is not the amount
11 of renewables that were available to serve that demand
12 for electricity. It was merely the demand for
13 electricity and the movement of that demand.

14 MEMBER WOODALL: Some of that demand, though,
15 might -- would have been mitigated by folks who have
16 their own solar distributed generation, is that correct?

17 MR. SPENCER: That is correct.

18 MEMBER WOODALL: Okay. So is that taken into
19 account in this chart on the left?

20 MR. SPENCER: Give me just a second.

21 MEMBER WOODALL: Sure.

22 MR. SPENCER: After thinking about the data set
23 that would have been used to create this, there is not a
24 way, because what this does is look at the actual demand
25 of electricity of our customers and looks at the changes

1 of that demand every ten minutes. And so there would
2 not have been a way to have separated out those that are
3 rooftop solar customers that would have been producing
4 their own electricity at that given moment.

5 MEMBER WOODALL: So in the chart on the
6 right-hand side, that includes renewable resources that
7 you are going to acquire?

8 MR. SPENCER: That we already have and are
9 producing electricity. So if you look at this top
10 element right here, this is 275 megawatts of utility
11 scale that we actually can measure minute by minute what
12 it is producing, and approximately 50 megawatts of
13 distributed generation. And I believe that that would
14 have been an estimate of that potential movement based
15 on the movement of the utility scale, because it would
16 have affected it somewhat the same because of cloud
17 cover.

18 So the sum of those two is that there were 325
19 megawatts of total renewable that was also being
20 measured, and what that output of those resources were
21 broken down on a 10-minute basis over the entire year
22 2016.

23 MEMBER WOODALL: I know Mr. Jones has a
24 question, but if I could proceed, is that all right?

25 Okay. So on the left-hand chart, you are taking

1 into account that some of the demand there has been
2 self-provided by the customers because of distributed
3 generation, correct.

4 MR. SPENCER: Correct.

5 MEMBER WOODALL: And on the other side you are
6 adding distributed generation. I guess what I am
7 getting at is: Is there some double counting going on
8 here?

9 MR. SPENCER: I don't believe so. Because what
10 this chart is showing is, with that much renewable on
11 the system available to produce electricity for 2016,
12 what changes did we measure in the output of those
13 sources that we can measure, what changes occurred every
14 ten minutes.

15 MEMBER WOODALL: But you just finished telling
16 me that the chart on the left-hand side you couldn't
17 attribute what was distributed generation, so that's why
18 I am confused. I mean, as you said, I am a lawyer, not
19 an engineer.

20 MR. SPENCER: So the 50 megawatts is, you know,
21 a fairly small percentage of the 325 total resources
22 that were available from renewable sources. Okay? The
23 net effect mathematically would be that the 50 that we
24 are just showing was available on the system essentially
25 gets netted out between those two, because what we

1 measured to show this variability was those sources that
2 we actually have a meter on and can see the output of
3 those sources and what their variability was every ten
4 minutes.

5 MEMBER WOODALL: The minute that you use the M
6 word for mathematical I knew this was beyond my ken, and
7 so I yield the floor.

8 CHMN. CHENAL: Member Jones.

9 MEMBER JONES: Thank you, Mr. Chairman.

10 Mr. Spencer, you said that the one on the left
11 is your -- measures, the base-load. And you don't
12 normally, do you, include the renewables in base-load?
13 Because they don't produce 24/7. But you do have the
14 rooftop types that are kind of homogenized into the
15 base-load when and if they are operating at whatever
16 capacity, because it varies. People may cover them up,
17 they might get dirty, they disconnect, whatever. There
18 is just kind of residual homogenized base-load compared
19 to when you look at the specific renewable facilities,
20 which you measure separately, and those are superimposed
21 on the right. Is that what you are doing?

22 MR. SPENCER: That's exactly correct, sir.

23 MEMBER JONES: Okay. I just want to make sure I
24 understood.

25 CHMN. CHENAL: Member Woodall.

1 MEMBER WOODALL: On the right-hand side you say
2 you have 50 megawatts of distributed generation. Just
3 what does that consist of?

4 MR. SPENCER: Essentially it is rooftop solar.
5 So the arithmetic sum that's shown in that box was
6 summed up just to show the magnitude of renewables that
7 are part of the TEP system.

8 MEMBER WOODALL: Okay. So you don't have any
9 other utility scale smaller solar projects?

10 MR. SPENCER: We don't.

11 MEMBER WOODALL: Okay.

12 MR. SPENCER: The utility scale is all in this
13 275 number.

14 MEMBER WOODALL: So that would be anything over,
15 what, 10 megawatts or --

16 MR. SPENCER: Give me a second.

17 MEMBER WOODALL: But I mean it wouldn't count
18 smaller ones on industrial buildings or things like that
19 that would be distributed?

20 MR. SPENCER: No, yes.

21 MEMBER WOODALL: Okay, got you. Thank you.

22 CHMN. CHENAL: And just to keep the questions
23 going -- can you hear me? Okay.

24 Total renewables, 325 megawatts, and what would
25 be the total generation requirement for TEP?

1 MR. SPENCER: So if we showed you a load
2 duration curve, which is completely different than this,
3 that curve would have shown that the total demand on the
4 TEP system went from a day in June of 2016 when we hit
5 the peak demand, which would have been approximately
6 2250 megawatts on the highest peak day in an afternoon
7 in June for just a few hours, to the lowest load that we
8 served on any given hour in the year. And that would
9 have been in the middle of the night on like a May day
10 when the temperature was 65 degrees and the demand was
11 at its minimum. It would have been down to about 850
12 megawatts.

13 So that's the relative demand curve that you
14 would see, is that we had to be able to produce 2250 for
15 a few hours during the year, and the lowest that we ever
16 had to serve was about 850.

17 CHMN. CHENAL: So on a day where you were at
18 your lowest, 800 and some megawatts, those few hours,
19 you were not using 325 megawatts of renewable. That
20 amount would have obviously been less than 325 at that
21 moment. I don't know if my question is clear.

22 MR. SPENCER: Well, the demand on the system at
23 that low point would have been 850.

24 CHMN. CHENAL: Total.

25 MR. SPENCER: Total. The ability of our

1 renewable resources to serve that from the utility scale
2 sources would have been 275. So we would have been
3 serving 275 of that if it would have been the afternoon
4 when that was all producing from those renewable
5 resources, and we would have used our other resources,
6 coal and gas generation, to make up the difference.

7 CHMN. CHENAL: Okay. Let me just see if I
8 understand then.

9 At 3:00 in the morning, when the temperature was
10 65 degrees and there is really no solar available, if
11 that was the moment when the lowest load on the system
12 was, let's say, 800 megawatts, the renewable portion of
13 that, the percentage of that would not have been --
14 would have been lower than 275 --

15 MR. SPENCER: That's correct.

16 CHMN. CHENAL: -- megawatts obviously. In the
17 afternoon, when the renewables are available, then
18 obviously there would have been maybe 275 even more
19 megawatts that would be utilized by TEP and then
20 supplemented with other generation resources.

21 MR. SPENCER: That is correct.

22 CHMN. CHENAL: And one final question. I know
23 this is going to generate some questions, but this is
24 very helpful to me. Are the renewables, if you will --
25 lawyer's word, not an engineering term -- kind of the

1 primary go-to for load? In other words, to the extent
2 you have it, you use it, and then you supplement it with
3 other resources?

4 MR. SPENCER: That is correct.

5 CHMN. CHENAL: Okay. Thank you.

6 Member Jones.

7 MEMBER JONES: My question, Mr. Chairman and
8 Mr. Spencer, has to do with the existing storage
9 capacity. At that lowest ebb with the current storage
10 that you do have, is it sufficient to supplant the oil
11 and the fossil fuel generation in your system?

12 MR. SPENCER: No. The total storage capacity
13 that TEP has in our system today is 20 megawatts.

14 MEMBER JONES: Okay.

15 MR. SPENCER: And the minimum load was 850.

16 MEMBER JONES: Okay.

17 MR. SPENCER: So the answer is no.

18 MEMBER JONES: Thank you.

19 CHMN. CHENAL: Member Haenichen.

20 MEMBER HAENICHEN: Now I am really confused.

21 Let's go to that chart on the left, historical
22 requirements. That's load, right?

23 MR. SPENCER: Correct.

24 MEMBER HAENICHEN: Load where? The whole
25 system?

1 MR. SPENCER: Yes. So that's the variation --

2 MEMBER HAENICHEN: Wait a minute, whoa. The
3 maximum for getting those few middle spikes is less than
4 100 megawatts, and you said that your system load was
5 2200 megawatts.

6 MR. SPENCER: Right.

7 MEMBER HAENICHEN: So explain that difference of
8 those two numbers.

9 MR. SPENCER: Sure. So this is the variation in
10 load. So as you saw in the system operations center
11 yesterday on our tour, you saw that the generation
12 desk's primary responsibility was to make sure that the
13 generation resources, wherever they are coming from,
14 matches on a minute-to-minute basis the load that is
15 being demanded by our customers. And so that is a
16 constantly moving parameter.

17 The chart on the left attempts to say if I take,
18 what is it, 52,560 increments, which is 10-minute
19 increments, times 8760 hours to get all of the hours
20 that occurred in 2016, how much did that load change
21 every 10 minutes. That's what that chart is trying to
22 show.

23 So, for example, if the demand on the system at
24 minute one was 2200 megawatts and 10 minutes later was
25 2100 megawatts, I would show a line on that chart of 100

1 megawatt change.

2 MEMBER HAENICHEN: I understand that. But why
3 in, let's say, June isn't that thing way higher? I mean
4 you just told us that the demand was 2200 megawatts, and
5 it isn't just for 10 minutes. It is for hours.

6 MR. SPENCER: Right. But this is the every
7 10-minute change, the variability in that demand. Okay?
8 So when you look at that load curve, the load changes
9 minute to minute --

10 MEMBER HAENICHEN: I understand that.

11 MR. SPENCER: -- and moves around. All right?
12 The total demand is 2200. But this is trying to
13 demonstrate how much did it change in a 10-minute
14 increment, not the absolute value of those changes. It
15 is the difference.

16 CHMN. CHENAL: The frequency change?

17 MR. SPENCER: Yes. The frequency constantly
18 changes.

19 CHMN. CHENAL: And that's measured by the left?

20 MR. SPENCER: No. It is not a frequency chart.
21 It demonstrates the chase that is constantly going on to
22 keep frequency at 60 hertz.

23 CHMN. CHENAL: All right. Member Drago.

24 This is good. This is good. When Member
25 Haenichen says now I am really confused, it makes me

1 feel good.

2 MEMBER WOODALL: Me, too.

3 MEMBER HAENICHEN: May I continue a little bit?

4 CHMN. CHENAL: Yes, sir.

5 MEMBER HAENICHEN: So using that same logic,
6 going over to the right, you are blending load and
7 generation on one chart?

8 MR. SPENCER: That's correct.

9 MEMBER HAENICHEN: And you are saying the big
10 variation, the higher amount of variations has nothing
11 to do with the load variations; it has to do with the
12 solar generation or the renewable generation?

13 MR. SPENCER: That is absolutely correct, sir.

14 MEMBER HAENICHEN: So you are just saying you
15 are having a problem dealing with the excesses over what
16 you need?

17 MR. SPENCER: Excesses and deficits.

18 MEMBER HAENICHEN: Yeah.

19 MR. SPENCER: And that's the beauty of this
20 chart that shows the relative movement of our total
21 renewable resources. That's this green line. And
22 that's total magnitude. So at noon there was about 230
23 megawatts of total renewable resources. Ten minutes
24 later it had dropped below 200, immediately picked back
25 up and sits there and does this movement all day long

1 every day.

2 So as that renewable resource goes higher and
3 lower, we have to respond to that.

4 MEMBER HAENICHEN: I understand that.

5 CHMN. CHENAL: Member Drago.

6 MEMBER DRAGO: Yeah. Mr. Spencer, I think my
7 question is much simpler in that the graph on the left,
8 if you can go back to Slide 4, for clarity's sake, can
9 we label that graph on the left 2016?

10 MR. SPENCER: Yes.

11 MEMBER DRAGO: Because not until Member
12 Haenichen just now that I learned that was '16. I was
13 about to ask is that a five-year period.

14 MR. SPENCER: No. I apologize. That 2016
15 should be right in front of that historical requirement.

16 MEMBER DRAGO: That would help. Thank you.

17 MR. SPENCER: Yes.

18 CHMN. CHENAL: Thank you for that clarification.

19 BY MR. DERSTINE:

20 Q. Well, and so it helped me a little bit in terms
21 of summing it up. What I heard -- and I think all the
22 questions were helpful for me in understanding it, what
23 we are looking at at Slide 4, the point that that's
24 intended to drive home, and I think does graphically
25 drive home, are the challenges that TEP faces in

1 balancing its system.

2 So if you see the 2016 retail load requirements
3 and then you add the swings, the intermittency from the
4 renewable generation, which is on the right side of 4,
5 that shows the increase in variability, the
6 intermittency that Sam, the gentleman we met yesterday
7 in the control center, has to deal with in balancing the
8 system, is that right?

9 A. (BY MR. SPENCER) That is correct.

10 Q. Okay. And 2016, my understanding is essentially
11 TEP has about 11 percent of renewables on its system, is
12 that right?

13 A. (BY MR. SPENCER) Correct.

14 Q. And then the next slide, Slide 5, as you are
15 moving out to 2024, the swings in variability move from
16 25 to 100 in 2016 on out to 175 megawatts, is that
17 correct?

18 A. (BY MR. SPENCER) That's correct.

19 Q. So the challenge of balancing the system, this
20 intermittency problem, by putting additional, more and
21 more renewable resources on the system creates this
22 balancing problem and dramatically increases the
23 problem?

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

25 Q. Okay. And the solve for the problem, as I

1 understand it based on what you testified yesterday, is
2 to find the right flexible generation resource, is that
3 right?

4 A. (BY MR. SPENCER) That is correct.

5 Q. And that's the analysis that TEP undertook as
6 part of the IRP process, was to examine all the various
7 generation options available that could deal with this
8 variability and intermittency problem that was shown in
9 Slides 4 and 5?

10 A. (BY MR. SPENCER) That is correct.

11 CHMN. CHENAL: Thank you, Mr. Derstine.

12 Member Jones.

13 MEMBER JONES: Mr. Chairman, this just -- I
14 would assume that I think there has been five or six
15 balancing authorities in this State of Arizona, and
16 maybe not all, but many of them have similar issues with
17 renewables coming into their -- on line in their
18 systems.

19 Could you tell us how they are dealing with that
20 if you are the first and only RICE project? I would
21 assume they have similar issues, maybe not to the same
22 magnitude as you. But I am just curious.

23 MR. SPENCER: Well, I can state just from a
24 relative magnitude, I can't describe what our sister
25 utilities specifically are doing, but I can give you a

1 magnitude discussion to share with you why this is more
2 of a challenge, I believe, for TEP than it is for some
3 of our bigger neighbors.

4 As I described, the peak demand for electricity
5 for TEP's system on a hot June day in 2017 was 2300
6 megawatts. Okay? APS's, I believe, was somewhere north
7 of 7400 megawatts. So it is three times bigger. SRP
8 would be somewhere in that same order of magnitude.

9 And so when you look at the percentage of the
10 demand of renewables for those resources, and I will
11 show you the slide for 2000 -- let me get back to the
12 slide.

13 Our projections show that we will be in 2024 up
14 to 800 megawatts, okay, of renewables by then, when we
15 have a minimum load of, you know, the minimum load we
16 ever see is about the same. That's 100 percent
17 penetration. So when you have a bigger system to deal
18 with, you are able to deal with that a little easier
19 than when you are a smaller system and you get that kind
20 of magnitude of penetration.

21 Does that make sense?

22 MEMBER JONES: Yes, it does. Thank you.

23 CHMN. CHENAL: Member Haenichen, and then Member
24 Riggins.

25 MEMBER HAENICHEN: I am just going to try to add

1 some clarity to this issue for the people from the
2 public here today. Based on the comments I heard
3 yesterday both from the public in the evening and during
4 the hearing from the Sierra Club, their perception is,
5 well, since TEP has avowed that they want to increase
6 their generation, portion of their generation from
7 renewables, why on earth are they proposing a 200
8 megawatt fossil fuel facility? Are they talking out of
9 both sides of their mouth?

10 And it is not the case, because in order to add
11 this large amount of renewables, large percentage of
12 their total generation, they have to find some way to
13 deal with the intermittency of it. And that requires
14 facilities that are very easy to quickly ramp up and
15 down, which this proposed facility, the RICE facility,
16 does have that capability.

17 Their other plants that are big coal generation
18 or natural gas generation, massive units that are at
19 Irvington and other places, cannot be turned up and down
20 quickly. So if they are going to incorporate the
21 renewables and make money, they have to have a facility
22 like this to make it viable. Is that a reasonable
23 assessment?

24 MR. SPENCER: I think you summed it up exactly,
25 sir.

1 MEMBER HAENICHEN: Yeah, thank you.

2 CHMN. CHENAL: Member Riggins has been patient.
3 Then we will go to Member Jones.

4 MEMBER RIGGINS: So kind of off of that point,
5 and I noticed that last night, too, during public
6 comment where people were, you know, asking about the
7 renewables in lieu of a project like this, but does TEP
8 kind of see this technology as almost a bridge to retire
9 older technology like the coal units? And then as the
10 technology improves and infrastructure improves and
11 becomes more cost effective to go over more renewables,
12 it kind of bridges that gap between bringing more of
13 those on line. Is that something like this project?

14 MR. SPENCER: That is a correct description of
15 the process.

16 MEMBER RIGGINS: Okay. And I had just kind of a
17 general question for the balancing. Is that -- and they
18 may have discussed it yesterday during our field trip.
19 But the balancing, is that something that's done as far
20 as like automated, or is that something that is actually
21 done at the control center between the controllers?

22 MR. SPENCER: The actual tools that are used by
23 those individuals that you saw at those generation and
24 transmission stations yesterday in the system operation
25 and control center are all computer driven. So

1 literally there are computers that look at all of the
2 flows in, all of the flows out, all the generation
3 resources.

4 And on the generation side, there are computer
5 signals that go back to all of the units that are
6 capable of doing it. And it is called automatic
7 generation control. And so preprogrammed into this
8 computer system, which we refer to as our energy
9 management system, are signals that are generated that
10 anticipate and look at the variability of load and
11 generation, and they pulse a signal out to the actual
12 generation units and raise or lower them as that balance
13 is being evaluated by the computers.

14 The human intervention is when one of those
15 units all of a sudden has some kind of system problem
16 and automatically protects itself and removes it from
17 service. You heard Mr. Rugel say yesterday that one of
18 the things that has to be available on the system either
19 real-time or within a certain time frame are reserve
20 margins, so that if we lose one of those generating
21 units we have the resources to ramp up and correct that
22 deficiency.

23 MEMBER RIGGINS: Okay. Thank you, Mr. Spencer.

24 CHMN. CHENAL: Member Jones.

25 MEMBER JONES: Actually, the question I had

1 asked during the tour yesterday, Mr. Chairman, in
2 dealing with Hoover power and whether, to what extent
3 TEP had access to Hoover power, my understanding was it
4 is very minimal, but Hoover power is, one of the values
5 to that is the fact that it is firming power that's
6 available to all the other balancing authorities, like
7 CAWCD, APS, SRP, the co-ops, who are also balancing
8 authority for other utilities throughout the state. And
9 they have that, that, what they call the dynamic signal
10 of the Hoover power, which is continuous. That is an
11 aid to its instant power when you need it to ramp up as
12 needed in those systems. But the way I understand this,
13 this actually, in a way, takes the place of that type of
14 almost instant but not quite.

15 MR. SPENCER: That's a very good description.

16 When you look at what are the types of sources
17 that are the best for the intermittency issue, the first
18 and best resource are batteries, because they are
19 instantaneous. Okay? Right behind that is hydro,
20 because hydro has the ability to simply open the valve a
21 little further and let more flow go through the turbine
22 and you get electricity.

23 So batteries are a second. Hydro is a few
24 seconds. And then you go down this trail of additional
25 resources. Recips are five minutes. Gas turbines are

1 ten minutes. And you just keep stepping down. Some of
2 the steam turbines that are on the Irvington campus at
3 the Sundt plant are able to ramp, if they are on line
4 and able to respond, the best that we can do is about
5 six megawatts a minute. So you have this prioritization
6 of response to intermittency. And that's the order of
7 the ability to respond.

8 MEMBER JONES: Thank you.

9 CHMN. CHENAL: Member Drago.

10 MEMBER DRAGO: Yeah, Mr. Spencer, can we go to
11 Slide 6, please. You talked about the renewable
12 generation fluctuations here. What isn't clear to me is
13 these names at the bottom and what type of renewable it
14 is.

15 MR. SPENCER: Sure.

16 MEMBER DRAGO: So can we label that on the
17 graph? So, for example, you get wind from New Mexico,
18 right?

19 MR. SPENCER: That's correct.

20 MEMBER DRAGO: I can't tell you which one of
21 these is wind.

22 MR. SPENCER: Okay. The first name is Macho
23 Springs. And that's yellow. And that is wind from New
24 Mexico.

25 MEMBER DRAGO: Perfect. And my request would be

1 let's label that.

2 MR. SPENCER: On the record?

3 MEMBER DRAGO: Yeah, or on the graph, for anyone
4 that picks the graph up, they can tell.

5 MR. SPENCER: Yes.

6 MEMBER DRAGO: And if you don't mind, let's go
7 through these because I think this is a really good
8 graph here.

9 MR. SPENCER: Okay. Like I said, Macho Springs
10 is wind out of New Mexico. Red Horse, and that's total,
11 Red Horse is a combination of wind and photovoltaics
12 from Arizona. It is essentially between where we are
13 sitting today and Willcox just north of I-10. Okay? So
14 that's a combination of both photovoltaic sources and
15 wind sources. And I can't tell you the ratio between
16 them, but I know that it is both.

17 MEMBER DRAGO: Fine, perfect.

18 MR. SPENCER: The rest are summed up in this
19 total renewables, which is the green line. So Macho
20 Springs and Red Horse, because they are two of our
21 bigger quantities, utility scale renewables, are shown
22 separately. But those are both, with all the others,
23 are summed into the green line, which is total
24 renewables.

25 Does that help?

1 MEMBER DRAGO: That's perfect, yep. Thank you.

2 BY MR. DERSTINE:

3 Q. So, Mr. Spencer, staying on Slide 7 for a
4 minute, Member Haenichen, I think, did a nice job of
5 summing up the reason for the RICE units. Or I am
6 sorry, 6, staying on 6. I called it out wrong.

7 A. (BY MR. SPENCER) I am getting pretty good at
8 using this clicker.

9 Q. You are.

10 Essentially if we are going to increase
11 renewables on our system, we have to have flexible
12 generation with ramping capability. Is the ramping
13 capability and the need for the ramp kind of illustrated
14 by this August 8, 2017 day in the dramatic drop-off of
15 the green line, which is the combination of all the
16 renewables on the system at that point in time of the
17 day? And tell us what happens when that green line
18 drops there.

19 A. (BY MR. SPENCER) So as you saw displayed in the
20 system operation control center yesterday, the
21 generation desk is the one that is monitoring the area
22 control error. So they are the ones monitoring. The
23 computer is doing everything that it can to pulse the
24 resources that are available to it to take care of this
25 issue.

1 So you can see that at -- is that 16:24? -- the
2 area control error dropped 145 megawatts, and that was a
3 direct result of that drop of 137 megawatts of renewable
4 resources simultaneously. And so over that very short
5 period of time, what was it, about 15 minutes, we see
6 that the generation resources from renewables dropped
7 this 137 megawatts. And so the generation had to be
8 picked up from other resources to try to make up for
9 that and get the area control error back above zero so
10 that then we could bring it back to zero.

11 So literally the renewables caused this drop in
12 variable resources, and we had to make that up from
13 other resources. That's this fast flexible generation
14 resources that the RICE project can bring to the table.

15 Q. So when you are using the term ramp in this
16 context, does that simply mean the ability of a
17 generation resource to quickly respond and be turned on
18 to meet the drop-off in generation or in, yeah, in the
19 renewable generation?

20 A. (BY MR. SPENCER) That's correct.

21 Q. Okay. And you said that the battery is
22 instantaneous. So why can't the battery storage solve
23 that problem?

24 A. (BY MR. SPENCER) Well, as I stated, we are
25 entering the world of batteries. We have installed two

1 10 megawatt batteries. They will produce 10 megawatts
2 for 15 minutes. Okay? So as we were instructed
3 yesterday, that's five megawatt hours. And so that
4 would have given the ability to recover 20 megawatts of
5 137 megawatt loss. And that would have created -- and
6 because of the date that this occurred, I can tell you
7 that both of those batteries probably fired at that
8 moment. And so they helped mitigate this -- is that
9 purple? -- purple line --

10 Or is that blue? No, it is purple.

11 Q. Purple.

12 A. (BY MR. SPENCER) -- that purple line, but it
13 just wasn't enough. We don't have enough battery
14 capacity to handle it. And when we showed the cost
15 comparison between RICE technology to try to address
16 this, versus batteries, we believe that RICE is the best
17 economic decision that also provides, as was beautifully
18 described by one of the Committee members, as a bridge
19 to allow batteries to continue to get better and better
20 and longer and longer in their ability to supply this
21 exact type of deficit created by the intermittencies of
22 renewables.

23 CHMN. CHENAL: Member Jones.

24 MEMBER JONES: Mr. Chairman, Mr. Spencer, then
25 were the batteries you have currently, or the ones you

1 have in place currently, are they sufficient for the
2 five minutes, or the reciprocals take -- they are not
3 instant?

4 MR. SPENCER: No. It takes five minutes to go
5 from initiation of a start to 18.2 megawatts.

6 MEMBER JONES: Okay. And does the battery
7 storage you have, is that sufficient? Will that suffice
8 for now, and is that part of the reason you plan to add
9 more battery in the future, even though it is more
10 expensive?

11 MR. SPENCER: Well, we believe that battery
12 technology will continue to decrease in price over time.
13 Right now the economics are clearly in favor of the
14 reciprocating engines as the bridge to that technology
15 continuing to mature and get more economical. So when
16 you see that it is 137 megawatt drop and we only have
17 20 megawatts of batteries, batteries are not sufficient
18 today.

19 MEMBER JONES: So the battery you have today is
20 not sufficient to give you the time necessary to, or
21 will be able to light up these reciprocals?

22 MR. SPENCER: Well, they, along with all the
23 other resources that are on line at any given time, will
24 help mitigate this issue of these kind of big drops.
25 But what it does is it all lines up and helps alleviate

1 the problem. And as this variability gets bigger and
2 bigger, you have got to have this 200 megawatts of
3 capacity of recips to play a role in this mitigation of
4 intermittency.

5 MEMBER JONES: Okay. Thank you.

6 Thanks, Mr. Chairman.

7 BY MR. DERSTINE:

8 Q. I want to touch quickly on a question I think
9 Member Jones raised with you in relation to how are
10 other utilities in the state and in the country dealing
11 with the balancing issue, balancing the intermittency
12 and increasing intermittency with the use of renewables.
13 And what I took from your answer was that the recips are
14 the right fit for TEP to meet the need today. They may
15 not be the right fit for an APS or SRP simply because
16 their load profile is different. Is that a fair
17 statement?

18 A. (BY MR. SPENCER) That possibly is the case. I
19 don't know enough about the exact load profiles. In
20 other words, I don't know the variability of SRP and
21 APS's loads like we do TEP. If it was similar, then the
22 answer to your question is yes. But I don't know that.

23 Q. Okay. And moving to your Slide 7, is that just
24 a further illustration of the need for this fast ramping
25 flexible generation resource?

1 A. (BY MR. SPENCER) Absolutely. It is the epitome
2 of what we are faced with as we go further in time. And
3 I apologize for getting into a more mathematical
4 technical argument, but this load, the black line is the
5 load, okay, the net load. Because what it is showing is
6 that the -- if I were able to show the actual load curve
7 for that day with nonrenewables on the system from that
8 point right there, it would bridge over to right there.
9 Okay? But what we are trying to show is that as the
10 renewable resources become available as the sun gets to
11 an appropriate angle, okay, on a winter day, it covers
12 the load for us.

13 And, Mr. Jones, I think you made an incredibly
14 good point. We have to get our fossil resources out of
15 the way so that those renewable resources are the prime
16 load carrying entity. And so this curve looks more
17 like -- so if I superimposed intermittency on that line,
18 it wouldn't be this straight black line. It would be up
19 and down at the magnitude as was shown on two slides
20 previously.

21 And so that's the nature of this beast that we
22 have got to maintain, is that as renewables come on, and
23 we have to get all of our resources out of the way, but
24 then at 4:00 in the afternoon as that sun angle begins
25 to drop and the renewable resources aren't there to

1 cover it, we have got to have something that's fast and
2 flexible to start up and ramp to get back up to the load
3 that needs to be covered on that particular day.

4 CHMN. CHENAL: Excuse me. I have a question.
5 And I have a pointer.

6 The area that is gray as depicted on Slide 7,
7 that's all coal generation, is that correct?

8 MR. SPENCER: Correct. That would be our base
9 coal generation.

10 CHMN. CHENAL: So I thought that as time went on
11 the amount of coal generation power was going to be
12 decreasing. And so this slide is a typical 2030 day.
13 It just seems like the amount of coal generation is
14 still quite high.

15 MR. SPENCER: Well, what this is trying to show
16 is what the minimum load profiles of our coal generation
17 look like in total magnitude.

18 So, Mr. Chairman, what it is saying is that the
19 minimum that we can run our coal units, when we have
20 them at their very bottom, is about 400 megawatts. And
21 so what it means is, for us to fully utilize all of the
22 renewables, we are going to have to cycle coal units.
23 We are going to have to completely take them off line in
24 the morning and then have them ready to start back up in
25 the afternoon.

1 Does that --

2 CHMN. CHENAL: But you are still, even at --
3 from 10:00 a.m. until, let's say, 4:00 in the afternoon,
4 you are still generating, it looks like, 500 megawatts
5 of coal power, is that correct?

6 MR. SPENCER: No.

7 CHMN. CHENAL: Okay. Then I am reading this
8 graph incorrectly.

9 MR. SPENCER: Right. So what the graph is
10 trying to show is that when you look at the resources
11 that we have available to us to meet the load, okay, and
12 you put the minimum run capabilities of those entities
13 and then you plot against what the net load is when
14 renewables are generating that, it says we have got to
15 get coal out of the way during the middle of the day,
16 which means we are going to have to cycle our coal units
17 on and off, off and on on a daily basis.

18 CHMN. CHENAL: Well, these graphs, I am
19 challenged a little by this one. The black line is the
20 net renewable. And yet I am not sure there is an
21 explanation to this, but it seems like in the heart of
22 the day, from 10:00 until, let's say, 5:00, one would
23 think that renewables would be in use and be up here
24 versus down, you know, where it is not -- where they are
25 not generating. So I am obviously reading this

1 incorrectly and I am looking for a little help on this
2 slide.

3 MR. SPENCER: So let me try to describe it in
4 another way. If I were able to just draw the load
5 profile of the demand for the entire day, if I drew a
6 dashed line, I am drawing a dashed line now, it would
7 look like that.

8 CHMN. CHENAL: And that line would represent
9 what again?

10 MR. SPENCER: That would be the total demand of
11 electricity for that day.

12 CHMN. CHENAL: Okay.

13 MR. SPENCER: Okay? So the load would have
14 stayed above, that's 800 megawatts, it would have gone
15 up to a thousand and then would have remained about in
16 this area and gone up to a little over a thousand for
17 the night peak.

18 What this curve is trying to show is that, with
19 renewables covering that load, okay, what is the net
20 effect on the system of those renewables generating it
21 rather than all the rest of the resources. And that's
22 where it comes down and actually goes negative.

23 So this is saying that during the middle of the
24 day in 2030 that we had to have added up to a total of
25 1200 megawatts of renewable capacity. Well, you can see

1 that the load never reached 1200 megawatts that day. So
2 we had more renewable capacity than we had native load
3 to serve.

4 Does that help?

5 CHMN. CHENAL: It does help. Thank you.

6 Member Jones.

7 MEMBER JONES: Thank you, Mr. Chairman.

8 Mr. Spencer, in looking again at that graph,
9 that excess load then could be utilized for storage
10 batteries --

11 MR. SPENCER: That's correct.

12 MEMBER JONES: -- to use it later so it doesn't
13 go to waste?

14 MR. SPENCER: That's correct.

15 MEMBER JONES: Another part of my question is
16 you still have gray in there, and my question is, given
17 the time necessary to bring coal-fired plants up,
18 ramping them, they have to kind of be on line, so there
19 is a cost associated with that.

20 MR. SPENCER: Correct.

21 MEMBER JONES: There is a consumption of
22 resources just to be available, and they are not -- in
23 that case they are doing nothing. They are just there
24 because that is the nature of your beast that you have
25 today. And so there is a cost associated with that that

1 I would assume is borne by the consumers as well?

2 MR. SPENCER: That is correct.

3 MEMBER JONES: Okay. Thank you.

4 BY MR. DERSTINE:

5 Q. Mr. Spencer, I guess on the left, going to the
6 Chairman's question about how much coal would be part of
7 TEP's generation portfolio by 2030, does that graph
8 provide, illustrate what our anticipated mix will be at
9 that time?

10 A. (BY MR. SPENCER) It does.

11 Q. And how much in the way of coal generation will
12 be in TEP's portfolio by 2030 as is currently projected?

13 A. (BY MR. SPENCER) I believe that says
14 30 percent. Or is that 38 percent? Thank you. Even
15 with my glasses. Yes, it is 38 percent.

16 Q. Down from all the blue on the left?

17 A. (BY MR. SPENCER) Yes, which is 69 percent.

18 Q. And again, that's the objective, that's the
19 goal, taking coal off line and increasing renewables.
20 And the bridge, the way to get there, one of the
21 technologies is the RICE unit?

22 A. (BY MR. SPENCER) That is correct.

23 Q. Okay. So if it is the right generation resource
24 today for TEP, given the comments we heard last night,
25 why are we plunking it down on the Irvington campus as

1 opposed to putting it out on the Springerville site or
2 southern Arizona?

3 A. (BY MR. SPENCER) If I can go to Slide 10, I can
4 begin a description of why we chose the Irvington campus
5 and the Sundt generation plant to site the recip
6 project.

7 The first thing that I will say is that I have
8 taken this slide from Mr. Beck's testimony yesterday
9 where he shows the outline of the Tucson 138kV
10 transmission system. So as Mr. Beck testified
11 yesterday, we have, and his previous slide to this
12 showed, the high voltage transmission system, 500kV,
13 345kV, that bring power to essentially the perimeter of
14 what I am now going to call the Tucson box.

15 And so the high voltage systems bring the
16 electricity primarily from those remote resources that
17 Mr. Beck testified about yesterday, but it all is load
18 served by this 138kV system within the Tucson box, if
19 you will.

20 And so when we looked at where do we site this
21 fast, flexible resource, we looked at five possible
22 sites within the Tucson box, in other words, connected
23 at the 138kV system first, because of the minimum
24 generation requirement for voltage support and
25 reliability criteria that Mr. Rugel testified to

1 yesterday that's required inside that box.

2 So today -- let me step back for just a minute
3 and say, well, what do we use today to meet that
4 requirement. And it is the Sundt facility. And so I am
5 going to go -- whoops. I am getting there.

6 So I am going to go to Slide 10 and I am going
7 to describe the facilities today that meet this min gen
8 requirement and this voltage support requirement within
9 the Tucson box. The four steam units that are located
10 at Irvington that you saw yesterday in your tour are the
11 primary resources that supply that minimum generation
12 requirement and voltage support requirement inside the
13 Tucson box. Okay?

14 And so as we did our evaluation, the minimum
15 generation requirement for approximately 6,000 hours out
16 of the 8760 hours in a given year is around
17 10 megawatts. That's all that's required. So what we
18 do is we run Sundt Unit 4 as the unit that stays on line
19 all of the time to serve that requirement, that
20 10 megawatt requirement. Its minimum generation until
21 just recently, the low point that it could get to was
22 40 megawatts. That was the minimum we could turn it
23 down to. And so we ran Unit 4, and that's the only unit
24 that was running yesterday when we were on the tour, to
25 serve that minimum generation requirement within the box

1 to provide that support.

2 CHMN. CHENAL: If I may interrupt, but Unit 4
3 now is natural gas --

4 MR. SPENCER: Yes.

5 CHMN. CHENAL: -- fired?

6 And that was the unit to which the conveyor belt
7 that previously had brought the coal is being
8 dismantled?

9 MR. SPENCER: That is correct.

10 CHMN. CHENAL: Member Woodall.

11 MEMBER WOODALL: Is this the same thing as
12 reliability must-run, or RMR?

13 MR. SPENCER: That is correct.

14 MEMBER WOODALL: Okay. So that's a more
15 technical term that the engineers use.

16 MR. SPENCER: That is correct.

17 MEMBER WOODALL: I am inquiring because I know
18 it was referenced in the biannual transmission
19 assessment. I just want to make sure I was
20 understanding the same thing. Thank you.

21 MR. SPENCER: That is exactly correct.

22 And so this minimum generation requirement, the
23 RMR -- I will use that term now since you defined it --
24 that number gets bigger as the demand inside the box
25 increases. And so as the demand for electricity in the

1 box gets upwards of 2,000 megawatts, the number isn't
2 10 megawatts anymore, it is now 200 megawatts.

3 And so literally we have been using the last
4 several years the Sundt steam units because they are
5 inside the box as the RMR requirement. And so we have a
6 table of operating limits that is run every day to
7 predict what is the minimum generation requirement
8 inside the box. And that then is relayed to the plant
9 from the system operation control center, and that gives
10 us the signal, do we start up these units to provide
11 that need the next day. We have to do that 24 hours in
12 advance because of the nature of this technology, which
13 requires hours and hours of start-up versus five minutes
14 with the recip.

15 CHMN. CHENAL: And then, Mr. Spencer, just again
16 a little more background. So Unit 4 is used --
17 basically is on all the time as you just described. Can
18 you give us a little picture of how Units 1, 2, and 3
19 are used?

20 MR. SPENCER: That's exactly where I was headed.

21 CHMN. CHENAL: And how the RICE would affect the
22 use of those units going forward?

23 MR. SPENCER: Perfect.

24 So as the load inside the box increases, the
25 analysis is done. The plant is told fire up additional

1 units because the load is going to require additional
2 capacity inside the box. And so when you look at the
3 load profiles over the last several years, absent
4 periods of time when Unit 4 was in an overhaul period
5 doing maintenance activities, Unit 3 would have been
6 operated, or Units 1 and 2 in those maintenance
7 operational periods for Unit 4.

8 And so when you look at when Unit 4 is operated,
9 it is operated 8760 hours a year. It is available.
10 Unit 3 comes into the mix, it is a 105 megawatt unit,
11 usually between the months of May 1st and October 1st.
12 And during parts of that period of time Unit 3 would
13 actually stay on 24 hours a day. And then you will see
14 that when we get to June, July, August, Units 1 and 2
15 are cycled on in the mornings and cycled off at night to
16 fulfill this increasing requirement of minimum
17 generation within the box.

18 CHMN. CHENAL: And, again, the amount of output
19 for each of the units is how much?

20 MR. SPENCER: Unit 1 is 80 megawatts, Unit 2 is
21 80 megawatts, Unit 3 is 105 megawatts, and Unit 4 is 155
22 megawatts. So that load profile to meet this
23 reliability minimum run requirement increases. As the
24 load increases, these units have been following that
25 pattern to provide that minimum gen requirement

1 currently.

2 And so we said let's look at the sites that
3 could fulfill the potential to replace Units 1 and 2,
4 which are the two oldest units built in the late 1950s,
5 with fast start, flexible generation resources. And so
6 we looked at five sites scattered around the Tucson area
7 inside the box. Because we knew that the heat rates,
8 the fuel efficiency of these two older units could be
9 replaced with newer technologies.

10 And so we looked at the siting
11 transmission-wise, environmental permit-wise, water
12 availability, infrastructure availability, existing
13 personnel that could support versus nonmanned stations.
14 And so all of that criteria was considered by a
15 multitude of different departments within TEP to
16 establish where is the best site to put the fast,
17 flexible generation resource. And all of those studies
18 concluded that Irvington campus and the Sundt generation
19 station was the best place to put the resource.

20 CHMN. CHENAL: Wasn't that because they had the
21 railroad tracks right to the site?

22 MR. SPENCER: That was one of the
23 considerations, but we considered all of those factors.

24 CHMN. CHENAL: Member Haenichen.

25 MEMBER HAENICHEN: Thank you. I would like to

1 make a few comments for the benefit of the public that's
2 present here today.

3 This process, when any utility wants to build a
4 large facility over a certain cost or size, approaches
5 this Committee first, and then we meditate about it and
6 we deliberate and we decide yea or nay or yea with some
7 variations. That information then goes to the
8 Corporation Commission, to whom we report. And they
9 have the option to either disagree and totally -- good,
10 we approve it, totally not approve it, or approve it and
11 add their own conditions. But I assure you we take our
12 responsibility on this very seriously.

13 Now, let's talk about the utilities. The
14 utilities, as you have seen from what we have looked at
15 here this morning, are faced with a real daunting
16 challenge. They have to deal with a load, which means
17 the usage of electricity that's varying up and down,
18 minute by minute, and goes way down at night every day
19 and changes seasonally.

20 Now they have to deal with an additional
21 challenge of dealing with a generation source that
22 provides the electricity which is not constant that
23 being renewables. Yet all of us want to see renewables
24 increase in percentage of generation over time from the
25 standpoint of cost, from the standpoint of the

1 environment and many other factors.

2 So now let's get down to the specifics of this
3 hearing that we are in today. This Committee, either
4 late today or tomorrow, will make a decision after
5 carefully deliberating of whether to approve this
6 project, not approve it, or approve it with certain
7 conditions on it. And then it goes forward to the
8 Corporation Commission.

9 Here is what my feeling on the project is right
10 now. I believe, and I have been convinced by the
11 presentation from witnesses here in this hearing, that
12 the goal of adding a large amount of renewables to the
13 TEP system by 2030 would not be possible to do
14 economically without this project or something like this
15 project. And I am persuaded that if we don't approve it
16 the utility will have to reevaluate their plans for
17 renewable generation, and perhaps lower or even
18 discontinue it.

19 So those are the facts. And it is never a
20 pleasant situation. There is always ups and downs to
21 every proposal. But it is a fact that at the present
22 time large renewable generation requires rapidly
23 changeable generation sources to accommodate it, to fill
24 in the gaps in that generation when the sun goes away or
25 there is a cloud or whatever.

1 So those are the factors that all of us as
2 Committee members are going to have to weigh today or
3 tomorrow when we make our vote. And please be assured
4 that we are very interested in and cognizant of your
5 concerns about the environment and other factors.

6 Thank you.

7 CHMN. CHENAL: I wonder if this might be an
8 appropriate time to take a break. Mr. Spencer is, I
9 guess, going to discuss a little more siting of the RICE
10 units at Irvington, maybe a little more on that and then
11 get into some of the other matters. Maybe this is a
12 good time to take a 15-minute break for a morning break,
13 and we will come back at quarter until 11:00.

14 MR. DERSTINE: Thank you.

15 (A recess ensued from 10:29 a.m. to 10:53 a.m.)

16 CHMN. CHENAL: We are ready to go back on the
17 record here to resume the morning session.

18 Mr. Derstine.

19 MR. DERSTINE: Thank you, Mr. Chairman, members
20 of the Committee.

21 BY MR. DERSTINE:

22 Q. Mr. Spencer, when we took our morning break, you
23 were talking about the analysis of where to locate the
24 RICE units, but started that discussion with your
25 testimony on why these units have to be in Tucson in the

1 load center.

2 So the options were not to put them on some
3 other location outside of Tucson, in northern Arizona,
4 eastern Arizona. They needed to be in the load center
5 to meet RMR. And so the analysis was, on these five
6 locations, where in Tucson was the best place to put
7 these units. Is that about right?

8 A. (BY MR. SPENCER) That is a correct summary.

9 Q. Okay. Can you then kind of, if you need to,
10 backtrack a little bit and cover those factors that
11 drove the analysis?

12 A. (BY MR. SPENCER) Well, as I mentioned
13 previously, the fundamental principles were, as you
14 mentioned, they had to be inside the load pocket for RMR
15 requirements. So we looked at what was the best of the
16 five sites in Tucson based on that requirement.

17 And we looked at groundwater availability,
18 existing sites, infrastructure that's already available
19 versus new infrastructure that would have to be built.
20 We looked at air permitting, what would be the best site
21 from an air permit standpoint. Those were the primary
22 requirements or criteria that we used to evaluate the
23 potential sites to put the reciprocating engines.

24 Q. Okay. You mentioned groundwater. One of the
25 requirements of the siting statute is that for

1 facilities that are going to be installed or constructed
2 within an active management area, that the Committee
3 must consider groundwater impacts. So talk about, given
4 your analysis and the decision that Irvington campus is
5 the best location for the RICE units, talk about the
6 impact on groundwater.

7 A. The existing Irvington campus, and specifically
8 the Sundt generation station, has a series of wells
9 either on the Irvington campus or just off the Irvington
10 campus. So in this general area there is a series of
11 wells that produce the raw water that is used in the
12 production of electricity on this site.

13 Approximately 90 percent of that water is
14 consumed in the heat rejection of the cooling towers.
15 So any ranking cycle type of facility, which is what the
16 term is used to define this type of technology, is a
17 very water intensive type of technology. And about
18 90 percent of the water, as I mentioned, is used in heat
19 rejection. And that's what the cooling towers do. The
20 cooling towers literally condense the steam, which is
21 very pure water, back to water, and it is just recycled
22 in the process. So we have to reject that heat through
23 these cooling towers.

24 And so one of the objectives of the project was
25 to find a technology that reduced the total water

1 consumption that was necessary. And we had to have a
2 site that at least had water, because we have to use a
3 mixture of water and glycol for the dry cooling for the
4 reciprocating engines themselves.

5 And so we could clearly see when we ran the
6 numbers of the sequencing of operation for the units
7 that there would be a substantial reduction in the
8 amount of groundwater consumption if we put the RICE
9 units at the Sundt generating station. And the primary
10 driver for that is -- and I am going to go back to my
11 testimony before the break -- Unit 4 is the primary unit
12 that's run around the clock today, and then Units 3 and
13 2 and 1 are cycled on as the load increases inside of
14 the box.

15 And so what the RICE units will do is they will
16 literally change the order of operation of the steam
17 units. Units 1 and 2, which are these units here on the
18 picture, will essentially be abandoned in place.
19 Because the infrastructure is so tied together in all of
20 these integral facilities, and there are facilities on
21 the north end of the plant that will be necessary to
22 operate all of the units into the future, even though
23 the RICE units, water purification facilities and things
24 of that nature, it is not our plan to tear these units
25 down but to essentially abandon them in place right now.

1 Now, in the future there may be plans to maybe
2 take down some of the higher structures just from a
3 visual standpoint. They won't be torn down, but they
4 will become a nonresource for our ongoing operation.

5 And so Units 3 and 4 will take the place in the
6 sequencing of operation that Units 1 and 2 are today.
7 In other words, they will operate only in the months of
8 primarily June, July, August, sometimes into September.
9 And so when you translate that into water consumption,
10 because the RICE units use virtually no water, the total
11 water consumption will go from 2100 acre feet of water
12 down to about 700 acre feet of water. So it will be a
13 substantial reduction in total water consumption for the
14 facility. And that was one of the considerations, that
15 we live in a desert, how can we have less of an impact
16 on water consumption with the generation of electricity.

17 CHMN. CHENAL: One question. Mr. Spencer, after
18 Units 1 and 2 are essentially abandoned in place, you
19 will continue to use Units 3 and 4, will Unit 4 still be
20 operating pretty much 24/7?

21 MR. SPENCER: It will not. It will literally be
22 a peak load unit for summer purposes only.

23 CHMN. CHENAL: As well as 3?

24 MR. SPENCER: That's correct.

25 CHMN. CHENAL: And so what will take the place

1 of what up to this point in time was one of the purposes
2 of Unit 4, which is basically to have kind of a minimum
3 load?

4 MR. SPENCER: One of the RICE units will run
5 8760 hours a year.

6 CHMN. CHENAL: Okay.

7 MEMBER WOODALL: I had a question, too. I am
8 assuming that Units 1 and 2 are fully depreciated? That
9 might be a Mr. Beck question.

10 MR. SPENCER: They are not fully depreciated.

11 MEMBER WOODALL: Okay. So at some point they
12 are not going to be used and useful?

13 MR. SPENCER: That is correct.

14 MEMBER WOODALL: Okay. I just wanted to ask
15 that. Thank you.

16 CHMN. CHENAL: Member Riggins.

17 MEMBER RIGGINS: Mr. Spencer, in terms of the
18 water use, what were those figures again? I got the 700
19 acre feet is the estimated, the new consumptive use.

20 MR. SPENCER: So the last several years on
21 average, the reports for groundwater withdrawal that we
22 have submitted to the Arizona Department of Water
23 Resources is 2100 acre feet per year.

24 MEMBER RIGGINS: Okay.

25 MR. SPENCER: And that usage, once the RICE

1 units are up and running, will go down to approximately
2 700 acre feet per year.

3 MEMBER RIGGINS: Okay. And I know just looking
4 at the well data when I was researching, is there
5 going -- I know kind of in the area, the yellow area
6 where the proposed RICE units are going to go, is there
7 going to be new wells used for water use, for the RICE
8 units, or it will be existing?

9 MR. SPENCER: That's part of the infrastructure
10 leverage that we are going to get by putting it on this
11 site, is all of the wells currently are piped into a
12 common raw water header, in other words, a pipeline that
13 runs the entire circuit of the plant. And that well
14 system will continue to be used to supply water for
15 Units 3 and 4 and for the RICE units.

16 MEMBER RIGGINS: Okay.

17 CHMN. CHENAL: Member Haenichen.

18 MEMBER HAENICHEN: I thought we decided
19 yesterday the RICE units didn't use any water.

20 MR. SPENCER: They will use minimal amounts of
21 water.

22 MEMBER HAENICHEN: Very minimal.

23 MR. SPENCER: Very minimal.

24 MEMBER RIGGINS: So in terms of kind of
25 comparing the cycle, because I think -- is it 15 cycles

1 within the current steam generation?

2 MR. SPENCER: I think you are referring to how
3 many cycles of concentration we do for the water that's
4 used in the cooling towers.

5 MEMBER RIGGINS: Right.

6 MR. SPENCER: Currently we have a grandfathered
7 ability to cycle these up seven times.

8 MEMBER RIGGINS: Okay.

9 MR. SPENCER: And that's primarily driven
10 because of the silica that is naturally found in the raw
11 water. And so we currently cycle these up about seven
12 times before we blow down that water.

13 MEMBER RIGGINS: So for the RICE units, as kind
14 of like a radiator style cooling, how many times does
15 that get cycled before it is disposed of as far as
16 wastewater?

17 MR. SPENCER: Essentially the water will be
18 tested on a very routine basis, and the measurement of
19 the glycol to water mixture. And any of the chemical
20 parameters that may get out of the guidelines that are
21 given by the manufacturer will be the driving force for
22 essentially bleeding off some of that water and
23 refreshing it. We don't anticipate that occurring very
24 often at all.

25 MEMBER RIGGINS: Okay. So sort of like a car

1 engine --

2 MR. SPENCER: That is correct.

3 MEMBER RIGGINS: -- continues to cycle. Okay.

4 CHMN. CHENAL: Just if I can follow up, maybe
5 you just answered this, but even at 700 acre feet a
6 year, I mean is that through evaporation, or is the
7 water recycled and reused? If it is reused, how come
8 you are using 700 acre feet?

9 MR. SPENCER: Sure. I will go back to the
10 comment I made. In this type of steam technology with
11 cooling towers, approximately 90 percent of the water
12 that you withdraw from the ground and use in the process
13 is rejected in evaporation through those cooling towers.
14 So we are providing a boost to the humidity of the
15 citizens of Tucson.

16 CHMN. CHENAL: You are going to want that to be
17 a headline, aren't you?

18 MR. DERSTINE: One of the many benefits of the
19 project.

20 BY MR. DERSTINE:

21 Q. Mr. Spencer, while we are on the subject of
22 groundwater, maybe this is the right time to just flip
23 ahead to your Slide 19 and that last bullet that
24 addresses the savings in groundwater, you know, by
25 switching to the RICE units, and make that correction

1 now.

2 A. (BY MR. SPENCER) Yes. If the Committee will go
3 to Slide 19 -- and I will get it up on the screen here.
4 I apologize that I made an error. The 70 percent
5 reduction is accurate, but this number of 1 billion
6 140 million should be corrected to 685 million gallons,
7 which is 2100 acre feet. And it will go down to
8 230 million, which is 700 acre feet. So I apologize for
9 that calculation error on Slide 19.

10 Q. But the bottom line, I guess, in terms of the
11 70 percent reduction, that's based on what you said, is
12 that the Units 1 and 2 will essentially be mothballed or
13 abandoned in place, they will remain on the site but
14 will no longer be used, and the generation from those
15 two units will be replaced by the RICE units?

16 A. (BY MR. SPENCER) That is correct.

17 Q. And that results in the savings of 70 percent of
18 groundwater?

19 A. (BY MR. SPENCER) That, in addition to the
20 sequencing of operation of Units 3 and 4, which are the
21 real water users.

22 Q. Okay. Not only does the installation of the
23 RICE units allow TEP to mothball Units 1 and 2, it
24 allows TEP to then place Units 3 and 4 as the backup
25 peaker units, and, therefore, they will not be used as

1 much. And that also drives the reduction in the
2 groundwater use?

3 A. (BY MR. SPENCER) That is a correct summary.

4 CHMN. CHENAL: Member Woodall.

5 MEMBER WOODALL: So you have rights to more
6 water than what you will need in the future, is that
7 correct?

8 MR. SPENCER: That is correct.

9 MEMBER WOODALL: So what is going to happen to
10 the rights, the rights that will not be needed for this
11 project, if anything?

12 MR. SPENCER: Essentially they will remain in
13 TEP's possession and just not used.

14 MEMBER WOODALL: Okay. And you can't like
15 transfer them or use them for another purpose or -- I
16 mean is it just -- your water rights relate just to this
17 site for an industrial use?

18 MR. SPENCER: I do not know the details of that
19 specific question.

20 MEMBER WOODALL: Yeah. I know you are going to
21 use less water here, but if you have another use for the
22 water that you have rights to, I would kind of like to
23 know if you are intending to use it, and if so, how.
24 That's all I was getting at.

25 MR. SPENCER: For a generation resource, the

1 answer would be no within the active management area.
2 Because we have some additional wells at our DeMoss. We
3 have one well at our DeMoss facility and one well at
4 your North Loop facility which is within the active
5 management area. And there is not plans for expansion
6 at those sites in the short term.

7 MEMBER WOODALL: And so is there some economic
8 cost to your not using water that you are entitled to?

9 MR. SPENCER: There will be a reduction in the
10 fees that are paid to the Arizona Department of Water
11 Resources, because those fees are primarily driven by
12 usage, not rights.

13 MEMBER WOODALL: Okay. Okay. So you are going
14 to be saving at least some money --

15 MR. SPENCER: That's correct.

16 MEMBER WOODALL: -- on that. And that water is
17 going to remain in the ground.

18 MR. SPENCER: That's correct.

19 MEMBER WOODALL: Okay. And are you claiming any
20 banking credit for it or anything?

21 MR. SPENCER: I am not familiar enough with --

22 MEMBER WOODALL: And I am not either. So that
23 could be a dumb question. But in any event --

24 MR. SPENCER: It is probably a very good
25 question; I just don't know the answer.

1 MEMBER WOODALL: Well, if at some point somebody
2 has a response, it would just kind of be helpful.

3 MR. DERSTINE: Mr. Chairman, Member Woodall, it
4 may be that Ms. Darling has the answer.

5 MS. DARLING: There is no banking credit.

6 MEMBER WOODALL: Okay.

7 MS. DARLING: There is no banking credit.

8 MEMBER WOODALL: See, I told you it could be a
9 dumb question. Anyway, thank you for responding, ma'am.

10 CHMN. CHENAL: Member Jones.

11 MEMBER JONES: Tucson is one of our AMAs in the
12 state.

13 CHMN. CHENAL: AMA.

14 MEMBER JONES: Active managed area. It has to
15 do with the 1982 Groundwater Act that regulates the
16 waters in areas that were identified, and Tucson is one
17 of those. So they have to, as part of that agreement,
18 maintain what is called a safe yield. And so the City
19 of Tucson goes to great lengths to put other
20 infrastructure, capture runoff and other things to
21 maintain the aquifer at a safe yield.

22 So it is generally a benefit to the whole
23 community when you -- whether they have rights or not.
24 If they are not utilizing water, it remains in the
25 aquifer, and it helps mitigate those issues that the

1 whole area of Tucson faces.

2 MEMBER WOODALL: I guess the applicant could say
3 that's another benefit of the project.

4 MR. SPENCER: That is correct.

5 MEMBER WOODALL: Okay. Thank you.

6 MEMBER VILLEGAS: Mr. Chairman.

7 CHMN. CHENAL: Yes, Member Villegas.

8 MEMBER VILLEGAS: During our visit to the site I
9 noticed four cooling units. With this reduction in
10 water, are any of those units going to be
11 decommissioned?

12 MR. SPENCER: That is correct. So these two
13 towers, which are the cooling towers that support
14 Units 1 and 2, will essentially be abandoned in place.

15 BY MR. DERSTINE:

16 Q. So we have covered the reasons and the benefits
17 for selection of the Irvington campus as the site for
18 the RICE units. Why don't you walk through a little bit
19 in terms of the actual location and the siting of the
20 units on the Irvington campus for the Committee.

21 A. (BY MR. SPENCER) As you saw yesterday on the
22 tour that we took, the Irvington campus is a facility
23 that is multi-use for Tucson Electric Power's purposes
24 and the leasing of some of the older facilities to
25 generate revenue to offset rates for our customers, like

1 the tanks that are being used for asphalt storage today
2 by Western Refinery.

3 And so when we looked at what are the options,
4 this area that we drove the bus to and stopped and got
5 off, which was an area that had the coal conveyors
6 coming through it, the ponds, the evaporation ponds that
7 you saw in other slides, in fact on the left side you
8 can see the three ponds that we have now closed, all of
9 that area appeared to us, as we looked at the geography
10 of putting the RICE units and relocating the substation,
11 made the most sense.

12 And so that's where we targeted our analysis of
13 do we have enough room to do all of this in that
14 corridor of land. And that's what drove us to the
15 answer was yes, but that we had to close these ponds.
16 And we had already made a decision from an economic
17 standpoint, because these pond liners were reaching the
18 end of their useful lives, that in an interim bridge
19 until we had the RICE units running, we would just blow
20 down the water from the cycles of concentration on the
21 cooling towers to benefit the Pima County wastewater
22 system by paying for water disposal through their
23 system. They love our water because it is very good
24 water compared to the sewage they get from everybody
25 else. So it is a great blending source for them.

1 And so we put a closure plan together for the
2 Arizona Department of Environmental Quality. We went
3 through all of the regulatory processes to establish a
4 closure plan, to establish a disposal plan for all the
5 liners and the leachate collection system, all of the
6 testing that's required to prove that we had not
7 impacted the native soils, and we have submitted all of
8 that data to the Arizona Department of Environmental
9 Quality that has responsibility for aquifer protection
10 in the State of Arizona. And so we are just waiting for
11 a letter back to accept the closure of those ponds.

12 And so this is the site, then, that we decided
13 made the most sense for the RICE units and the
14 switchyard right next to it. And this is a general
15 arrangement drawing. And better than that is this is a
16 visual of a project in south Texas that Mr. Beck
17 referred to yesterday that will look very similar to
18 what this RICE project will look like.

19 The buildings, the groups of stacks together,
20 these devices right here are called SCRs, selective
21 catalytic reduction. And those devices are what are
22 used to remove the nitrous oxides from the combustion
23 and the carbon monoxide. It is analogous to the
24 catalytic converter that is on every one of the cars
25 that drove here to this hearing. It is just an upscale

1 version of it that uses aqueous ammonia that's sprayed
2 up in front of it to get a reaction with the gas from
3 the combustion of natural gases to reduce nitrous oxide.
4 So it is a very highly environmentally controlled
5 process. And so that's a visual of what our site will
6 look like.

7 Q. So once installed, how tall will the stacks be
8 for the RICE units?

9 A. (BY MR. SPENCER) Our stacks will be 160 feet.
10 As a visual reference, Unit 4 stack that you saw
11 yesterday, which was the tallest stack, is 250 feet. So
12 these will be shorter than the tallest stack that's
13 on-site today.

14 Q. And you mentioned the SCRs. And that's the
15 pollution control device that will be installed on each
16 of the units, is that right?

17 A. (BY MR. SPENCER) That is correct.

18 Q. So the siting statute requires that the
19 applicant comply with all applicable pollution control
20 standards and regulations. Can you talk about what sort
21 of pollution control regulations the RICE project is
22 subject to, and a bit about that process.

23 A. (BY MR. SPENCER) The air quality permitting
24 process is a process that is administered by the Pima
25 County environmental department. They have delegated

1 authority for air permitting from EPA Region 9 out of
2 San Francisco. And so the Sundt generation unit is
3 considered a major stationary source for the prevention
4 of significant deterioration of the airshed in Tucson.

5 And we hold what is called a Class I air quality
6 permit. Sometimes it is referred to as a Title 5 air
7 permit. And before the construction of the RICE project
8 could begin, we had to file an evaluation and a request
9 for modification of our existing permit that shows that
10 we would not have a significant impact on the airshed in
11 Tucson. And so that term is referred to as PSD,
12 prevention of significant deterioration, in that
13 airshed.

14 And so last year we started that process. We
15 did all of the prepermit application work and filed our
16 permit with Pima County on the 3rd of August. Pima
17 County determined that the permit application was
18 administratively complete on the 23rd of August.

19 And since that point in time, PDEQ and their
20 contractors and the EPA and the National Park Service
21 have been working with us as a technical review group to
22 determine all of the impacts of the RICE project on the
23 airshed and what the appropriate modification to our
24 existing Class I air permit should be going forward.

25 And so there is a public notice process that I

1 think has already been referred to by Ms. Darling on the
2 air permit coming up. There will be a public hearing
3 March 1st on that permit. Once that public hearing is
4 held, they take those comments and forward the
5 recommendations to EPA Region 9, and Region 9 then
6 allows Pima County to actually issue that permit.

7 So where we are at in that process, and kind of
8 what is all entailed in this technical review, is a
9 very, very detailed analysis of the impact on the
10 airshed. And so Slide 15 goes into some of the
11 requirements that are included in this analysis, which
12 are all, for the most part, in addition to what
13 Ms. Darling is going to testify to later today of all
14 the other environmental requirements that are necessary
15 that are part of the process that we are going through
16 right now for the CEC.

17 There is a terminology that is used in the air
18 permit world called BACT, B-A-C-T, which stands for best
19 available control technology. And so one of the
20 analyses is we have to have a review, which was done
21 before we filed the permit last August, that literally
22 looks at all of the sitings in the United States that
23 have been done and permitted, and what their ability to
24 control pollution from those facilities was. And that
25 level sets the, quote, best standard. And so we have to

1 have reviewed all of those. We have to look and see
2 what we could achieve, and then we have to apply those
3 best available control technologies to the technology
4 that we are proposing to install on our site.

5 We also have to do an ambient air quality
6 analysis. And so we literally build a model of the
7 airshed in Tucson and the surrounding areas and
8 literally take the worst case emission scenarios with
9 the RICE project and put that into the air and then
10 measure with models what the impact on the airshed is
11 going to be.

12 We also had to do a visibility impairment
13 analysis. And this is where the National Park Service,
14 representing the possible federal land managers, which
15 in this case would be the Forest Service because
16 Coronado National Forest that surrounds the site, and
17 the Bureau of Land Management because they have land
18 within a specific radius of the site, the National Park
19 Service, because of Saguaro east and west being two of
20 the closest facilities from a federal land standpoint to
21 where we are going to build the RICE, they are the ones
22 that led that effort on behalf of the federal land
23 managers.

24 CHMN. CHENAL: Just a moment. Member Jones.

25 MEMBER JONES: Thank you, Mr. Chairman.

1 Mr. Spencer, yesterday during public testimony
2 it was alluded that TEP in this particular facility was
3 just below a particular stated threshold and somehow it
4 was implied that these units, without stating so, that
5 they would worsen the situation or increase the noxious
6 emissions from the Irvington facility area. Could you
7 address that, please.

8 MR. SPENCER: Sure.

9 MEMBER JONES: This does not appear to be
10 anywhere near what was alluded to yesterday.

11 MR. SPENCER: That is correct. What was
12 referred to yesterday is an inaccurate portrayal of the
13 analysis that was done.

14 In the prevention of significant deterioration
15 there are thresholds that you have to evaluate, and for
16 nitrous oxide emissions that level is 40 tons. Okay?
17 So that was a true statement.

18 What we had to show in our analysis is that
19 under the absolute worst conditions which is considered
20 potential to emit, so if we ran all ten of the RICE
21 units at full load for 8760 hours a year, what would be
22 the absolute total NOx emissions that could be emitted
23 from the facility. And it has to stay below 40 tons to
24 not trigger the PSD threshold of 40 tons.

25 And so our analysis shows that, because we are

1 shutting down Units 1 and 2, so those NOx emissions will
2 go away, that with the worst case scenario of emissions
3 from the RICE units that we would not exceed that
4 threshold. So in my testimony I will show you a slide
5 of what we believe, based on our projection of usage of
6 the facility, what our NOx emissions will actually be.

7 And so the misrepresentation we believe is that
8 in the permit we showed that, yeah, we are below 40 by
9 39.4. But that's because the permit language requires
10 you to show what would be the absolute worst condition
11 for NOx emissions. And even under those conditions we
12 are below the increment to trigger additional evaluation
13 and control.

14 MEMBER JONES: Okay. Thank you. Very helpful.

15 CHMN. CHENAL: Member Woodall.

16 MEMBER WOODALL: So what would happen if
17 something happened and you did exceed that? And first
18 of all, how would anyone know if you did exceed that?

19 MR. SPENCER: One of the conditions in the draft
20 permit that we submitted is that we have to account for
21 all of the nitrous oxide emissions that we emit. And in
22 the permit there will be a level of NOx emissions that
23 we cannot exceed. And so we literally will have to
24 report to Pima County on a monthly basis how much NOx we
25 put into the environment. And that would then show if

1 we have exceeded that level. And all of our modeling
2 says we won't get anywhere near that.

3 MEMBER WOODALL: Is the utility going to be the
4 one doing the monitoring, or do you typically retain
5 outside consultants for that?

6 MR. SPENCER: We literally use instrumentation
7 associated with the units. We measure natural gas flow
8 and we have consultants do stat testing to determine
9 emission rates. And then there is an arithmetic
10 calculation for every amount of gas that is burned. An
11 accumulated NOx emission sum is generated, and that's
12 the number that we report to EPA and Pima County.

13 MEMBER WOODALL: Thank you, sir.

14 CHMN. CHENAL: Member Jones.

15 MEMBER JONES: I think you clarified,
16 Mr. Chairman, when you said this data not only is it
17 reported, but I would -- is it subject to audit and
18 review by those same agencies?

19 MR. SPENCER: That is correct.

20 MEMBER JONES: Okay, thank you.

21 CHMN. CHENAL: I actually have a couple
22 questions. I was going to save it until you were --
23 until at the end, but looks like we are on the nitrous
24 oxide topic.

25 Let me just frame my question. From your

1 earlier testimony I understand you are replacing Units 1
2 and 2 basically with RICE units, and the use of the RICE
3 units for ramping power. The Sierra Club letter does
4 reflect or does allege that according to the application
5 the project would emit 39.4 tons per year of NOx, just
6 shy of the 40 tpy clean air major source threshold. And
7 I think you just indicated that that's correct, that's
8 an accurate statement, that in the worst possible
9 condition, yes, it would reach 39.4 units, is that
10 correct?

11 The letter says would emit. And I think
12 Mr. Spencer has -- it is on page 2 of the exhibit,
13 TEP-15, the second paragraph, the first whole paragraph
14 there.

15 MR. SPENCER: I will refer back to what I stated
16 just a few minutes ago, and that is the permit requires
17 us to determine the absolute maximum amount of nitrous
18 oxide emissions, if the unit operated 8760 hours in a
19 year, all ten units. And that is a correct statement,
20 that the net effect would be 39.4 tons of NOx towards
21 that PSD increment.

22 CHMN. CHENAL: So my first question is:
23 Assuming that's the worst case, what amount of emissions
24 of NOx, N-O-X -- it is easier to say N-O-X -- do you
25 anticipate will be the amount that will be emitted by

1 the project?

2 MR. SPENCER: I just happen to have a slide to
3 show that. And I am going to refer you to Slide 18.

4 So we did an analysis of the nitrous oxide
5 emissions that are currently permitted and have been
6 shown to be produced in the Tucson area and show the
7 comparison of what we currently, if we did absolutely
8 nothing, so if we just kept using the steam units and
9 their permitted NOx levels are up in this range, and
10 these are tons per year, okay, versus if we would have
11 gone with a simple cycle gas turbine technology versus a
12 highly controlled reciprocating engine. And you can see
13 that we, because of this highly controlled emission
14 source, will be substantially reducing. And these are
15 based on our estimates of the relative run times of the
16 units in our resource planning models going forward. So
17 we believe that there will be a 60 percent reduction in
18 total nitrous oxide emissions into the environment in
19 Tucson.

20 CHMN. CHENAL: Well, you just took away all the
21 fun of the questions I was going to ask, Mr. Spencer,
22 because I was going to ask you how much NOx emission
23 were there with the existing steam powered units, and
24 then I was going to ask how would that compare to the
25 gas turbine units. So your chart has answered my

1 questions. So it would be a substantial reduction by
2 converting to the RICE units over gas turbine units or
3 over existing steam generation.

4 MR. SPENCER: That's correct.

5 CHMN. CHENAL: Member Woodall.

6 MEMBER WOODALL: Can you explain to me why it is
7 such a stark drop-off? I mean, why wouldn't that be
8 continuous? I don't understand why.

9 MR. SPENCER: This shows out in the '28, '29
10 time frame when we got concerns with the Corporation
11 Commission of the retirement of Units 1 and 2.

12 MEMBER WOODALL: Thank you.

13 MR. SPENCER: So that's why that curve shows it
14 going away.

15 CHMN. CHENAL: Okay. Back to the question I was
16 going to ask, with the RICE unit, the worst case basis,
17 according to your testimony, is 39.4 tons per year. And
18 yet according to the graph for the RICE units, it is
19 substantially more than 39, you know, 40 tons a year
20 based on the chart.

21 MR. SPENCER: Okay. That's because the PSD
22 increment, okay, so prevention of significant
23 deterioration, is that you have to look at does the new
24 source have the potential of emitting 40 tons per year
25 above the current sources in the area. So it is a

1 different analysis than what this graph is showing of
2 total emissions that are produced by the source.

3 CHMN. CHENAL: So the RICE line would have to be
4 above the, if you are comparing it to existing
5 generation, steam generation, would have to be 40, at
6 least 40?

7 MR. SPENCER: Above that.

8 CHMN. CHENAL: Above the black line.

9 MR. SPENCER: That is absolutely correct, sir.

10 CHMN. CHENAL: All right. Thank you.

11 Mr. Jones.

12 MEMBER JONES: Mr. Chairman, if you were to look
13 another way, if you were to keep Units 1, 2, 3, and 4
14 running continuously throughout the year, what would be
15 your NOx?

16 Where that is the equivalent of what we are
17 talking about, difference, isn't it?

18 MR. SPENCER: I do not know that exact number,
19 but I can get it. But I can tell you that it would be
20 multiple times that number right there. So instead of
21 550 tons per year, it would be, just in a rough guess,
22 based on the NOx emissions from those units if we ran
23 them at 100 percent capacity factor, that number would
24 probably be 3,000 tons per year.

25 MEMBER JONES: Mr. Chairman, Mr. Spencer, how

1 would that affect your permit? Would you exceed your
2 permit?

3 MR. SPENCER: No.

4 MEMBER JONES: No?

5 MR. SPENCER: No.

6 MEMBER JONES: No.

7 MR. SPENCER: Because they are permitted sources
8 today that have the potential to emit and would not
9 exceed the permit limits to be at that approximately
10 3,000 tons per year of nitrous oxide emissions.

11 MEMBER JONES: Thank you for not doing that.

12 MR. SPENCER: So to give you a relative number
13 on the emission rate, because that's really what you are
14 asking, the current units typically emit in the range of
15 .2 to .25 pounds of nitrous oxides per million BTUs of
16 fuel burned. And you've probably seen in another
17 analysis that's a number that's used quite often to
18 compare rates of NOx up a particular stack.

19 So here is a point of reference, .2 to .25
20 per million Btu. So now you get this compounding
21 benefit of a unit that burns for a heat rate, so the
22 amount of BTUs that you have to put in to get a kilowatt
23 hour of electricity out, upwards in the 11,000 to
24 11 five range, 10,000 five to 11 five, versus a RICE
25 unit that's 40 percent more fuel efficient. Okay? So

1 you burn 40 percent fewer BTUs of gas to get that same
2 kilowatt hour, and the emission rate with the highly
3 controlled SCR on the back end is less than .01 pound of
4 NOx per million Btu. That's the relative magnitude.
5 That's what is driving this huge reduction in nitrous
6 oxide emissions.

7 Does that help?

8 MEMBER JONES: Very much so. Thank you.

9 MR. SPENCER: Okay. So I am going to go back, I
10 am going to go back to Slide --

11 BY MR. DERSTINE:

12 Q. 15?

13 A. (BY MR. SPENCER) 15. And I was just getting to
14 one of the analyses that we have just completed with
15 concurrence of the National Park Service is called
16 visibility impairment.

17 The Park Service, as I described, acted as the
18 federal land manager for this permit review. And they
19 had our consultants -- they designated eight spots in
20 each of Saguaro east and west -- I am sorry. They
21 designated four spots in each of the two national parks,
22 which border right where we are sitting. And they put a
23 hiker, if you will, at four different spots in those two
24 parks and they then selected two viewsheds for those
25 hikers to look at. And then they took five years of

1 meteorological data from the Tucson International
2 Airport and they plotted over those five years of
3 meteorological data those hours when the wind would have
4 taken the plume from the RICE units to the potential
5 viewshed of those four hikers in their two particular
6 views. And they do a visibility analysis of, when the
7 sun is at a high enough angle that you can actually see
8 something, if we would have had an impact on their
9 viewshed.

10 So it is a very detailed analysis that says in
11 those four spots in those two national parks what would
12 we do to the visual impact of those hikers being able to
13 see the beautiful surroundings in those parks.

14 And we have completed that analysis. The Park
15 Service is reviewing that data. Our consultants'
16 analysis is that there is virtually no impact when you
17 look at that long-term period of time. And we had to do
18 that analysis with the worst-case scenario, if we
19 started up all ten engines in the exact same hour. And
20 so it is a worst-case analysis, what would we do to the
21 visibility of a hiker there.

22 We also had to look at soil and vegetation
23 impairments from the stack. And Ms. Darling will talk
24 about more of that analysis that was done close in.
25 This was long range out in those national park areas,

1 what would we do to the vegetation with our stack plume.

2 And so we also had to look at the several other
3 issues, emission caps, compliance assurance, what are we
4 going to do to assure that the monitoring of all the
5 processes ensure compliance. We also had to look at the
6 Endangered Species Act for those national parks and
7 forests, if the plume from our stack would impact any of
8 those. And the answer is no, based on all of our
9 analysis.

10 So where are we at in this process? As I
11 mentioned, the Pima County established on the 23rd of
12 August last year that our permit was complete. And we
13 have been on the phone 15 different conference calls
14 already with the EPA, National Park Service, Pima County
15 and their consultants, and we are -- right now the plan
16 is that Pima County will start the public notice period
17 on the 9th of February, open house the 15th, the public
18 hearing the 1st. And we anticipate having a permit by
19 the 16th of April.

20 CHMN. CHENAL: Member Woodall.

21 MEMBER WOODALL: Mr. Spencer, you gave us -- or
22 Mr. Beck, I am sorry, I don't remember which one -- some
23 numbers about the cost of the project. Is there some
24 way to apportion the permitting costs to the facilities
25 that you are constructing? I mean, is there a

1 percentage number? Is there a dollar figure?

2 It looks like you are running through quite a
3 number of permitting activities as well as with the -- I
4 mean you are having environmental consulting done, and I
5 am assuming you had some subs, but, I mean, is there
6 some way we could get a sense of what that is.

7 MR. SPENCER: Sure. The current anticipated
8 final cost for the RICE units is 160 million. We
9 anticipate the final cost for all of the consulting time
10 and internal time associated with obtaining the air
11 permit at about \$500,000. So that gives you the
12 relative order of magnitude there.

13 MEMBER WOODALL: Thank you, sir.

14 MR. SPENCER: It is not cheap.

15 So the results of all of this study -- and
16 because you asked some questions I jumped ahead on some
17 of this. When you look at the ambient quality of the
18 air in the Tucson area, you will see that Tucson is
19 really in pretty good shape. We are less than 8 percent
20 of the ambient standard for carbon monoxide, 68 percent
21 for particulate matter, 89 percent for ozone. And this
22 is a critical one from a NOx evaluation standpoint. NOx
23 is the precursor to the generation of ozone. So when
24 you put NOx into the air, the ambient conditions
25 chemically modify that nitrous oxide and it becomes

1 ozone, which is smog, if you will.

2 And so you can see that that's the closest one
3 that the Tucson general area is to the standard. And we
4 are going to reduce that number, our contribution to
5 NOx, significantly with the RICE project.

6 So all of our dispersion modeling, all of our
7 visibility monitoring, we just don't see any significant
8 impact.

9 CHMN. CHENAL: Well, let me ask a question. I
10 mean that doesn't sound like it is stated as positively
11 as it could be. I mean it is a very conservative
12 statement. I mean with the RICE units and the decrease
13 in the NOx, nitrous oxide, wouldn't there be some air
14 quality impacts to the good?

15 MR. SPENCER: Yes. But in the permitting
16 process --

17 CHMN. CHENAL: Those don't count.

18 MR. SPENCER: -- those don't count. You are not
19 given credit for being a good guy. You have to prove
20 that you are not going to be a bad guy.

21 CHMN. CHENAL: Member Drago.

22 MEMBER DRAGO: Mr. Spencer, relative to the
23 permitting, currently you are a major source.

24 MR. SPENCER: That is correct.

25 MEMBER DRAGO: With these changes when you

1 become operational, does the permit status change from
2 major to minor?

3 MR. SPENCER: It does not.

4 MEMBER DRAGO: Can you explain why? I am not
5 sure I discerned that from the data you presented. The
6 data you have presented is excellent. But I think it
7 would help if you put in context the major source
8 thresholds that are there today in your operation and
9 what you will be relative to those thresholds when you
10 operate these new units. Does that make sense?

11 MR. SPENCER: It does make sense. And off the
12 top of my head I cannot give you those threshold levels.
13 We can get that back to you, but I don't know those
14 trigger levels off the top of my head.

15 MEMBER DRAGO: Yeah. I think for the overall
16 project and someone reviewing this later, I think it
17 will help put this whole permitting process in
18 perspective.

19 Thank you.

20 BY MR. DERSTINE:

21 Q. Are we able to get those numbers before the
22 conclusion of the hearing?

23 A. (BY MR. SPENCER) I will make every attempt that
24 I can to get those numbers and then be able to answer
25 that question to the Committee.

1 Q. All right. The Chairman touched on the comment,
2 one of the comments from the Sierra Club relative to air
3 pollution impact of the project. So let me follow up
4 and address the others that were contained there at
5 least relative to air impacts.

6 The Sierra Club statement or comment, which is
7 TEP-15, makes the claim that TEP retired the previous
8 generating facilities at the proposed project site
9 because they were out of compliance with the Clean Air
10 Act in 2013. Can you respond to that statement?

11 A. (BY MR. SPENCER) Yes, I can. In 2013 the EPA
12 promulgated some potential impact to facilities in the
13 west associated with the regional haze rules. And in
14 those regional haze rules, EPA included Sundt Unit 4
15 because it was a coal burning unit. TEP and Arizona
16 Department of Environmental Quality both took the
17 position, based on our review of the regional haze
18 rules, that they should not include Sundt Unit 4 in that
19 requirement. We met with EPA, took that position, and
20 they essentially said, well, we completely disagree and
21 we believe that you are subject to the regional haze
22 rules.

23 So TEP did an evaluation of the potential
24 economic retrofit of Sundt Unit 4 to meet what we
25 believed were going to be the BART standards, which is

1 best available retrofit technology, for an existing
2 coal-fired power plant. Based on that economic
3 evaluation that it was going to cost about \$35 million
4 to add additional scrubbing capacity for Sundt Unit 4,
5 we looked at the long-term perspective, and what we felt
6 was best for our ratepayers, because of the low cost of
7 natural gas going forward, that it made more sense to
8 evaluate and determine with the EPA what an
9 appropriately NOx limitation would be under the regional
10 haze rules for Unit 4 if we just switched to natural
11 gas.

12 And so we determined with EPA that that standard
13 should be .25 pounds of nitrous oxide on a 30-day
14 rolling basis. We agreed to stop burning coal to
15 achieve that level, and reached that agreement and moved
16 forward with our plans to stop burning coal and
17 essentially burn natural gas in the unit. It had the
18 capability of burning both.

19 And so we are in compliance with the regional
20 haze rules, which is what is referred to in that 2013
21 reference. We stopped burning coal two years and three
22 months ahead of what we had originally agreed to. We
23 stopped burning coal in September of 2015. The
24 requirement with the EPA was that we stop at the end of
25 2017. So we are in full compliance with the referenced

1 Clean Air Act of 2013 which was regional haze
2 requirements.

3 Q. So when the Sierra Club indicates that TEP
4 retired previous generation facilities, I think what I
5 understand you to say is that there were no generation
6 facilities that were retired; there was simply a switch
7 from coal to natural gas, and that occurred in 2015, two
8 years ahead of what was required by EPA?

9 A. (BY MR. SPENCER) That is correct.

10 Q. Okay. The other statement by the Sierra Club in
11 its comments relative to air emissions from the proposed
12 RICE units is that there was a study that ranked the
13 Sundt generating station as the 13th worst in the
14 country under its environmental justice performance
15 ranking.

16 Do you know anything about the environmental
17 justice performance ranking or your ranking as the 13th
18 worst?

19 A. (BY MR. SPENCER) We were not aware of the study
20 that they referenced at the time that we received the
21 letter, but we have done research since, and looked up
22 the study and looked at the reference to periods of time
23 when this evaluation would have been done. And it was
24 done for the emissions from the Sundt Unit 4 between
25 2007 and 2010, which would have all been when we were

1 burning coal. So we believe that this study is
2 irrelevant in a comparison of the emissions today with
3 the units burning natural gas.

4 CHMN. CHENAL: Member Woodall.

5 MEMBER WOODALL: I actually read that study in
6 the course of my duties. And it seemed to me that it
7 was lacking in, shall we say, rigor. Would you agree
8 with that assessment?

9 MR. SPENCER: I would completely agree with your
10 evaluation.

11 MEMBER WOODALL: That was my sense reading it as
12 a nontechnical person. So I appreciate getting your
13 point of view. Thank you, sir.

14 CHMN. CHENAL: One question. You may have
15 answered this already, Mr. Spencer, but just going back
16 to the Clean Air Act of 2013 and the reason for the
17 conversion from coal to natural gas, can you tell me
18 again what precipitated that process for the change?
19 Was there an allegation that TEP was not in compliance
20 with the Clean Air Act? How did that come about again?

21 MR. SPENCER: So the Clean Air Act has several
22 provisions. And one of the provisions -- and I will
23 simplify this because it can get way out of bounds --
24 was an effort to try to improve visibility in the
25 western United States. And that's referred to in kind

1 of a generic form as regional haze. So you have
2 probably heard that terminology before.

3 The regional haze provisions, if you will, the
4 rules that came out of those provisions are what
5 essentially drove facilities like Mohave to shut down,
6 it drove the retrofit of the Navajo plant with
7 95 percent SO2 scrubbing capability, all in an effort to
8 try to improve the visibility at national parks and
9 other wilderness areas in the western United States.

10 And so the way that the provisions worked is the
11 EPA, under those provisions, went after the biggest --
12 and I am going to use a term I rarely use -- dirtiest
13 sources first. Okay? And so the newer sources and,
14 quote, cleaner sources of coal burning emissions were
15 later in their rounds of evaluation. In 2013 was the
16 next increment in time when EPA had to look at
17 additional coal-fired sources and propose BART
18 regulations on those sources. And so that's why Sundt
19 Unit 4 wasn't included in any previous rounds; it got
20 its opportunity to, quote, have discussions and
21 potentially comply in 2013.

22 CHMN. CHENAL: So it was part of the regulatory
23 oversight by the EPA that precipitated the commencement
24 of these conversations?

25 MR. SPENCER: That is correct.

1 CHMN. CHENAL: Okay. Member Jones.

2 MEMBER JONES: Mr. Chairman, your question kind
3 of raised another one.

4 Now, as it is today under the current
5 administration, are those being repromulgated, those
6 standards, and are they likely to get more or less or
7 remain as status quo for now vis-à-vis your project?

8 MR. SPENCER: I am not sure I understand.

9 MEMBER JONES: The 2013 standards.

10 MR. SPENCER: The regional haze rules?

11 MEMBER JONES: The regional haze standards, are
12 they the same today, likely to remain so, or do you
13 anticipate them increasing in severity or not?

14 MR. SPENCER: I am not aware of any retraction
15 in the current round of regional haze implementation by
16 EPA.

17 MEMBER JONES: The reason I ask that is because
18 they first went after the dirtiest, and I don't want to
19 use that term, then they went to the next level of
20 dirtiest. And is it likely that your current project,
21 when it is fully built out, will be subject to a new
22 standard of dirty?

23 MR. SPENCER: The regional haze efforts were all
24 focused at coal initially. And so the only affected
25 sources over the next 10 to 15 years will be coal

1 burning facilities, not natural gas burning facilities.

2 MEMBER JONES: Okay, thank you.

3 CHMN. CHENAL: And let's assume that -- let's
4 make a hypothetical that in 15 years there is a new
5 standard that comes out that would require that the NOx
6 levels that are produced by the RICE project need to be
7 a little lower than the emissions that are being
8 emitted. Are there technologies available now that
9 would allow, for lack of a better word, scrubbing of the
10 levels to reduce them for that to occur in the future?

11 MR. SPENCER: I am not aware of technologies
12 today that are substantially different than the
13 technologies we are applying. So we literally are
14 applying best available control technology today. And
15 that uses SCRs, selective catalytic reduction plates,
16 with an ammonia agent up front of them to activate those
17 plates to be able to reduce nitrous oxides. The removal
18 percentage will be higher than 95 percent of the nitrous
19 oxides that are produced in the combustion process. To
20 get better than 95 percent becomes a point of
21 diminishing returns. Incrementally you spend a
22 tremendous amount of money and resource to get that last
23 little bit of increment in removal of nitrous oxides.

24 CHMN. CHENAL: Thank you.

25 BY MR. DERSTINE:

1 Q. Mr. Spencer, let me have you turn to Slide 18.
2 We paged ahead in response to some of the questions from
3 the Chairman and members of the Committee, but let me
4 ask you a couple questions relative to Slide 18.

5 The initial drop around 2019, explain that for
6 me, please.

7 A. (BY MR. SPENCER) Sure. This chart was based on
8 the RICE units being in two segments, the first five in
9 '19 and the second five in '21. Subsequent to that we
10 believe that it is economically better to install all
11 ten. And that's why we have requested of this Committee
12 the ability to install all ten.

13 So if we replotted this today, that curve would
14 go like this. Okay? It would be steeper. In other
15 words, we would get more reductions quicker than what is
16 shown there.

17 Q. More immediate reduction in the NOx emissions?

18 A. (BY MR. SPENCER) That is correct.

19 Q. Okay.

20 CHMN. CHENAL: Well, now I have one more
21 question. Why are the RICE levels shown so high at the
22 beginning? Why wouldn't they start out around 200
23 versus starting at around 550 for 2018? Why does it
24 drop? Why isn't it more of a level?

25 MR. SPENCER: I am trying to think of -- this is

1 relative comparison. So this is the total NOx
2 emissions. So at that point in time, in 2018, the total
3 NOx emissions for all sources was 550 tons. So what
4 this chart is trying to show is in 2019 those sources.
5 So you could start the RICE charts literally right
6 there. Does that make sense?

7 CHMN. CHENAL: Yes.

8 MR. SPENCER: Okay.

9 CHMN. CHENAL: I think I asked a pretty good
10 question, is kind of what I heard from the answer, in
11 terms of the way the chart was drafted.

12 MR. SPENCER: Yes. You have taught me that I
13 need to be more diligent in our preparation of charts.

14 MEMBER WOODALL: Or talking less graphs.

15 CHMN. CHENAL: Graphs are good.

16 Member Drago.

17 MEMBER DRAGO: Mr. Spencer, could it be
18 explained that when you roll up emissions, there are
19 12 months rolling, and it would take 12 months to see
20 the benefit of the ten units?

21 MR. SPENCER: That's very likely.

22 MEMBER DRAGO: Okay.

23 BY MR. DERSTINE:

24 Q. So based on what you just said, Mr. Spencer, the
25 way I read it is the starting point in 2018 is the same

1 for all levels of emissions. And then this chart that
2 is Slide 18 of your hearing presentation, that's based
3 on the assumption of installation of the RICE units in
4 two phases, that is five units coming on line and then
5 ten units later, right?

6 A. (BY MR. SPENCER) Five later.

7 Q. Five later, five and five?

8 A. That is correct.

9 Q. Okay. And in reality, as you marked with your
10 pointer on the slide, there will be more immediate
11 benefits based on the fact that the decision is now to
12 install all ten at once?

13 A. That is correct.

14 Q. Okay.

15 CHMN. CHENAL: Mr. Derstine, let me just ask. I
16 see we are at 12:03. How much time do you have with
17 Mr. Spencer?

18 MR. DERSTINE: I am guessing I have five to ten
19 minutes. I am happy to finish it now, or we can wait
20 until after the break.

21 CHMN. CHENAL: I see unanimous support for
22 finishing with Mr. Spencer now, so please proceed.

23 MR. DERSTINE: All right. All right.

24 BY MR. DERSTINE:

25 Q. Two quick points on Slide 18. Taking into

1 account the comments, the written comments from the
2 Sierra Club, as well as the comments we heard last
3 night, it seems to me that there is some irony in the
4 fact that if the RICE units are not constructed, to
5 Mr. Haenichen's point, TEP will be unable to as
6 aggressively move renewables onto its system and achieve
7 its goal of 30 percent renewables by 2030. Is that a
8 fair statement?

9 A. (BY MR. SPENCER) That is correct.

10 Q. And I guess the other irony is that if the
11 Sierra Club and its members have their way, the RICE
12 units will not be constructed, then they won't have the
13 benefit of the reduction in the NOx emissions that are
14 shown on Slide 18?

15 A. (BY MR. SPENCER) That is correct.

16 Q. And the bottom line is that the condition as
17 required by the siting statute is that the RICE units
18 will not be built and cannot be built unless or until
19 TEP acquires the air permit?

20 A. (BY MR. SPENCER) That is correct.

21 Q. I think your next slide is a summary of
22 benefits. Can you turn to that.

23 A. (BY MR. SPENCER) Yes. So just summarizing, the
24 benefits of the RICE units are the fast start
25 capability, the 40 percent better fuel efficiency than

1 steam units that will be retired, so the heat rate
2 40 percent better -- it is like driving a Prius versus a
3 Ford F-350 as a comparison, not that I have anything
4 against Ford F-350s -- 60 percent reduction in the
5 nitrous oxide emissions with the retirement of the two
6 units, and a 70 percent reduction in groundwater usage.
7 So we feel that it is a significant environmental
8 benefit all around, and allows the significant
9 integration of intermittent resources into the TEP
10 system.

11 CHMN. CHENAL: Member Riggins.

12 MEMBER RIGGINS: Mr. Spencer, I didn't have time
13 to crunch the numbers earlier when you pointed this out.
14 So you said it was changing from the 1.14 billion to
15 a million --

16 MR. SPENCER: 685 million.

17 MEMBER RIGGINS: Okay. And was the 326 million
18 gallons changing as well?

19 MR. SPENCER: Yes. It goes to 230 million.

20 MEMBER RIGGINS: Okay.

21 MR. SPENCER: If I remember right, there is
22 326,000 gallons per acre foot.

23 MEMBER RIGGINS: Right.

24 MR. SPENCER: Yes. So hopefully my arithmetic
25 is correct.

1 MEMBER RIGGINS: It works. Thank you.

2 CHMN. CHENAL: Will the applicant file a
3 late-filed exhibit reflecting that change?

4 MR. DERSTINE: We will.

5 CHMN. CHENAL: All right. Thank you.

6 Member Jones.

7 MEMBER JONES: I had a quick question. I was
8 looking -- I actually got ahead of myself and was
9 looking at the future, and one of them in there is
10 natural gas storage. Not that I want to get ahead of
11 myself, but as you move from coal, which pictures or
12 earlier representations were huge piles of coal, I
13 assume with the RICE units are near where they are going
14 to go, and thus the need for the rail going through, is
15 your current source of natural gas now that you are
16 moving to that strictly by pipeline, or is it by rail
17 and pipeline? And what significance in terms of your
18 reliability to produce energy will natural gas storage
19 provide and what are the ramifications of that in the
20 future? Would they be on the same side?

21 MR. SPENCER: So the existing supply of natural
22 gas to the site is all pipeline. It will continue to be
23 pipeline, because we will slightly increase the total
24 capacity of the plant with the retirement of 160
25 megawatts, with the retirement of Units 1 and 2 and the

1 installation of 185, give or take, megawatts of RICE
2 capacity.

3 That existing natural gas pipeline currently has
4 the capacity to serve all six current units at full
5 capacity. So that's all four steam units and the two
6 gas turbines that are on the site. And so the current
7 capacity of that pipeline to serve the reconfigured
8 configuration with two steam units going away and the
9 RICE units being added, it has got plenty of capacity
10 because it is that much more fuel efficient. So we will
11 use literally less natural gas if everything is on than
12 we do today, because it is the fuel efficiency.

13 So that existing pipeline is essentially the
14 El Paso Kinder-Morgan pipeline system. We installed
15 three years ago an additional bypass capacity off of one
16 of their pipelines that can be remotely operated by
17 their dispatch center in Colorado Springs, Colorado, so
18 we have a very reliable supply of pipeline gas to this
19 facility.

20 In this slide that you are referring to,
21 Slide 20, what we are looking at, our resource planning
22 group is looking at, is potentially somewhere in
23 southern Arizona. And one of the sites is in the Casa
24 Grande-Coolidge area. There is some pretty significant
25 caverns that exist that would be excellent sources for

1 natural gas storage.

2 So the utilities in the state have been talking.
3 I can't give you the status of that. But the thought is
4 that coal piles on the ground at a coal plant are a
5 hedge and a reliability enhancement. A gas storage
6 facility somewhere centered in southern Arizona that
7 potentially could supply natural gas to the generation
8 facilities of APS, SRP and TEP from that source if the
9 main lines from the Permian Basin in Texas were cut off
10 for some reason.

11 So the natural gas storage project is primarily
12 a two front, a hedge of price fluctuations of natural
13 gas, and a reliability enhancement by providing the
14 equivalent of a big coal pile with a big bubble of gas
15 under the ground.

16 MEMBER JONES: Thank you.

17 Thank you, Mr. Chairman.

18 BY MR. DERSTINE:

19 Q. Mr. Spencer, Mr. Jones anticipated your last
20 slide. And is there anything more you would like to say
21 about the last slide and to wrap up your presentation
22 today?

23 A. (BY MR. SPENCER) This slide was contained in
24 the integrated resource plan that we submitted, and it
25 just gives a very broad summary of the resource mix

1 going forward with the retirement of coal units that we
2 have talked about and how the reciprocating engines,
3 battery storage, additional natural gas, combined cycle
4 that Mr. Beck talked about, which is essentially Gila
5 River Unit 2 that's under a PPA today. So it kind of
6 gives you a good feel of what we look like as we go
7 forward.

8 And one of the Committee members made a very
9 eloquent statement, I believe, that considered the
10 recip a bridge to get us down this path. And I think
11 that that is a very good, articulate way of describing
12 this project in that long-term view.

13 CHMN. CHENAL: I have a question of Mr. Spencer,
14 just a quick one. 2022, natural gas combined-cycle
15 400 megawatts, now that you have been selling us on
16 recip for the last day and a half, why are you going not
17 to use 400 recip versus gas turbine?

18 MR. SPENCER: Price. It is a little more than
19 that, but the fundamentals are that the reciprocating
20 technology, we are going to put this on the ground on a
21 kilowatt, a dollar/kilowatt basis of between 8 and \$900.
22 It is going to be in the low 800s because of the market
23 conditions right now. And Mr. Beck could maybe give you
24 some better definition.

25 But the purchased power agreement with Salt

1 River project that just purchased Gila River Unit 4 and
2 the ultimate price that we can buy it at is
3 substantially less than \$800 per kilowatt of capacity.
4 And we have to have something continuing this bridge
5 effect to the future to replace the base generation of
6 these coal units that are going away. So that's the
7 primary driver, is we have got to have something to
8 replace some of the base, and the price was very
9 attractive for the ratepayers long term.

10 CHMN. CHENAL: Thank you.

11 BY MR. DERSTINE:

12 Q. And on that point, I take it that the
13 combined-cycle is not the fit here for meeting the needs
14 in this case because it doesn't have the fast start and
15 ramping capabilities?

16 A. (BY MR. SPENCER) That is correct. And it
17 doesn't have the turndown capability of the reliability
18 run, and it is not local.

19 MR. DERSTINE: With that, Mr. Chairman, that
20 concludes our direct presentation of Mr. Conrad Spencer.
21 I would at this point move the admission of
22 Exhibits TEP-8 and TEP-8A, and indicate for the record
23 that we have prepared a revision of Slide 6 of TEP-8A
24 which makes the changes to that slide to identify the
25 wind and change the reference to the various colored

1 lines on the graph.

2 CHMN. CHENAL: Mr. Derstine, TEP-8 and 8A, what
3 was the third one that you were referring to, sir?

4 MR. DERSTINE: The new we have suggested be
5 marked and become TEP-17. And this is the --

6 Can you bring up 8A and Slide 6, please.

7 Member Drago requested that we make, at least
8 indicate what was wind in the various types of
9 generation resources that are identified rather than
10 having the names Macho Springs, Red Horse to be able to
11 identify what type of generation source that is. We
12 have done that in the left margin to this slide. So it
13 is an amendment of Slide 6 of TEP-8A and I would offer
14 that as TEP-17.

15 CHMN. CHENAL: All right. So for clarity, you
16 are asking for the admission of TEP-8, TEP-8A, and
17 TEP-17.

18 MR. DERSTINE: Yes, Mr. Chairman.

19 CHMN. CHENAL: Okay. With no objection, TEP-8,
20 TEP-8A, and TEP-17 are admitted.

21 (Exhibits TEP-8, TEP-8A, and TEP-17 were
22 admitted into evidence.)

23 CHMN. CHENAL: Okay. Member Jones had a
24 question.

25 MEMBER JONES: Mr. Spencer, Mr. Chairman

1 referred to a certain number, the percentage was
2 correct, but the underlying data was incorrect. Is that
3 being amended in the exhibit?

4 MR. DERSTINE: Are you talking about the
5 groundwater usage, Member Jones?

6 MEMBER JONES: Yes.

7 MR. DERSTINE: So what we will do, we haven't
8 had a chance to correct that, but we will prepare an
9 amended exhibit, an amended slide to 8A that makes that
10 correction, and I will offer that at the appropriate
11 time as soon as we have it ready.

12 CHMN. CHENAL: And then what Ms. DeCorse just
13 handed out is with the change in the descriptions. What
14 number is this now?

15 MR. DERSTINE: This is the 17.

16 CHMN. CHENAL: This is 17.

17 Member Drago.

18 MEMBER DRAGO: Mr. Derstine, the slide prior to
19 this one, there was 2016 and a 2024 comparison graph.
20 If you could, add to the left graph of those
21 respectively those years.

22 MR. DERSTINE: We will make that correction as
23 well, and I will offer it as soon as we have the
24 correction to the groundwater gallons.

25 MEMBER DRAGO: Thank you. Thank you.

1 CHMN. CHENAL: Okay. Any other items to discuss
2 before we take our lunch break?

3 (No response.)

4 CHMN. CHENAL: If not, it's a little after
5 12:15, let's meet back here at 1:15. We will give
6 ourselves an hour and then we will resume the afternoon
7 portion of the hearing.

8 MR. DERSTINE: Thank you.

9 CHMN. CHENAL: Thank you.

10 (A recess ensued from 12:18 p.m. to 1:30 p.m.)

11 CHMN. CHENAL: Good afternoon, everybody. This
12 is the time for the afternoon portion of the hearing on
13 Thursday. Are there any matters we should discuss
14 before we resume the testimony?

15 (No response.)

16 CHMN. CHENAL: I believe Ms. Darling -- or we
17 will start the testimony of Ms. Darling.

18 MR. DERSTINE: Mr. Chairman, members of the
19 Committee, I think what we will first do is, with your
20 permission, clean up the -- well, actually, respond to
21 and answer Mr. Drago's question about the major and
22 minor source triggers or thresholds, and fix that on the
23 record or get that on the record --

24 CHMN. CHENAL: Sure.

25 MR. DERSTINE: -- if we can.

1 CHMN. CHENAL: That's fine, however you want to
2 proceed is fine. Unless there are any questions from
3 the Committee, it doesn't seem like there are, please
4 proceed with your next witness.

5 BY MR. DERSTINE:

6 Q. Okay. Mr. Spencer, before we broke for lunch
7 and finished your testimony, we had committed to track
8 down some figures in relation to major and minor source
9 threshold or triggers. Can you give us that
10 information?

11 A. (BY MR. SPENCER) Yes. There is a definition in
12 air permitting for criteria pollutants. And those
13 pollutants are PM, or particulate matter, NOx, SO2, VOCs,
14 and CO for carbon monoxide.

15 So the triggers between major and minor source,
16 so a facility that already has a permit, the threshold
17 levels for those five criteria pollutants are 25 tons
18 per year for particulate matter, 40 tons per year for
19 NOx, SO2 and VOCs, and a 100 tons per year for carbon
20 monoxide. So those are the levels that determine those
21 triggers.

22 MEMBER DRAGO: Thank you. I think that will
23 help putting that on the record with the Sierra Club's
24 questions.

25 MR. DERSTINE: Thank you, appreciate the

1 question.

2 With that, I will move to the testimony of Renee
3 Darling.

4 BY MR. DERSTINE:

5 Q. Ms. Darling, you are under oath, but for clarity
6 on the record, state your name again.

7 A. (BY MS. DARLING) Renee Darling.

8 Q. Ms. Darling, you are a senior environmental
9 planner for Tucson Electric Power Company. How long
10 have you held that position?

11 A. (BY MS. DARLING) Almost four years.

12 Q. Okay. And you have testified before this
13 Committee most recently in the Nogales interconnection
14 case, correct?

15 A. (BY MS. DARLING) Correct.

16 Q. Any other cases, any other opportunities to
17 testify before the Siting Committee?

18 A. (BY MS. DARLING) Yes. I testified on the
19 Saguaro to North Loop case. I don't recall the number.

20 Q. Before I start with your hearing presentation
21 and get into the heart of your testimony on the
22 environmental issues, let's cover some of the exhibits
23 that you have sponsored.

24 You have before you what has been marked as TEP
25 Exhibit 5?

1 A. (BY MS. DARLING) Yes.

2 Q. And that's your prefiled direct testimony, is
3 that right?

4 A. (BY MS. DARLING) Yes.

5 Q. Okay. Have you had an opportunity to review
6 TEP-5 before today's hearing?

7 A. (BY MS. DARLING) Yes.

8 Q. Okay. Do you have any corrections or additions
9 to TEP-5?

10 A. (BY MS. DARLING) No.

11 Q. So if I asked you the questions in TEP-5 today,
12 your answers would be the same?

13 A. (BY MS. DARLING) Yes.

14 Q. And the information contained in TEP-5 is true
15 and correct, to the best of your knowledge?

16 A. (BY MS. DARLING) Yes.

17 Q. All right. You also sponsored or have prepared
18 two hearing presentations, PowerPoint presentations.
19 Those have been marked as TEP-6 and TEP-6A, is that
20 right?

21 A. (BY MS. DARLING) Yes.

22 Q. Do you have those in front of you?

23 A. (BY MS. DARLING) Yes.

24 Q. All right. Have you had an opportunity to
25 review TEP-6 and TEP-6A?

1 A. (BY MS. DARLING) Yes.

2 Q. Any corrections or changes to that?

3 A. (BY MS. DARLING) No.

4 Q. Okay. The difference between your hearing
5 presentation, 6 and 6A?

6 A. (BY MS. DARLING) 6A has been shortened,
7 streamlined, but the material is the same.

8 Q. Okay. And the information in both 6 and 6A is
9 true and correct, to the best of your knowledge?

10 A. (BY MS. DARLING) Yes.

11 Q. All right. And you will be using TEP-6A as we
12 proceed with your testimony today, right?

13 A. (BY MS. DARLING) Yes.

14 Q. All right. Let's also deal with a number of
15 supplements that were filed to the application itself,
16 which is marked as TEP-1. Do you have those, or can you
17 identify those supplements?

18 A. (BY MS. DARLING) Yes. Exhibit B-2 is the
19 Federal Aviation Administration determination of no
20 hazard for the two sets of stacks associated with the
21 RICE project. Exhibit G-5 is an additional simulation
22 that TEP did that shows future conditions in 2019 as
23 well as no later than 2025. Exhibit J-11 is a letter of
24 support for the projects from the Arizona Department of
25 Transportation. And Exhibit J-12 is Newsletter No. 2

1 which was mailed subsequent to the filing of the
2 application and noticed the public of these hearings.

3 MR. DERSTINE: And for members of the Committee,
4 if they were looking to find those on their iPads, they
5 would be under the supplemental exhibit filing under the
6 main directory, and they would be under TEP-1A.

7 BY MR. DERSTINE:

8 Q. And then they follow, the B-2, G-5, J-11, and
9 J-12 are identified under that TEP-1, Exhibit 1A filing?

10 A. (BY MS. DARLING) Correct.

11 Q. And the reason that we filed those after the
12 filing of the actual application?

13 A. (BY MS. DARLING) We received them after the
14 application was filed.

15 Q. Okay. So they supplement this record and the
16 application itself?

17 A. (BY MS. DARLING) Yes.

18 Q. Okay. Well, let's jump into your testimony.
19 You were actively involved in the preparation of the
20 application, is that right?

21 A. (BY MS. DARLING) Yes.

22 Q. And primarily involved in conducting or
23 overseeing the various environmental studies and the
24 supporting exhibits, among those that you just
25 identified?

1 A. (BY MS. DARLING) Yes. I wrote, oversaw, or at
2 least reviewed all of the application and exhibits.

3 Q. All right. Using your hearing presentation,
4 let's start with the agency consultations that you were
5 involved with.

6 A. (BY MS. DARLING) So these are the agency
7 consultations that we conducted as part of the projects.
8 And I was just going to focus on the ones that were more
9 than a no effect, or agreement that there was no effect.

10 For the Pima County Department of Environmental
11 Quality, we have already heard extensively from
12 Mr. Spencer regarding the air quality permit, which is
13 still pending.

14 We also coordinated with the Arizona Department
15 of Transportation related to their plans for
16 Interstate 10, as well as SR-210, also known as Aviation
17 Parkway, in proximity to the project. We did coordinate
18 with them and ultimately they did issue that support
19 letter that we have filed.

20 We coordinated with the Federal Aviation
21 Administration by submitting an application to determine
22 whether there would be any impacts of airspace, and we
23 did receive those no hazard determinations, which we
24 filed as supplements.

25 And then we also coordinated with Davis-Monthan

1 Air Force Base regarding a penetration of their 150-foot
2 air penetration zone. And we have received a waiver
3 from them for exceeding that 150-foot penetration. We
4 are just pending a formal letter, but we have received
5 verbal approval. And that's that blue area on the map
6 on the left. You can see -- sorry. This area here.

7 CHMN. CHENAL: So, Ms. Darling, what part of
8 Davis-Monthan Airfield's surface is being penetrated by
9 the project?

10 MS. DARLING: This entire blue area is the
11 150-foot no penetration zone. And it is surrounding the
12 landing and takeoff strip. So the entire campus is
13 actually within that blue oval that you see. We already
14 have, as Ed Beck testified, a 250 foot tall stack that
15 penetrates that zone. So the addition of these
16 additional 160 foot tall stacks, they are already
17 compensating for that height of the existing stack. So
18 it was just a paperwork and an approval process to get
19 the waiver for the additional stacks.

20 CHMN. CHENAL: And can you show with the pointer
21 where the Irvington campus is?

22 MS. DARLING: Yes. Sorry. It is right here.
23 The blue dotted line represents the campus boundary.

24 CHMN. CHENAL: All right. Thank you very much.

25 Oh, Member Drago.

1 MEMBER DRAGO: What height would be no impact?

2 MS. DARLING: Below 150 feet.

3 MEMBER DRAGO: Oh, thank you.

4 MS. DARLING: Yes.

5 BY MR. DERSTINE:

6 Q. Ms. Darling, you said that you were going to
7 highlight the agencies in which we had an agreement of
8 no impact. Are you hiding a bunch of agency
9 consultations which were fighting over impacts, or what
10 is the reason for that distinction?

11 A. (BY MS. DARLING) Maybe I misstated. I wanted
12 to highlight the ones we had to actually coordinate
13 further with beyond a finding of no concurrence -- or no
14 effect. So, for example, Fish & Wildlife Service, we
15 submitted our biological evaluation, and they came back
16 and said we have no concerns.

17 Q. All right. Thank you.

18 So you mentioned biological. Why don't we move
19 on next to the study work that was done on biological
20 impacts.

21 A. (BY MS. DARLING) Do you want me to skip --

22 Q. Oh, no. Go ahead and cover that as well. I am
23 sorry, I jumped past you.

24 A. (BY MS. DARLING) So this slide represents the
25 studies that were conducted for the CEC facilities that

1 were performed by others and were overseen by myself, as
2 well as the sound study was actually overseen by
3 Mr. Spencer.

4 There was a biological evaluation and important
5 riparian area technical memo, a cultural resources
6 inventory and historic building assessment, and a sound
7 study. And the remaining information that's contained
8 within the exhibits was done internally by TEP staff.

9 Q. So this is your summary of the biological
10 impacts?

11 A. (BY MS. DARLING) Correct.

12 Q. Okay.

13 A. (BY MS. DARLING) As I stated, we had done a
14 biological evaluation that assessed special status
15 species, including threatened and endangered species.
16 Initial preliminary research indicated that there was
17 the potential for seven special status species to occur
18 in the vicinity of the project. More detailed analysis
19 of the project area, including a field study of the
20 entire Irvington campus, determined that there would be
21 no impacts to special status species or wildlife in
22 general or vegetation.

23 So we did submit that report to Fish and
24 Wildlife Service, as I stated, and they concurred with
25 that determination. We also invited Game & Fish

1 Department to the campus. We gave them a tour, showed
2 them the entire campus, the projects, and they also
3 concurred with no effect.

4 Q. All right. And your next slide is the study
5 area. Did you want to at least indicate the study area
6 that you use for your various biological and
7 nonbiological studies?

8 A. (BY MS. DARLING) So this is the study area map,
9 and the campus is outlined in black. For the biological
10 evaluation we used a one-half mile buffer around the
11 campus boundary. For the cultural resources study we
12 used a one-mile buffer around the study area. The sound
13 study looked at noise at the campus fence line,
14 essentially, and what the decibel levels would be.

15 Q. So beyond the biological study work and the
16 agency consultations, you did extensive work on land use
17 and ownership impacts. Do you want to cover those now?

18 A. (BY MS. DARLING) Yes. The facilities are
19 located wholly within land owned by TEP on the Irvington
20 campus. We looked at existing land use in the vicinity
21 of the project. And as you can see from the site visit
22 yesterday, as well as the aerial photo, we are in a very
23 developed urban area of Tucson. We are bounded on the
24 south by UPRR and I-10, on the north by Irvington
25 Road -- I obviously can't use the clicker -- on the west

1 by Alvernon Way, which has commercial and industrial
2 development to the west of that. On the northeast up
3 here is where Davis-Monthan Air Force Base is, and on
4 the east is Swan Road here, which also has commercial
5 and industrial development to the east of that.

6 This is an overview of the existing land use on
7 the Irvington campus itself, which we visited yesterday.
8 And you saw the power plant, the existing substations,
9 the solar facilities, all of our support facilities,
10 office buildings, equipment laydown yards, et cetera.

11 We also have residential use in the vicinity of
12 the projects, and that is south of I-10 and the railroad
13 tracks. And this area consists mainly of medium density
14 single-family homes, as well as a mobile home park.
15 There is also public uses within one mile of the
16 Irvington campus, and those are the Julian Greenway
17 Wash, which is a trail within the Pima County trail
18 system that runs along the edge of the residential
19 development in that area, as well as a park here and the
20 school, elementary school.

21 CHMN. CHENAL: Yes, Member Jones.

22 MEMBER JONES: Just for clarification,
23 Mr. Chairman.

24 And Ms. Darling, it was alluded again in public
25 testimony last night that where there were multiple

1 educational public facilities within close proximity of
2 the project. And those don't appear to be in this.

3 MS. DARLING: So our study area was only the
4 blue line here. However, on this land use map there
5 is -- and that's in your application and Exhibit A-4 --
6 you can see the additional schools outside of this study
7 area that are in proximity to the project. But I
8 believe they are greater than two miles from the campus.

9 MEMBER JONES: Okay. Thank you.

10 BY MR. DERSTINE:

11 Q. Looking at this map on the left, can you give us
12 a general approximation the distance to the closest
13 residences from the boundary of the campus?

14 A. (BY MS. DARLING) So this is a quarter mile.
15 And here is the nearest residences, which are right
16 along the greenway. So I would estimate that to be
17 slightly more than an eighth of a mile.

18 Q. And that's on the other side of I-10 of the
19 freeway?

20 A. (BY MS. DARLING) Yes, I-10 and the railroad
21 tracks.

22 Q. Proceed with your presentation.

23 A. (BY MS. DARLING) So we did do a land use plan
24 analysis where we looked at existing and planned uses in
25 the county and city. We looked at the permitted land

1 uses as regulated by the local zoning regulations and
2 inventoried and mapped that zoning, including all
3 overlay zones. The federal land use plans in the
4 vicinity are -- Davis-Monthan Air Force Base is the only
5 federal landowner in our proximity, and I already
6 discussed that horizontal surface penetration zone and
7 the waiver that we obtained for that.

8 The state land use plans in the vicinity are
9 with Arizona Department of Transportation, which I also
10 briefly mentioned their plans to reconfigure I-10 and
11 the State Route 210 corridors. And so there will be no
12 impact to that ADOT project. There is a small piece of
13 state land south of I-10 and east of the project, and
14 there are no known plans for that area.

15 The local land use plans in the vicinity of the
16 project include TEP's application with the City of
17 Tucson for the planned area development, which I spoke
18 of earlier. So because the campus was initially
19 developed under Pima County's jurisdiction, and we are
20 looking to expand and modernize the campus with new
21 office buildings and shop buildings, we are working with
22 the City of Tucson to obtain that planned area
23 development that will set the standards or conditions
24 for our future expansion.

25 Q. Let me stop --

1 Go ahead. Do you have a question?

2 CHMN. CHENAL: Who?

3 MR. DERSTINE: No?

4 CHMN. CHENAL: No, no questions.

5 MR. DERSTINE: I apologize.

6 BY MR. DERSTINE:

7 Q. I have a question. So the planned area
8 development -- and we had some discussion about the
9 meeting that was held last night -- does that process
10 with the City of Tucson in any way impact TEP's ability
11 to construct or install or the siting or location of the
12 RICE units or the transmission facilities that are the
13 subject of this proceeding before this Siting Committee?

14 A. (BY MS. DARLING) It doesn't, although both
15 processes are being completed simultaneously, or at the
16 same time. And we have agreed to -- we had agreed to
17 submit that application for a planned area development
18 in order to obtain the grading permit for the RICE
19 project. But they are not -- had we only been doing the
20 RICE project and not all of these other modernizations
21 with the office building and the shops, we probably
22 would not have pursued a PAD at this point in time.

23 Q. Okay. And so in terms of the public's
24 engagement and the types of input the public can have,
25 those relate to what issues again in the PAD process?

1 A. (BY MS. DARLING) When they can do or --

2 Q. No, what sort of input.

3 A. (BY MS. DARLING) Oh, okay.

4 Q. What is being considered by the City of Tucson
5 through the PAD process that the public, members of the
6 community who were here last night and maybe attended
7 the separate meeting last night, what are they
8 considering?

9 A. (BY MS. DARLING) So the city's decision process
10 is whether to approve or deny the rezoning of the campus
11 from industrial zoning to a planned area development.
12 Associated with that are conditions that the city sets
13 with allowed uses. So it could be related to height,
14 setbacks, access, parking, lighting, any kind of
15 conditions that are normally associated with a zoning
16 designation.

17 Q. Okay.

18 A. (BY MS. DARLING) So the public can, I am sure,
19 provide input into what those conditions are or, you
20 know, whether they agree or disagree with the rezoning
21 of the campus.

22 Q. Okay. That's helpful. Thank you.

23 A. (BY MS. DARLING) Thank you.

24 So besides TEP's PAD, there is another PAD in
25 the approval process called the Valencia Crossing, which

1 is here on the southeast corner, on the south side of
2 I-10 southeast of campus. And there are several other
3 development permits that are currently in the process of
4 being reviewed and approved by the city.

5 Also, as we have spoken, the UPRR line is south
6 of our facilities and we have been coordinating with
7 them regarding the proximity of the transmission lines
8 and facilities to the rail lines.

9 And Mr. Beck testified yesterday regarding
10 communication signals and our coordination with UPRR
11 related to that to ensure that any mitigation measures
12 that may be necessary are identified and implemented
13 prior to energizing those projects.

14 CHMN. CHENAL: And can you say again what UPRR
15 is.

16 MS. DARLING: I am sorry, Union Pacific
17 Railroad.

18 This is just an overview of the draft layout for
19 those shops and office buildings that we talked about on
20 the field trip yesterday.

21 CHMN. CHENAL: Excuse me. Is that the reason
22 for the planned area development?

23 MS. DARLING: Correct.

24 CHMN. CHENAL: So the PAD is being sought in
25 order to allow the structures and facilities we see

1 depicted on this slide?

2 MS. DARLING: Yes, and all of our plans, so all
3 of the identified plans that we have for the Irvington
4 campus, as well as any future expansion that we may want
5 to do within the campus boundary.

6 CHMN. CHENAL: Can you just give a one-minute
7 summary of what we are looking at there?

8 MS. DARLING: Oh, gosh. Okay.

9 CHMN. CHENAL: Three minutes, however much you
10 need.

11 MS. DARLING: Yes. I am just going to refer to
12 here so I can actually read it.

13 Okay. I think I have got it. I am really bad
14 at this clicker. Okay.

15 So the green, I believe, is the shops building.
16 The blue is the new OH building, and the pink is
17 parking.

18 BY MR. DERSTINE:

19 Q. And those are things that are not there today,
20 but you plan to construct once the PAD process is
21 complete?

22 A. (BY MS. DARLING) Correct.

23 MEMBER JONES: Mr. Chairman.

24 CHMN. CHENAL: Member Jones.

25 MEMBER JONES: Can you tell us a little, if you

1 do this plan, because many of the places that you are
2 going to basically abandon in place, will any of those
3 structures be -- are planned to be removed to
4 accommodate new construction, so will the visual change?

5 MS. DARLING: Not at this time. They don't
6 replace -- they are basically in areas that aren't
7 developed yet, those facilities that I just described.
8 They are in parking lots. I think there is one trailer.

9 So where you see these buildings being placed, I
10 think there is some trailers and a parking lot. The
11 existing buildings, the existing shops building and the
12 existing office building, the OH will remain and be used
13 for other purposes.

14 Now, we are removing other facilities such as
15 the coal barn, the conveyor belt, the T-2 tower that we
16 discussed yesterday on the field trip. Those are
17 separate from and not being removed because of the need
18 to build these facilities.

19 Does that answer your question?

20 MEMBER JONES: Yes, it does. Thank you.

21 MS. DARLING: Okay.

22 BY MR. DERSTINE:

23 Q. Is there anything else you wanted to point out
24 in the draft layout, the PAD and the planned
25 development?

1 A. (BY MS. DARLING) Just that the remaining
2 hatched areas represent new laydown areas or surface
3 parking areas.

4 Q. So the Irvington campus, as a result of the PAD
5 process, will it remain essentially an industrial site
6 to a large extent with the Sundt generating station?
7 The plan is to develop or to construct some new
8 operational buildings, maybe repurpose some of the
9 existing buildings, but the general purpose of the site
10 is not going to change that dramatically. Is that a
11 fair statement?

12 A. (BY MS. DARLING) It is, yes.

13 Q. Okay. You are not putting a shopping center or
14 McDonald's or anything in there?

15 A. (BY MS. DARLING) I don't know. I will have to
16 ask Sherry. No. I am sorry.

17 So we also looked at the future land use plans
18 in the vicinity, and I spoke to those, which were the
19 two planned area developments, ours and Valencia
20 Crossing, and the three pending development permits are
21 all that we are aware of for future land use.

22 So in conclusion, the CEC facilities are
23 consistent with the city, county, state, federal, and
24 private land use plans for the area. We feel that
25 impacts on the adjacent land uses are negligible. The

1 PAD for the rezoning with the City of Tucson will ensure
2 any future development would be in compliance with City
3 of Tucson zoning. And we are currently coordinating
4 with UPRR to mitigate any concerns they have.

5 Q. And this morning when we initially touched on
6 the meeting that was held last night, you indicated
7 there were some additional meetings that will take place
8 in connection with the PAD process. Can you just
9 highlight those again?

10 A. (BY MS. DARLING) Yes. I just want to make sure
11 I get the months right.

12 So besides the open house meeting that they had
13 for the PAD last night, there is a zoning examiner
14 hearing in the end of February or March, it has not yet
15 been scheduled yet, as well as a city council hearing
16 that will probably take place in April.

17 Q. All right. So that's the land use analysis and
18 land use impacts. Why don't you touch on some of the
19 other impacts that were analyzed as part of the study
20 work in support of the application.

21 CHMN. CHENAL: Excuse me. Member --

22 MR. DERSTINE: I am sorry.

23 CHMN. CHENAL: -- Woodall. I am sorry.

24 MEMBER WOODALL: I realize this could be
25 construed as none of the Committee's business because we

1 have no jurisdiction over your office buildings and the
2 like, but I am just -- we do have to take into account
3 the general area of the facilities. So can you tell me
4 just how much dollar-wise these improvements in terms of
5 office buildings and stuff are you doing. I mean, how
6 significant an investment is it?

7 MS. DARLING: Can I ask someone?

8 MEMBER WOODALL: Oh, sure.

9 MS. DARLING: The architect has just been hired,
10 so we do not know yet.

11 MEMBER WOODALL: Okay. That's fine.

12 MR. DERSTINE: That was your one "phone a
13 friend."

14 MS. DARLING: Thankfully she was here.

15 BY MR. DERSTINE:

16 Q. Moving from land use, you analyzed a number of
17 other environmental impacts that were studied and
18 contained as exhibits in support of the application.
19 Why don't you walk us through some of those.

20 A. (BY MS. DARLING) Okay. So we also conducted a
21 scenic area analysis. It was done using Google Earth
22 and GIS, as well as a field visit to take photographs of
23 existing conditions. And then visual simulations were
24 prepared from those existing conditions photos.

25 As I said earlier, the existing landscape

1 surrounding the facilities is industrial and commercial
2 mainly. There are some retail establishments west of
3 Alvernon. There is the railroad tracks, the four-lane
4 main roadways, the four-lane highway, and then
5 residential use south of I-10. And that's just showing
6 the same.

7 These are the visible existing structures on
8 campus, which we viewed yesterday. And then the visible
9 CEC facilities that we will be adding are the relocated
10 substations, the transmission towers, the new ones and
11 the relocated ones, the RICE facility, and the RICE
12 facility exhaust stacks, which will be 160 feet tall.
13 So all of those were simulated into the drawing, or into
14 the photo simulations. So I know these are really hard
15 probably to see on the screen. They are in your binders
16 in Exhibit G.

17 Q. So those would be Exhibit G to the application,
18 correct?

19 A. (BY MS. DARLING) Correct. And I can give you
20 the exact place to start here.

21 Q. So these will be found in the original
22 application filing?

23 A. (BY MS. DARLING) Correct.

24 Q. Okay.

25 A. (BY MS. DARLING) In starting with G-4.2, and

1 what you see there will be identical to what you see on
2 the screen.

3 Q. And the members also have that in the
4 supplemental exhibit binder, correct?

5 A. (BY MS. DARLING) Yes, because it would be
6 within the presentation.

7 Q. Right.

8 A. (BY MS. DARLING) However, in the original
9 application binder they will be larger photos than in
10 the PowerPoint presentation. So it is just easier to
11 see, I think.

12 Q. Okay.

13 A. (BY MS. DARLING) So I just want to point out
14 the KOP, which stands for key observation point,
15 No. 1, which is on the left side of the slide. The top
16 photo is the existing conditions today from the Julian
17 Wash Greenway, which is that trail south of I-10 that
18 runs between I-10 and the residential neighborhood.

19 So we are looking in a northeasterly direction
20 from that point. And you can see what the stacks would
21 look like right here below the tree. And then you can
22 see just the top of the building for the RICE facility,
23 and then the second set of stacks there. And then just
24 above this tree you can see a transmission tower. And
25 that's it. The rest is -- oh, and then, I'm sorry,

1 there is also the drop-in structures over here into the
2 138kV substation on the far right.

3 Looking at KOP 2, it is from Bryant Avenue,
4 which is the road that runs north-south through the
5 neighborhood on the south side of I-10. It is at the
6 end of the road where it meets up with the greenway.
7 And you can see here, sorry, right here, in here is the
8 stacks again, the stacks for the facility.

9 This is KOP 3, which is from Catalina Avenue.
10 And I would like to point out that Patrick was kind
11 enough to put the KOP map up on the left screen and I
12 didn't even notice. So it shows the number on the map
13 on the left matches the KOP number on the slides on the
14 right so you can get an idea of where we are looking
15 from and to.

16 CHMN. CHENAL: Excuse me. Member Woodall.

17 MEMBER WOODALL: Did you generally explain the
18 process used to identify the key observation points?

19 MS. DARLING: Yes. So we do use a specialist
20 who does visual simulations. Now, in this private
21 process, in other words, we are not being -- we are not
22 doing NEPA.

23 MEMBER WOODALL: Right.

24 MS. DARLING: So the land management agency
25 usually selects the KOPs and tells us where we have to

1 do them. In this process, where it is private, we rely
2 on the expertise of the person completing the visual
3 simulations.

4 So what they do is they drive around the area
5 and they find places where the project would be
6 prominently viewed from -- I mean he took probably 30
7 different photos, and then we collectively looked at
8 those photos and identified where is it most visually
9 prominent from, you know, where can you see the plant
10 from the most easily. And that's how he selected these
11 KOPs.

12 MEMBER WOODALL: Thank you, ma'am.

13 MS. DARLING: So moving on to 3, from this view
14 we are further to the west, but still south of
15 Interstate 10. And mainly what you see is the 138kV
16 substation structures through the trees there.

17 And I can point again in here. So KOP 4 is from
18 Interstate 10, and we are heading westbound on
19 Interstate 10. And the campus would be to the right or
20 north of Interstate 10. And this is really where the
21 facilities can be viewed pretty well from the
22 interstate. And you can see all of them right along,
23 right along here. And I pointed out if you look in the
24 simulation in your book, they are called out as the
25 RICE, the 138kV yard, and 46kV yard over here, 46, 138,

1 and the RICE.

2 So on the left screen now you can see that
3 simulation that we filed as a supplemental simulation.
4 Let me get the exhibit number again. Exhibit J-11. So
5 this shows, it is about the same view as KOP 4 with the
6 interstate on the left. We are heading westbound and
7 the Irvington campus is on the right, or north of I-10.
8 So this is the existing condition.

9 This is 2019, so this is after the RICE facility
10 has been installed. But you will also notice that, as
11 has been testified to, the tower here, the T-2 tower, is
12 gone, as well as all the coal conveyor system is gone.
13 And then this is the long-term view, which we anticipate
14 to be around 2025. And you can see the coal barn is
15 gone, and it is a lot more cleaned up looking than here.

16 CHMN. CHENAL: Can we go back to that previous
17 slide? Yes.

18 Ms. Darling, looking at KOP 4 -- I am going to
19 use the laser pointer here -- I assume that's RICE, is
20 that correct?

21 MS. DARLING: Yes.

22 CHMN. CHENAL: Where I am pointing on the bottom
23 right slide?

24 MS. DARLING: Yes. You can see the two sets of
25 stacks.

1 CHMN. CHENAL: Right in there?

2 MS. DARLING: Correct.

3 CHMN. CHENAL: Okay. How tall again are those
4 towers that we are looking at at the RICE facility?

5 MS. DARLING: 160 feet tall, the stacks.

6 CHMN. CHENAL: Okay. And how many are there
7 again?

8 MS. DARLING: There are two sets, with five
9 stacks in each set.

10 CHMN. CHENAL: Okay. Thank you.

11 MS. DARLING: So based on this visual simulation
12 and the analysis, we identified that there is no
13 substantial change to the industrial nature of the
14 project area. We will have our standard mitigation for
15 visual resources, which are nonreflective finishes,
16 self-weathering materials with new structures and colors
17 that blend or complement the surrounding environment.
18 The color on the RICE facility building will be the same
19 color that's used throughout the campus, TEP beige, as
20 we like to call it. And we will remove all of our
21 construction waste as it is accumulated.

22 That's just showing, pointing out my statement
23 that we are in an industrial area of Tucson.

24 We also looked at recreation. No portions of
25 these facilities will be available to the public for

1 recreational purposes. It is just a statement we need
2 to make, and pretty obvious why.

3 And we did a historic and archeological survey
4 of the entire campus. There is one historic site within
5 the campus, and it is an existing active El Paso natural
6 gas pipeline. We have agreed with Pima County and City
7 of Tucson not to disturb that pipeline, and therefore
8 there are no effects to historic or prehistoric
9 properties.

10 So we will avoid the El Paso natural gas
11 pipeline and we will, if we were to uncover human
12 remains during project development, we would stop all
13 activities and follow the requirements of the Arizona
14 Revised Statutes.

15 Should I continue?

16 BY MR. DERSTINE:

17 Q. Please.

18 A. (BY MS. DARLING) So a noise study was also
19 performed for the RICE facility, and it was a sound
20 study. And it was determined that at the site
21 boundaries we would not exceed the City of Tucson
22 decibel levels. We would not exceed 70 dBA at any time.
23 So it is 85 dBA during the day and 70 dBA at night, but
24 the facility would not exceed 70 dBA at any time.

25 And I can show you, this is the

1 modeled -- whoops. I guess that's fine. This is the
2 model, this third line out. So the blue and then sort
3 of a deep purple and then a magenta, so this third line
4 out represents 70 dB. This is our property line here.
5 So it does not exceed the levels at the property line,
6 which is the City of Tucson requirement.

7 CHMN. CHENAL: Just a question. I saw a
8 reference in a previous slide to a noise radiator,
9 standard noise radiators. What are those?

10 MS. DARLING: So these are the mitigation
11 measures that were recommended. They are listed here on
12 the last bullet that were recommended be implemented or
13 included in the design of the RICE facilities in order
14 to meet that 70 decibel level. And Mr. Spencer can
15 speak to what those different items are.

16 MR. SPENCER: The radiators are used for the
17 cooling water to cool the coolant after it proceeds
18 through the engine block. Those radiators have
19 different standards for the production of noise because
20 it is a fan blowing air across the cooling tubes. There
21 are low noise radiators; there is standard noise
22 radiators. So those are the two groups of
23 classifications that are used. And literally the only
24 difference is a low noise radiator has a bigger blade
25 that turns at a slower speed, thus producing less noise.

1 CHMN. CHENAL: And while you are on the topic,
2 exhaust stack silencers, let's just talk about that for
3 a moment. Explain what those are, please.

4 MR. SPENCER: So very similar to the silencer on
5 your car that you drove here, these exhaust stacks
6 outside of the building have silencers or mufflers to
7 reduce the noise that's created by the exhaust of the
8 gas as it exits towards the stack. In the base of the
9 stack, when it goes from horizontal to vertical, are
10 where those mufflers, if you will, exist to dampen that
11 sound effect.

12 CHMN. CHENAL: Thank you.

13 Member Woodall.

14 MEMBER WOODALL: So your facility is right next
15 to the freeway, right?

16 MR. SPENCER: That is correct.

17 MEMBER WOODALL: And so is that a heavily used
18 portion of the freeway?

19 MR. SPENCER: It is.

20 MEMBER WOODALL: And so is it likely that there
21 would be a lot of noise that would be produced by cars
22 traveling on the freeway?

23 MR. SPENCER: There is.

24 MEMBER WOODALL: Does anybody know what that is?
25 I know for design standards that the feds look into

1 that, but do we know how noisy that would be? I am
2 trying to get a comparison between your 70 decibels and
3 whatever racket is coming from the freeway.

4 MR. SPENCER: Can I use the pointer?

5 MS. DARLING: Yes.

6 MR. SPENCER: In the sound study, if you look
7 right here, our sound consultant went to the edge of
8 that park and took readings over a 24-hour period, so we
9 would understand -- so we took one there and then right
10 in this area where the housing is to determine what
11 could you hear at that point from our site. And the
12 conclusion in the study is all they could hear was
13 freeway noise and Union Pacific Railroad locomotive
14 noise.

15 MEMBER WOODALL: Thank you. That's what I had
16 guessed, but I appreciate having your testimony on that
17 topic. And I understand you have to study what noise is
18 coming from your facility. I understand that. But I
19 appreciate your adding that additional explanation.

20 CHMN. CHENAL: Member Drago.

21 MEMBER DRAGO: Yes. What is the baseline today?
22 I don't think the slide depicts what the noise level is
23 today with the Sundt generating units and what it will
24 be when you are operating the ten units. Does that make
25 sense?

1 MR. SPENCER: It does. And I know that the
2 24-hour period that we took measurements at these
3 spots --

4 MEMBER DRAGO: Right.

5 MR. SPENCER: -- right there by the park, near
6 the elementary school, right here by these homes on Swan
7 and two along Irvington and one right on the western
8 boundary, and then a couple right along in here on our
9 property boundary, and within that 24-hour period there
10 was not an exceedance of the 70 dB that is the standard
11 for the City of Tucson at our property boundary. There
12 was at the locations in the neighborhood to the south
13 side of the freeway, but they were levels that, as large
14 semitrucks went by, you would see spikes in those dB
15 levels.

16 And so our objective was to design the
17 construction of the buildings and the radiators and the
18 position of all that equipment so that we would not
19 exceed that 70 dB limit that's required during the
20 nighttime hours at our property boundary.

21 BY MR. DERSTINE:

22 Q. I think -- do we have any data that shows what
23 the noise level is today during current operations, and
24 then an estimate or some sort of projection of -- and I
25 guess these sound studies that we performed would show

1 in the future, with the installation of the RICE units,
2 we will not exceed I guess. I think the Committee
3 member is asking for a comparison of today --

4 MEMBER DRAGO: Exactly.

5 BY MR. DERSTINE:

6 Q. -- and post installation of RICE.

7 A. (BY MR. SPENCER) And I go back to what I just
8 previously said. And that is our evaluation at the
9 property boundary today for that 24-hour period was that
10 we were at or below 70 dB. So we are at that standard
11 today and we will remain at that standard in the future.

12 MEMBER DRAGO: Okay. Yeah, that's really what I
13 was looking for. It sounds like in today's operation
14 you are meeting the standard and you are stating that
15 you will meet it with the RICE units in operation.

16 MR. SPENCER: That is correct.

17 MEMBER DRAGO: Okay. Thank you.

18 CHMN. CHENAL: Member Riggins.

19 MEMBER RIGGINS: As far as the building shell
20 goes, is there any special like noise-mitigating
21 construction to it, or is it just a building shell of a
22 normal metal structure around these?

23 MR. SPENCER: In the specification for the
24 building there is sound dampening ratings that have to
25 be obtained based on this study and the distance from

1 the building to the fence line so that the noise created
2 by the operation of the engines does not exceed 70 dB by
3 the time this gets to the property boundary. So that's
4 the long answer that, yes, there is sound mitigation
5 inside those facilities.

6 MEMBER RIGGINS: Thank you.

7 CHMN. CHENAL: And Ms. Darling, I assume that
8 the sound study assumes that all ten units will be
9 operating at the same time.

10 MR. SPENCER: That is correct.

11 CHMN. CHENAL: That's probably a given, correct?

12 MS. DARLING: Yes.

13 BY MR. DERSTINE:

14 Q. So your next slide is public involvement.
15 Before we get to that, is there anything you want to add
16 that we need to touch on as part of the various
17 environmental study work and impacts that were analyzed
18 in support of the application?

19 A. (BY MS. DARLING) No.

20 Q. Okay. Let's move on to the public involvement.
21 Were you responsible for or oversaw the public
22 involvement and outreach for the project?

23 A. (BY MS. DARLING) Yes, I was.

24 Q. Okay. Why don't you tell the Committee about
25 that effort.

1 A. (BY MS. DARLING) Okay. So the public
2 involvement effort included briefings with community
3 leaders, agencies, and jurisdictions. The community
4 leaders were mainly consulted and contacted by our
5 communications department for TEP, so I did not
6 participate in that, but I was briefed on each of their
7 meetings.

8 We also, as I said earlier, during agency
9 consultation, we met individually with a number of
10 agencies, described the project to them, listened to any
11 concerns they had, and have worked through those issues
12 or concerns that they might have had. We are still
13 working with Union Pacific Railroad.

14 We also had an open public house meeting in
15 October, which was noticed to the public through both
16 the mailing of a newsletter to everyone within the study
17 area and posting in the Arizona Daily Star, noticing of
18 that meeting.

19 We had a project internet web page for the
20 project since October, since the newsletter was mailed,
21 as well as a telephone information line where they could
22 call and leave a message to have us call them back. And
23 there was a project e-mail address. And all of those
24 numbers and e-mails and project web page address were
25 all within the newsletter and the Arizona Daily Star

1 posting.

2 CHMN. CHENAL: Excuse me. Member Woodall.

3 MEMBER WOODALL: So may I ask you, what kind of
4 response did you get? How many telephone calls did you
5 get, how many hits on your website? I am just curious
6 as to how much interest there was.

7 MS. DARLING: So we had ten members of the
8 public attend the open house, and we received comments
9 from two members of the public. One was through the
10 completion of a comment form at the public meeting, and
11 the second one was via e-mail. We did not receive any
12 calls on the telephone line at all. And we do not have
13 a counter on our web page so I can't say. But there is
14 an online comment form on the web page and nobody
15 utilized that.

16 MEMBER WOODALL: Thank you, ma'am.

17 BY MR. DERSTINE:

18 Q. Is the web page still active and up?

19 A. (BY MS. DARLING) Yes. The web page will remain
20 active through completion of the project. We keep them
21 live with the comment form and the ability to contact us
22 through construction. And we just keep updating the
23 description of where we are at in the project.

24 And I also submitted Exhibit J-12, which was our
25 second newsletter that we mailed two weeks ago, well, it

1 was received two weeks ago, noticing the public of these
2 hearings and just providing an update on where we were
3 with the project. Those are the ones that are out on
4 the table in front -- I don't know if you saw them --
5 that you can pick up an original if you like.

6 BY MR. DERSTINE:

7 Q. During public comment last night one of the
8 members of the public mentioned, and I took it as a
9 criticism, that there was the article in yesterday's
10 local paper about the new wind project or the RFP for
11 new wind but, you know, obviously TEP hasn't issued any
12 press releases or there haven't been any articles about
13 the RICE project. Is that true?

14 A. (BY MS. DARLING) No, that's not true. In fact,
15 we did release a public press release July 7th for the
16 RICE project. There was also an article in the Global
17 Power Journal on July 17th, and there was a really great
18 article in the Arizona Daily Star on September 2nd for
19 the RICE project. And, you know, as I stated, we did
20 notice in the newspapers for both the open house meeting
21 in October as well as for these hearings.

22 Q. Okay. Anything else you want to add on the
23 public outreach?

24 A. (BY MS. DARLING) I just wanted to say --

25 CHMN. CHENAL: Excuse me. Member Villegas.

1 MEMBER VILLEGAS: Just a question. Were there
2 or are you planning to do any presentations with city
3 council or with the board of supervisors?

4 MS. DARLING: The mayor --

5 Actually, maybe you could speak to it, Conrad,
6 because you led the tour. Sorry.

7 MR. SPENCER: Approximately two months ago we
8 invited the mayor of Tucson, Mayor Rothchild, and the
9 city council member whose jurisdiction is the Irvington
10 campus, I don't recall his name, Fimbres, Fimbres, we
11 invited them to the site. We briefed them on the nature
12 of the projects. We drove them around the site, showed
13 them the site of the RICE project, the transmission
14 facilities, the substation, and then went and showed
15 them the future office buildings so they would really
16 have a good feel for what the campus redevelopment and
17 modernization would look like so that they could be
18 informed as they received comments from the public.

19 MEMBER VILLEGAS: Thank you.

20 BY MR. DERSTINE:

21 Q. Mr. Spencer, while I am thinking about it, was
22 there any effort to engage or inform the Sierra Club
23 about the RICE project before today's hearings?

24 A. (BY MR. SPENCER) There was. Approximately
25 three months ago Sandy Bahr, who I believe is the

1 director of the Sierra Club in the State of Arizona, was
2 invited to meet with the president of TEP, Dave
3 Hutchens, Erik Bakken, who is the environmental manager
4 and has oversight responsibility also of the system
5 operation control center and a few other departments --
6 I don't know the extent of all of his chain of
7 command -- and Mike Sheehan, our resource planning
8 manager. And they met with Sandy and I believe one
9 other Sierra Club member and briefed them on the nature
10 of the project, the need for the project relative to the
11 intermittency of renewables, and our goal to achieve
12 30 percent integration of renewables.

13 Q. Thank you.

14 MEMBER JONES: Mr. Chairman.

15 CHMN. CHENAL: Member Jones.

16 MEMBER JONES: Kind of on that note,
17 Mr. Chairman and Mr. Spencer, is that can you share,
18 were there any comments at that presentation for or
19 against the project? And the reason I bring that up is
20 that the person you are referring to, Ms. Bahr, was here
21 during the public input last evening, but I have noted
22 that her presence has not been here throughout this
23 hearing.

24 And I have pretty good experience as an Arizona
25 Power Authority commissioner in electrical as well as

1 water and utilities, but I have learned a great deal
2 during these hearings. And it is unfortunate that some
3 of the other folks that were here last night couldn't
4 attend more of this hearing and learn as much as I have.
5 Perhaps they would not have the same opinion.

6 MR. SPENCER: So I believe that the question was
7 did --

8 MEMBER JONES: Comments. Did they -- did
9 Ms. Bahr, after you made this presentation to her and
10 the other person, were there any negative or positive,
11 what was their response?

12 MR. SPENCER: I was not personally in the
13 meeting.

14 MEMBER JONES: Oh, okay.

15 MR. SPENCER: What was reported to me was that
16 they did not understand the nature of the project until
17 that briefing did occur. And I don't know of any
18 further comments beyond just that, that they were not
19 aware of the project and appreciated the briefing that
20 was given to them.

21 MEMBER JONES: Okay. Thank you.

22 BY MR. DERSTINE:

23 Q. And again, when, Mr. Spencer, when did that
24 meeting take place, to your knowledge?

25 A. (BY MR. SPENCER) Approximately three months

1 ago.

2 MR. DERSTINE: Okay. And I will just make a
3 statement for the record that in advance of -- after the
4 filing of the application, up until the time of the
5 prehearing conference, which we had on January 5th, I
6 had not received any communications from the Sierra
7 Club, and it was at the time of the prehearing
8 conference that the Sierra Club -- I believe it was on
9 the day, it was either January 4th or January 5th --
10 filed formal notice of appearance and expressed their
11 intent to participate in this proceeding through
12 counsel.

13 And then the Chairman was, although the time had
14 passed to file any sort of testimony and exhibits in
15 connection with this case, the Chairman was gracious
16 enough to grant Sierra Club additional time to file
17 those exhibits. I think that was up until January the
18 10th. And it was on January the 10th that we were then
19 notified by the attorneys who had appeared by phone at
20 the prehearing conference, and they notified us that the
21 Sierra Club had decided not to participate as a party in
22 this proceeding but would file comments. And then those
23 comments came about two days later. I believe the date
24 of the written comments are in the record as TEP-15.

25 So that is the chain of events in terms of the

1 meeting with the Sierra Club in September as Mr. Spencer
2 has indicated and testified, and then the initial
3 appearance at the prehearing conference, and then the
4 subsequent decision not to participate as a party and
5 hear the presentation through counsel and through
6 Ms. Bahr or whatever sort of representatives Sierra Club
7 wished to have.

8 They were allowed to be a party and initially
9 indicated they would be, and then elected not to
10 participate and hear the testimony as you have through
11 these two days of hearings. And we have done our best
12 to address their comments.

13 MEMBER JONES: I appreciate that.

14 Thank you, Mr. Chairman.

15 CHMN. CHENAL: Yes, that accurately reflects my
16 recollection of my involvement with Sierra Club in this
17 case. But again, I think the record reflects their
18 concerns. And I think that we have had their concerns
19 addressed at least on the record by the applicant
20 responding to the concerns. There has been testimony
21 about that, about the concerns and the applicant's
22 response to those concerns. So I feel we have a good
23 record for the Corporation Commission, you know, on
24 their concerns.

25 MR. DERSTINE: And the only additional comment I

1 would make, it is my understanding Mr. Bakken, who
2 Mr. Spencer indicated was in attendance on the initial
3 meeting with Ms. Bahr and Dave Hutchens with Tucson
4 Electric Power, that there is continuing dialogue or
5 efforts to have with Ms. Bahr and other members of the
6 Sierra Club in relation to this project and answer their
7 questions.

8 BY MR. DERSTINE:

9 Q. So Ms. Darling, returning to you, I think you
10 have covered all of the various efforts that were made
11 in terms of the environmental impact analysis,
12 biological, nonbiological, noise, archeological.
13 Despite the fact that this is an existing industrial
14 site, the applicant went through all the basic study
15 work, environmental impact study work, land use, and
16 zoning.

17 Do you want to wrap up your testimony on those
18 environmental factors with some final comments?

19 A. (BY MS. DARLING) Yes. So all these studies
20 show that the CEC facilities are compatible with the
21 environment and ecology of the State of Arizona. They
22 create little to no adverse impacts on the environmental
23 factors under consideration by the Committee. There is
24 no significant impact to common wildlife or habitat
25 fragmentation. There is no adverse effect on special

1 status species, on land use codes. There is no
2 long-term visual impacts, no impacts on or additions to
3 noise in the project area, no impacts on historic
4 properties or archeological resources. That's it.

5 Q. I know, I think, to be fair, I mean the visual
6 simulations that we provided, the stacks will be visual.
7 There is a change in terms of visual impact. They will
8 be seen, correct?

9 A. (BY MS. DARLING) They will be seen. They do
10 not exceed the height of the existing stacks, so there
11 are no -- that's 250 feet tall for the one stack, and
12 these stacks are 160 feet tall. So there is a change,
13 but it is still an industrial site changing to a
14 different view of an industrial site.

15 Q. Okay. And I think the last supplemental visual
16 impact slide that we saw showed the removal of the coal
17 facility that will in many ways clean up the horizon
18 once that project has been completed?

19 A. Correct.

20 CHMN. CHENAL: I had a question. Ms. Darling,
21 just in summary, the coal stack will be removed. I
22 think that has been the testimony. And how high is the
23 coal stack?

24 MS. DARLING: Do you mean the barn or the T-2
25 tower?

1 CHMN. CHENAL: Well, I don't know what I mean.

2 MS. DARLING: Okay.

3 CHMN. CHENAL: I heard Mr. Derstine refer to the
4 coal tower, so I was just using his words.

5 MS. DARLING: This is the T-2 tower here and
6 this is the coal barn. And I think Mr. Spencer can
7 best --

8 MR. SPENCER: It is approximately 75 feet.

9 CHMN. CHENAL: Which?

10 MR. SPENCER: The tower.

11 CHMN. CHENAL: The tower. Okay. That device
12 right there with the coal conveyors coming in and out of
13 it is approximately 75 feet tall. Okay. And the coal
14 barn?

15 MR. SPENCER: The coal barn, which is this
16 facility, is approximately 100 feet tall.

17 CHMN. CHENAL: And will both -- I am sorry.

18 MR. SPENCER: 100 to 120 feet tall.

19 CHMN. CHENAL: And will both of those facilities
20 be dismantled?

21 MR. SPENCER: As part of the short-term plan,
22 this coal tower will be gone within three weeks of the
23 current date today. The coal barn is not slated for
24 removal until post 2020. And the reason for that is, as
25 you saw yesterday, it is a fairly narrow corridor to

1 come into this area. So for the construction of all of
2 the RICE facility and then the sequencing, as Mr. Beck
3 testified, to have the substation and the tying in of
4 all the transmission lines back to the 45 -- to the 46kV
5 and 138kV current transmission lines leaving the campus,
6 we did not want to start a major demolition project in
7 that identical time. There just isn't enough physical
8 space.

9 CHMN. CHENAL: Okay. I understand. And then
10 the tower that the height of the -- I guess it is the
11 cooling tower. The stack on the unit, well, Unit No. 1,
12 2, 3, and 4, how tall are those?

13 MR. SPENCER: The actual exhaust stack?

14 CHMN. CHENAL: Exhaust stack.

15 MR. SPENCER: The tallest exhaust stack on the
16 current steam units is Unit 4, and that's in this
17 picture. That concrete stack is 250 feet.

18 CHMN. CHENAL: Okay.

19 MR. SPENCER: Unit 3 is, I believe, 130 feet,
20 and I believe Units 1 and 2 are just shy of 100 feet.

21 CHMN. CHENAL: Thanks for that clarification. I
22 didn't realize until now that the largest, the tallest
23 exhaust stack only related to one of the four units.

24 MR. SPENCER: That's correct.

25 CHMN. CHENAL: So that's 200 -- how many feet

1 again?

2 MR. SPENCER: 250 feet.

3 CHMN. CHENAL: And that obviously will remain?

4 MR. SPENCER: I sure hope so.

5 MEMBER RIGGINS: That was actually one of my
6 questions, was about the 250-foot tower. But last night
7 during public comment there was a gentleman who brought
8 up kind of an aesthetic question about driving past it
9 and having it look unsightly and power plant like. But
10 through the testimonies and through all the exhibits, it
11 seems like part of this project, with removing the coal
12 infrastructure and just removing some of the lattice
13 structures, that will kind of be improving that as well.
14 Would that be your case?

15 MR. SPENCER: That is an accurate statement.

16 And the testimony last night, as I recall it,
17 referred to the plumes of smoke coming from the plant.
18 To take the mystery out of the plumes of smoke, it is
19 not plumes of smoke. It is plumes of water vapor. And
20 that's one of those things that, trying to help the
21 public understand, that is a difficult challenge.
22 Because it literally, from these cooling towers on both
23 sides of the facility, both the north and south, when
24 they are in operation, their entire purpose is to
25 reflect heat. And when you inject heat when it is cold,

1 they produce a big plume of water vapor.

2 MEMBER RIGGINS: Thank you.

3 CHMN. CHENAL: Member Woodall, and then Member
4 Jones.

5 MEMBER JONES: Thank you, Mr. Chairman.

6 My question, Mr. Spencer, has to do with what is
7 the -- it was noted the new stacks for the RICE projects
8 are 160 feet. What is the determining factor? I assume
9 you don't build stacks any higher than they actually
10 have to be because there is a cost associated with it.
11 So could you kind of explain to me, a layman, what the
12 determining factor is in that height.

13 MR. SPENCER: It is air modeling. So when you
14 go for the air permit for these facilities, you have to
15 look at the configuration of the stacks, the height of
16 the stacks and the velocity of the flue gases going up
17 the stack, because that affects the dispersion of that
18 flue gas from the source that's producing it into the
19 ambient air.

20 And so the air modeling that was done by the
21 consultants that we hired determined that we needed a
22 160-foot stack to get enough dispersion of the flue gas
23 into the ambient air so that we would not impact and
24 violate any of the ambient standards close in or long
25 range. So it literally is an effort to get a dispersion

1 of those flue gases from the engines.

2 MEMBER JONES: And as a follow-up, so if you
3 were to build a shorter stack for visual purposes, the
4 air quality would suffer?

5 MR. SPENCER: That is correct.

6 MEMBER JONES: Okay. Thank you.

7 MR. SPENCER: The close in quality would suffer
8 and the ability to disperse into the natural absorption
9 of the environment of the atmosphere would be impacted.

10 MEMBER JONES: Okay. Thank you.

11 BY MR. DERSTINE:

12 Q. Ms. Darling, what I would like to do now is to
13 recap the exhibits that you have sponsored. It was TEP
14 Exhibit-1A, which were the supplements to the
15 application, Exhibits B-2, G-5, J-11, and J-12, and
16 those are contained in TEP-1A. And then your prefiled
17 direct testimony was TEP Exhibit 5, and your two hearing
18 presentations, TEP-6 and TEP-6A. Is that right?

19 A. (BY MS. DARLING) Correct.

20 MR. DERSTINE: Mr. Chairman, members the
21 Committee, I move the admission of TEP-1A, again
22 referencing or containing exhibits to the original filed
23 application, B-2, G-5, J-11, and J-12, together with
24 Ms. Darling's direct, TEP-5, and her two hearing
25 presentations, TEP-6 and 6A.

1 CHMN. CHENAL: Any objection?

2 (No response.)

3 CHMN. CHENAL: So TEP Exhibit 1A, which has
4 Exhibits B-2, G-5, J-11, and J-12 to the application,
5 TEP-5, TEP-6, and TEP-6A are admitted into the record.

6 (Exhibits TEP-1A, TEP-5, TEP-6, TEP-6A were
7 admitted into evidence.)

8 MR. DERSTINE: Thank you.

9 I think we are at this point prepared to present
10 and offer as exhibits the corrections to the slides that
11 were presented as part of Mr. Spencer's hearing
12 presentation, that's TEP-8A, and those would be slides
13 numbered 4, 5 and 19.

14 TEP-4 (sic) is the slide headed intermittent
15 generation requirements. And as Member Drago correctly
16 pointed out, it would be helpful and important to
17 clarify the record that the graph of the base retail
18 load without renewables should indicate 2016. We have
19 made that change. That has been marked for
20 identification as TEP-18.

21 In addition, we have modified Slide 5 of
22 Mr. Spencer's hearing presentation, which gave the
23 comparison of the 2024 requirements, but added the
24 reference to the year 2016 on the companion base-load
25 generation graph on the left of that Slide 5.

1 CHMN. CHENAL: And what would be the number for
2 that, Mr. Derstine?

3 MR. DERSTINE: That has been marked as TEP-19.

4 And then what has been marked as TEP-20 is
5 Mr. Spencer's Slide No. 19 from his TEP Exhibit 8A, and
6 it makes the correction of the gallons per year usage
7 that comprise the calculation of the 70 percent
8 reduction in groundwater use.

9 CHMN. CHENAL: And going back to 4, TEP-4 I
10 think you referenced, but we have already admitted 4.
11 So is this --

12 MR. DERSTINE: Did we make the correction to 4
13 before the break? I think we represented that we would
14 make that change, but I don't think we have marked those
15 or admitted those as of yet.

16 What we did do before the break was marked as, I
17 think it was, TEP-17 for identification the slide from,
18 Slide 6 from Mr. Spencer's hearing presentation with the
19 heading renewable generation that had the different
20 colored lines on it to identify in the left margin the
21 type of renewable resource that those colored lines
22 represent.

23 CHMN. CHENAL: We have admitted 17 as well.

24 MR. DERSTINE: That's right. So 17 has been
25 admitted. So with our -- I would move the admission of

1 what has now been marked as TEP-18, Slide 4 from
2 Spencer's 8A; TEP-19, Slide 5 from Spencer's 8A; and
3 Slide 20 (sic) from Spencer's 8A.

4 CHMN. CHENAL: Okay. Any objection?

5 (No response.)

6 CHMN. CHENAL: So TEP-18, TEP-19, and TEP-20 are
7 admitted.

8 (Exhibits TEP-18, TEP-19, and TEP-20 were
9 admitted into evidence.)

10 MR. DERSTINE: Thank you.

11 So this is the end of the applicant's
12 presentation of its case in chief. However, I think it
13 is an appropriate time for a break, and I have got a bit
14 of follow-up with Mr. Beck just to address a few items
15 on redirect. And then I think, Mr. Chenal, you and
16 members of the Committee can decide how you want to
17 proceed with the time that's left today for a short
18 closing statement and then deliberations over a CEC, if
19 the preference is to move forward and try to finish up
20 today or to defer what is remaining until tomorrow.

21 CHMN. CHENAL: All right. We have had the
22 discussion off the record. We are going to -- I don't
23 think there is enough time to finish this process today.
24 And I conferred with some of the members of the
25 Committee and I think there is a general agreement that,

1 given the time, it is almost 3:00, to finish by 5:00
2 would be an injustice. And I think we need to, you
3 know, take our time, deliberate on this project and not
4 feel rushed.

5 When we come back -- let's take -- we will
6 take -- let's take a -- when I'm finished we will take a
7 15-minute break, but I think there is additional
8 questioning of Mr. Beck. And I know at least one of our
9 members has some additional follow-up questions for
10 Mr. Spencer, and there may be some additional questions
11 that the Committee will have. And then we will go into,
12 let's say, a final argument or final statement
13 Mr. Derstine. And then I think we should have -- then
14 we can close the case and then we can start the process
15 of deliberations and have a discussion about how we are
16 going to do that.

17 But like I said, I don't think there is any way
18 we could or should try to finish this afternoon. We
19 will assume we are going to finish it tomorrow.

20 MR. DERSTINE: I understand. Thank you.

21 CHMN. CHENAL: I have ten -- let's get the time
22 correct. It is 2:50. Let's come back at 3:10. That
23 will give us 20 minutes and give you time to get ready
24 with your witnesses when we come back. Thank you.

25 MR. DERSTINE: Thank you.

1 (A recess ensued from 2:50 p.m. to 3:19 p.m.)

2 CHMN. CHENAL: All right. Thank you, everyone.
3 Let's resume the afternoon portion of the hearing.

4 Mr. Derstine.

5 MR. DERSTINE: Thank you, Mr. Chairman, members
6 of the Committee. Good afternoon.

7 What I would like to do is to do a bit of
8 redirect and cover some topics that Mr. Beck addressed
9 in his testimony yesterday, and then I understand
10 members of the Committee may have additional questions
11 of anyone on the panel. And we will open them up to any
12 questions on any topic relevant to the application.

13

14 REDIRECT EXAMINATION

15 BY MR. DERSTINE:

16 Q. But Mr. Beck, let me start with, you know, I
17 went back and covered some ground with Mr. Spencer this
18 morning that he had covered yesterday, and one of the
19 things I wanted to circle back with you on was the
20 Sierra Club comments with regard to battery storage
21 being a viable alternative to the RICE units and the
22 Sierra Club's position that this was or is a First Solar
23 project that shows batteries can be used for the same
24 types of things that we say, or that TEP says it needs
25 the RICE units for.

1 And let me just read it. And this is from the
2 Sierra Club's comments. It is TEP-15. It says: A
3 First Solar project in Tempe, Arizona demonstrated that
4 utility scale solar plans can provide the same grid
5 balancing reliability services that have been
6 historically provided by fast ramping gas plants.

7 You are familiar with that statement?

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

9 Q. Okay. Can you start by addressing whether or
10 not the project that's being referred to in that
11 sentence that I just read dealt with any of the must-run
12 or RMR needs that the RICE unit has to provide to Tucson
13 Electric Power?

14 A. (BY MR. BECK) Yes, I can. To clarify or be
15 very clear, the project referenced is a solar plant that
16 sits in California. It was being controlled by a
17 control room out of Tempe that First Solar had in place.
18 So it truly was not an Arizona plant. I am not sure,
19 First Solar may have an office in Tempe, but they
20 definitely have their control room there.

21 The project utilized or started with some work
22 at the level of 20 megawatts that was done in Texas and
23 Puerto Rico. They mentioned that. So there was some
24 very preliminary work done to look at what PV plants,
25 how they can be tweaked to provide some of the ancillary

1 services that are required in a system.

2 Q. And can I stop you there. When you say
3 ancillary services, what do you mean?

4 A. (BY MR. BECK) Automatic generation control,
5 frequency response, and reactive power capabilities.

6 Q. Okay.

7 A. (BY MR. BECK) Those are the three that they
8 were identifying.

9 The PV plant that they were utilizing is a
10 300 megawatt plant. And for their studies, they
11 curtailed the output of the plant, both 20 megawatts and
12 40 megawatts, they did two different steps, and they
13 demonstrated that some of the ancillary services could
14 be provided by that plant.

15 The issue of the RMR or minimum generation
16 wasn't a consideration in their process. They were
17 looking at ancillaries provided by a generating unit
18 that's on line. And we haven't had, or in any of our
19 discussion we haven't raised issues that, if the
20 renewables are operating and the sun is out, that there
21 is any problem with those plants.

22 So to curtail those units 20 or 40 megawatts to
23 have them ready to provide some of these services, the
24 big issue that needs to be dealt with, and hasn't yet,
25 is the economic and contractual incentives that will

1 maximize the production and not hold back production to
2 provide reliability services. That's a quote right out
3 of their report.

4 They also indicate that, in their studies, that
5 to make the availability of those services from PV
6 facilities work, extensive communications must be put
7 into place. The majority of the plants to date do not
8 have those communication facilities. They typically
9 have one-way communication to get some information to
10 either their control room or to the utility, and they
11 just turn their units off and on. They don't have the
12 bidirectional bandwidth that is really required to
13 really control some of the technical pieces that would
14 be required.

15 Q. Let me stop you there. So my question was a
16 poorly worded question, in that the First Solar plant
17 was not a battery related issue, it was a solar plant
18 that was being used and is touted by the Sierra Club as
19 being able to provide the kind of generation to deal
20 with some of the ancillary services and some of the
21 intermittency that we see on the system, is that right?

22 A. (BY MR. BECK) That is correct. And so
23 interhour, some of the variability to a degree can be
24 done if you have all of the right controls in place, all
25 of the right communication systems, and you have all of

1 the tariff and other mechanisms that are required to
2 make that work. And what the First Solar report
3 identified is that tariff changes are necessary to
4 remove barriers and allow these variable resources to
5 provide reliability services.

6 Now, that report came out at the end of 2016; it
7 was, I believe, issued in December of 2016. Here we are
8 in January of 2018. You haven't seen or heard where
9 this has been widespread, put into place in California.
10 California has the biggest issue with the variability,
11 and they are not out in front with new tariffs and
12 driving this use of resources. So to think that that
13 could be available in the near term is not likely. The
14 tariff type issues and those changes in business
15 protocols take a lot of time to develop.

16 Q. And what is the tariff issue that you are
17 referring to?

18 CHMN. CHENAL: Member Woodall. Excuse me.

19 MEMBER WOODALL: Mr. Derstine is going right for
20 it. I was going to ask what role, if any, does FERC
21 play in any of this, but he is going right at it. So
22 thank you.

23 MR. BECK: I believe in California some of the
24 tariff issues would be dealt with directly with the
25 California ISO, which theoretically would be more

1 straightforward than those who would have to go to FERC.
2 Others who are FERC jurisdictional only and don't have
3 the cover with an ISO would be dealing directly with
4 FERC on the issue. FERC and NERC have issued various
5 requests for study and input on some of these factors,
6 but none of that has been resolved in either the FERC or
7 NERC level either.

8 So I think just from a timing standpoint, to
9 think that you could have responsiveness from the solar
10 facilities in a timely fashion that could displace our
11 need for the RICE engines would be misplaced.

12 BY MR. DERSTINE:

13 Q. And what I hear you saying is what the First
14 Solar, and I will call it a pilot study, shows is that
15 solar plant, solar facility, may at some point in time
16 in the future, once it resolves some of these tariff and
17 related issues, could be used for intermittency, but it
18 is not a generation resource that we can, TEP can use
19 today to satisfy the need in the near term, in the next
20 2020, 2021 to deal with the intermittency and the
21 balancing issues that it is going to face, that it faces
22 now, and will be greater problems in the near future.

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

24 Q. Okay. And I guess the other follow-on question,
25 not only what we have talked about, is the need for

1 flexible generation that has significant ramping
2 capabilities. Did that study deal with the ramp issue
3 and addressing the ramp?

4 A. No. So it really didn't deal with the RMR
5 minimum generation issue. It also didn't directly deal
6 with the need for the large ramping at the beginning and
7 end of the day.

8 And there is a lot of use of the term ramping
9 within their report. But if you look at it, it was
10 ramping of their specific unit and how fast or slow
11 their units responded to some of the very -- the
12 ancillary service provision issues, not so much the
13 variability of the output itself, but when they were
14 called upon by the ISO to provide a service, how fast
15 did that ramp up.

16 And so it was definitely a technical study of a
17 300 megawatt plant that they specifically designed for
18 provision of ancillary services. They created a
19 specific special control system for that plant just for
20 the purpose of demonstrating this capability. And long
21 term I think there is a lot of potential in there. But
22 it is going to take a long time to get that out and
23 actually implement it in the market. And it is not just
24 the technical piece. It is the business piece as well
25 as the political piece of the tariff and other

1 restrictions that need to be dealt with.

2 Q. Another point that was raised and I think that
3 you addressed, but I would like you to circle back to
4 it, is this, that with the battery storage issue, in the
5 Sierra Club's comments they note that just last week an
6 energy solicitation in Colorado yielded bids for solar
7 plus storage projects that were far lower than the
8 average bid of \$36 per megawatt, 20 percent lower than
9 TEP's contract. And I assume when it is talking about
10 TEP's contract, it is referring to the recent contract
11 that TEP entered into with Next Era for a solar plus
12 battery storage project, is that right?

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

14 Q. Okay. Is there something you would like to add
15 or return to that subject on?

16 A. (BY MR. BECK) Yes. I probably was a bit
17 flippant yesterday in a comment that I made that the
18 devil is in the details. It, truly it is in the
19 details. But one of the things I didn't mention -- TEP
20 did enter our PPA with Next Era for a combination solar
21 plus battery storage. We have talked about it. It is
22 going to be 30 megawatts with a four-hour run time.
23 What I didn't mention and some of the big issues are the
24 reason those prices are looking so good is because of
25 the tax credit situation that these third-party

1 developers have.

2 As a utility, TEP cannot take advantage of those
3 tax incentives. I am not sure the specific reason why,
4 but they are not available to a utility. So it is only
5 the third-party developers that get those tax credits.

6 Those tax credits work to buy down the price of
7 the storage, which is great. But also within those
8 contracts there is a restriction on who can charge and
9 how you can charge the batteries. The batteries
10 specifically must be charged by the solar facility that
11 they are supporting.

12 So we talked about in an ideal situation we
13 could have battery storage where, for example, TEP could
14 take our cheapest resource at the best time of the day
15 and charge the battery up, and then use it when it had
16 the most value.

17 With the PPA we have with Next Era -- and it is
18 a result of some of the tax rules -- we are restricted
19 on how we can dispatch the batteries. We have quite a
20 bit of call on the batteries and we have quite a bit of
21 control. But ultimately, the charging of the batteries
22 can only be done by those solar facilities. So if we
23 use the battery and they need to be recharged, you can
24 only recharge them during the day. And, therefore,
25 during the time they are charging, the energy being used

1 to recharge it was not available to us as a resource.
2 So that's where looking at just the on-the-face-of-it
3 price doesn't tell you the whole story.

4 Q. And based on your analysis of, well, the recent
5 contract that TEP entered into with Next Era, as well as
6 your understanding of the types of battery storage
7 options that were available and were analyzed in the
8 decision to select the RICE units as the best generation
9 resource at this point in time, is there a cost
10 competitive battery storage option available to TEP?

11 A. (BY MR. BECK) Not at this time. Now, there are
12 things we got that were from third parties. So I think
13 they even had some of the benefits of tax credits in
14 them. And the specific details of how much call and
15 control we had over those I can't speak to right now.
16 But even with them showing some tax credit benefit, they
17 were still double the cost of the RICE units. And
18 that's why we ended up with the place we did.

19 CHMN. CHENAL: Member Haenichen.

20 MEMBER HAENICHEN: On the topic of tax credits,
21 it is all well and good that entities and governments
22 use them to promote some new technology, but in terms of
23 long-term usage of, let's say, a renewable resource, it
24 is folly to think of tax credits at all, because if you
25 have to subsidize something all the time, it is not

1 necessarily a good thing.

2 But that's not the question I want to bring up.
3 But why don't I let you finish this.

4 CHMN. CHENAL: Member Haenichen.

5 MEMBER HAENICHEN: Go ahead and finish.

6 MR. DERSTINE: Member Haenichen, I had no
7 further questions for Mr. Beck. You are free to
8 proceed.

9 MEMBER HAENICHEN: This question is for either
10 Mr. Beck or Mr. Spencer. You will recall the discussion
11 we had yesterday about comparing the efficiency of the
12 RICE units compared to other ways of doing things. Here
13 is the question that just occurred. The reason I didn't
14 bring it up yesterday is I didn't think of it, that
15 occurred to me last night. And it is this. What is the
16 parasitic energy loss or usage associated with the, I am
17 sure, rather large fans you have on the semi-passive way
18 of rejecting heat from the RICE units? How much?

19 MR. SPENCER: In the detailed evaluation of the
20 bids that we received from the two different vendors
21 that supply the 20-megawatt class of recipis, one of the
22 considerations is exactly what you are talking about.
23 And we want to guarantee on net output rather than gross
24 output, because that's what really goes to the grid.

25 And so when we evaluated those in this

1 particular application, the RICE parasitic load, the
2 fans that are driving the radiators, that they are all
3 part of the integral part of the radiators that cool the
4 water back down, are 90 percent of the parasitic load.
5 So they are the lion's share of the load.

6 MEMBER HAENICHEN: I understand.

7 MR. SPENCER: And the largest amount of the two
8 vendors guaranteed that their total consumption would be
9 in the range of 300 kilowatts. So it is an 18.2
10 guaranteed net output at 105 degrees Fahrenheit. And
11 that means that at that 105 degrees the fans are using
12 about 300 kilowatts, or .3 megawatts.

13 MEMBER HAENICHEN: Okay. That gets to the point
14 I was driving at, because we had a discussion about heat
15 rates yesterday, and I was wondering whether or not that
16 loss or usage of energy that you can't use for selling
17 to customers was taken into account, yes or no.

18 MR. SPENCER: Yes.

19 MEMBER HAENICHEN: Okay. However, that would
20 vary depending on ambient temperature outside, is that
21 not correct?

22 MR. SPENCER: It is. But one of the attractive
23 features of the recip technology versus an
24 aeroderivative gas turbine or a frame gas turbine is
25 that without inlet cooling on the ambient air that's

1 used on the combustion process on either technology, you
2 get almost a flat characteristic on the reciprocals up until
3 105 degrees F. After 105 degrees F, then it begins to
4 trail off.

5 Gas turbines, the effect of ambient temperature
6 begins to kick in in the 90 degrees F range. And so if
7 you don't chill the air and keep it at a level that it
8 will not impact the output, which is a significant
9 parasitic load as the ambient temperature gets higher to
10 chill that air so that it is available in the
11 compression section of the gas turbine --

12 MEMBER HAENICHEN: Yeah, I understand that.
13 Well, then let me see if I understand the argument you
14 just made. When you were quoting the heat rates of
15 these units, was that at 105 degrees?

16 MR. SPENCER: That is correct.

17 MEMBER HAENICHEN: Thank you.

18 CHMN. CHENAL: Member Woodall.

19 MEMBER WOODALL: If somebody could just give a
20 brief definition of what parasitic load is for clarity
21 of our record.

22 MR. SPENCER: Parasitic load is the consumption
23 of energy by any of the technologies that we have talked
24 to that is necessary to allow you to be able to produce
25 electrical energy.

1 For example, in typical steam technology that
2 you saw yesterday, for Unit 4, which has the highest
3 stack, it has a net output of 155 megawatts. So that's
4 the energy that actually goes to the customer. There is
5 a consumption of nine megawatts in pumps and other fans
6 that are used in the driving of all the processes to
7 allow you to be able to achieve that net output of 155.

8 MEMBER WOODALL: Thank you, sir.

9 CHMN. CHENAL: Member Haenichen.

10 MEMBER HAENICHEN: I had one more question, on a
11 different topic this time.

12 A moment ago Mr. Beck was talking about the
13 solar plant and recharging the batteries, and that that
14 took away from selling that energy to customers. But is
15 it not true that a solar plant overproduces for a couple
16 of hours during the mid time of the day, and wouldn't
17 you just charge the batteries at that time when you have
18 to deal with disposing of that energy anyway?

19 MR. BECK: It is true that one of the issues is
20 we are looking at the overproduction in the middle of
21 the day for the most part. And that's the ideal
22 situation if we were in control of both the plant as
23 well as the storage. But the storage decisions are made
24 by the provider, the purchased power agreement, so we
25 have less control over that. So they may choose to not

1 do it at the most optimum time for us.

2 MEMBER HAENICHEN: But that could be changed,
3 correct?

4 MR. BECK: Potentially, yes.

5 MEMBER HAENICHEN: Okay, thank you.

6 CHMN. CHENAL: Just one follow-up question back
7 to the parasitic energy. That does not cover line
8 losses and transmission, does it?

9 MR. BECK: No, it does not. It would just be
10 plant specific.

11 CHMN. CHENAL: Okay. Thank you.

12 Well, for the moment the Committee doesn't have
13 any questions, Mr. Derstine, but that could change
14 quickly.

15 MR. DERSTINE: I understand.

16 CHMN. CHENAL: That could fluctuate.

17 MEMBER HAENICHEN: It is intermittent.

18 MR. DERSTINE: That's right.

19 MEMBER HAENICHEN: Like renewables.

20 CHMN. CHENAL: So --

21 MR. DERSTINE: Well, with my redirect of
22 Mr. Beck, that would conclude our case and our
23 presentation to you on both projects, the RICE project
24 and the transmission relocation project. I am prepared,
25 once I grab a clicker, to do a short closing statement,

1 closing argument. And --

2 Go ahead.

3 CHMN. CHENAL: Okay. Member Haenichen.

4 MEMBER HAENICHEN: I will make a little closing
5 statement first.

6 MR. DERSTINE: Please.

7 MEMBER HAENICHEN: A lot of these things that we
8 have talked about over the last few days can be
9 ameliorated as time goes on based on the way we do
10 things and that sort of thing. So we shouldn't in these
11 cases be hasty to be influenced too much by something
12 that obviously could be corrected.

13 And so I urge the applicant, should this project
14 be approved by the Committee, to keep that in mind and
15 keep looking at other ways of handling situations like
16 we talked about, like the one we just said with
17 Mr. Beck. That sounds like something that might be
18 complicated to do because there is special interests
19 involved. But nevertheless, eventually the right to do
20 it will prevail. And that includes storage, too. Even
21 though right now there is no obvious path to a viable or
22 economically viable way to do it, I personally believe
23 that eventually that will take the place of the RICE
24 engines, that sort of thing. But it might be 30 years
25 from now. So please keep that firmly in mind.

1 Thank you.

2 MR. DERSTINE: Appreciate it.

3 CHMN. CHENAL: Are there any further questions
4 from the Committee before we allow Mr. Derstine to
5 provide some final comments before we close the
6 evidentiary portion of this hearing and begin
7 deliberations?

8 (No response.)

9 CHMN. CHENAL: Before we do that, I have two
10 exhibits that I would like to introduce: Chairman's
11 Exhibit 1, which is the draft CEC for the RICE project,
12 which includes some language for discussion -- I
13 provided it to the applicant; it has been e-mailed to
14 the applicant and it has been provided to the
15 Committee -- and then Chairman's Exhibit No. 2, which is
16 the CEC with the same language for discussion relating
17 to the transmission line project.

18 So without objection, I will admit Chairman's
19 Exhibit 1 and 2. And I believe we will be, you know,
20 discussing or referring to these exhibits as we go
21 through the deliberation process and consider the
22 language of the CEC.

23 (Exhibits Chairman-1 and Chairman-2 were
24 admitted into evidence.)

25 CHMN. CHENAL: So Colette, I will provide these

1 to you in just a moment.

2 Mr. Derstine.

3 MR. DERSTINE: Thank you.

4 I want to start by saying thank you. I think a
5 number of the members have mentioned today that it is
6 unfortunate that more members of the public are not here
7 to see the good work of this Committee. And I want to
8 thank Mr. Chairman and all the Committee members
9 because, you know, I am impressed and they would be
10 impressed by the seriousness in which you take your
11 work, the intelligence of the members of this Committee
12 who come from a range of background and experience.

13 And I think that this process, if anyone looks
14 at this transcript or the other transcripts from this
15 Committee will see that this process works. And it
16 works because of this Committee and the hard work that
17 you do and the seriousness in which you take it. So I
18 appreciate it, and the applicant appreciates it. So
19 thank you.

20 I also want to thank Colette, our court
21 reporter, for carrying her equipment on the road and out
22 onto plant sites and wherever we may go, and continuing
23 to be able to provide us with a transcript that will
24 ultimately make its way to the Commission and that the
25 Commissioners can read and evaluate. It is important to

1 have a clear record of this proceeding, and we get one
2 every time. So thank you for that.

3 And I want to thank Ms. Darling for setting up
4 and being the host and arranging all of our
5 accommodations here, and the food. I am not sure it was
6 good for my heart, but my stomach liked it, so I
7 appreciate that as well.

8 You know, I started the case in my opening
9 comments as this is a case about reliability, and I
10 think you understand that it is. It is about how Tucson
11 Electric Power can continue to provide safe and reliable
12 and economic power, electricity to its customers as it
13 incorporates more and more renewables on its system and
14 works to achieve its goal of 30 percent renewables by
15 2030.

16 Obviously the members of the public, the folks
17 you heard at public comment, they have encouraged Tucson
18 Electric Power to take climate change seriously, to use
19 the sun and the renewable resources that are out there
20 and available. And I think the company has done that.
21 And the goal of 30 percent renewables is a high goal and
22 it goes beyond what is required, but they are serious
23 about getting there.

24 But to get there, they need a bridge. And I
25 thought the term was apt and it is accurate. To your

1 point, Member Haenichen, you know, we have looked at the
2 slides on intermittency and the variability and the need
3 for flexible generation. But it certainly wasn't -- I
4 think the testimony shows it wasn't a knee-jerk reaction
5 to just go out and buy these reciprocating engines.
6 There was a significant amount of study work and
7 analysis of all the various generation options. And the
8 RICE units came out of that process as the right
9 resource for today, for this time, to get the company to
10 be able to continue to adopt more wind, adopt more
11 solar, to purchase more battery storage on its system as
12 it is doing and as was recently reported.

13 But it needs to be able to have the must-run
14 generation in the load pocket, and it needs something
15 that's fast start and has the ramping capabilities and
16 will get us to not only 2020, 2021, 2024, and the slides
17 that we saw that had the wide variations and the
18 intermittency and the frequency response that will only
19 get greater, and for this company to continue to provide
20 electricity to its customers, and also work to
21 incorporate more and more renewables on its system, it
22 needs this resource. It can't wait 20 years or 10 years
23 for battery storage to become an economical viable
24 option. And it can't wait the 10 years or the 20 years
25 for a solar plant to become a viable option to fill this

1 need. And so that's the purpose and need for this
2 generation project that we have covered in our
3 application and that we are asking you to issue a CEC
4 for.

5 The other piece of it that we certainly didn't
6 spend as much time on is the transmission project. And
7 the need for that is to relocate the substation to
8 provide a more robust substation to support the RICE
9 project and to support TEP's overall system.

10 So, you know, there is language in the CEC that
11 you provide, or that you issue, if you decide to issue a
12 CEC, that says you have taken into account the request
13 for the facilities and these facilities will support the
14 need for safe and reliable and economic power in the
15 State of Arizona. I think both of these projects do
16 that.

17 And there is also language in your CEC and every
18 CEC that you have made a record that, on balance, the
19 need for these projects outweighs the impact on the
20 environment, and that you have taken and made a record
21 and ensured that the applicant has done everything in
22 its power to minimize the impact on the environment.

23 And I think the record you have before you shows
24 that that, in fact, is the case. Both of these projects
25 are going to be built on land owned by TEP, an existing

1 industrial site, and, in fact, not only will the impact
2 be low, but there will be significant improvement to the
3 environment from the RICE project.

4 You heard Mr. Spencer testify, and you have the
5 evidence before you in the exhibits, there is a
6 reduction in NOx emission by taking Units 1 and 2 of the
7 steam generators off line. It would be ironic for the
8 Sierra Club to be able to halt the installation of the
9 RICE units and force TEP to continue to run Units 1 and
10 2 as well as the other, and then to run Unit 3 and 4,
11 rather than as peakers, but to continue to run them as
12 they do today and to continue to have those much higher
13 levels of NOx emissions. The installation of these RICE
14 units will allow the company to reduce NOx emissions
15 within the City of Tucson dramatically.

16 Further, the testimony shows that the
17 installation of the RICE units allows TEP to reduce its
18 use of groundwater, always a good thing for cities like
19 ours in the desert.

20 So on this record before you I think your
21 questions have made it a good record and a sound record.
22 But I think at the end of the day, this record
23 establishes beyond any burden of proof or question of
24 doubt that these projects merit a CEC to be issued by
25 this Committee.

1 And I again thank you for your time.

2 CHMN. CHENAL: All right. Thank you very much,
3 Mr. Derstine.

4 Any questions or comments by the Committee?

5 (No response.)

6 CHMN. CHENAL: I don't know how long we have
7 been at it. Let's just take a five-minute break. We
8 will allow the applicant to get the screen set up for
9 the reviews of the CECs, and when we come back in five
10 minutes we will start the deliberations.

11 MR. DERSTINE: Thank you.

12 (A recess ensued from 3:53 p.m. to 4:11 p.m.)

13 CHMN. CHENAL: All right. Thank you, everyone.
14 Back on the record. We are going to begin -- let me ask
15 the applicant.

16 Is there any further evidence, testimony,
17 anything further the applicant wants to add, or are we
18 going to close the hearing at this point?

19 MR. DERSTINE: We are prepared to close the
20 hearing.

21 CHMN. CHENAL: Okay. So the evidentiary portion
22 of the hearing is now closed and we will begin
23 deliberations.

24 So here is how we are going to start the
25 deliberations. We are going to have on the screen on

1 the left what we have referred to as Chairman's Exhibit
2 No. 1, which is the CEC draft relating to the RICE
3 units. And then on the -- excuse me. On the left
4 screen will be Chairman's Exhibit 1 relating to the RICE
5 units. And on the right screen will be Chairman's
6 Exhibit 2 relating on the transmission lines. And so
7 through the course of the deliberations, as we are going
8 through these two CECs, let's just refer to Exhibit 1
9 and Exhibit 2 so we will keep the record clear.

10 These two exhibits include language that I
11 inserted via tracked changes based on the initial drafts
12 presented by the applicant. As we go through it, I am
13 not suggesting that all this language is appropriate,
14 you know, to this case. But I think we should at least
15 discuss it as we go through and see where we end up.
16 And we will go through, we will try to attempt to do two
17 at the same time. If that becomes a little too
18 cumbersome, we will immediately just review one and then
19 go to the other.

20 At the end of the deliberations, we will vote on
21 a roll call vote. And what we end up with based upon
22 the changes that we make as we go through this process
23 will become the final two exhibits for the applicant.
24 The one representing the RICE units will be, I believe
25 we are up to 20, so it would be TEP Exhibit 21. And

1 then the other draft with the changes as we have
2 approved it as we have gone along will be TEP-22. And I
3 would like to do it that way so that when someone
4 reviews the record later it will be clear, you know,
5 what we are referring to, what we are working off of,
6 and then what we end up with. So I think the record
7 will be clear that way.

8 We will use our standard procedure. We will go
9 through language in each, in the CEC, and we will
10 approve it as to form as we go through it, and then we
11 will have the final up or down roll call vote to approve
12 in final, the same procedure we have used in previous
13 cases.

14 So let's start with Exhibit 1. And again, when
15 I refer to Exhibit 1, I will be referring to what is on
16 the left screen. And when I say Exhibit 2, I will refer
17 to the right screen.

18 Let's look at Exhibit 1 and look at the caption,
19 and just make sure that the caption is appropriate, if
20 there are any changes we want to consider.

21 Will someone make a motion to approve the
22 caption and Exhibit 1?

23 MEMBER PALMER: So moved.

24 MEMBER HAENICHEN: So moved.

25 CHMN. CHENAL: We have a motion and a second

1 for Exhibit 1.

2 All in favor say aye.

3 (A chorus of ayes.)

4 MEMBER WOODALL: Pass.

5 CHMN. CHENAL: May we have a motion and a second
6 for the caption in Exhibit 2.

7 MEMBER JONES: I move.

8 CHMN. CHENAL: We have a motion. Can we have a
9 second. Somebody?

10 MEMBER PALMER: Second.

11 CHMN. CHENAL: We have a motion and a second.

12 All in favor for the caption in Exhibit 2 say
13 aye.

14 (A chorus of ayes.)

15 MEMBER WOODALL: Pass.

16 CHMN. CHENAL: So let's scroll down, Patrick, to
17 the rest of the first paragraph on the two exhibits.
18 And I would like all of us to read the language in
19 Exhibit 1 and Exhibit 2.

20 MR. DERSTINE: Mr. Chairman.

21 CHMN. CHENAL: Yes.

22 MR. DERSTINE: Mr. Jerden is our grammar and
23 punctuation monitor, and he has indicated that we need a
24 dash between the words above and captioned on the last
25 line of the introduction right before case.

1 CHMN. CHENAL: Okay. So on line 20, on page 1
2 of Exhibits 1 and 2.

3 MR. DERSTINE: Correct.

4 CHMN. CHENAL: All right. So may I have a
5 motion for approval of the language on lines 15 through
6 20 of Exhibit 1.

7 MEMBER JONES: So moved.

8 MEMBER WOODALL: Mr. Chairman, I would move that
9 the Committee authorize the Chairman to make technical
10 conforming language changes throughout the document, and
11 that we not feel it necessary to vote individually on
12 those. And I don't know if anyone wants to second that
13 or not.

14 MEMBER JONES: I will second that.

15 CHMN. CHENAL: Okay. We have a motion and
16 second.

17 Any further discussion?

18 (No response.)

19 CHMN. CHENAL: All in favor say aye.

20 (A chorus of ayes.)

21 CHMN. CHENAL: Okay. So in spite of that, let's
22 make sure that we are clear on the changes. So for
23 lines 15 through 20 on page 1 of Exhibit 1, may we have
24 a motion.

25 MEMBER JONES: I move.

1 CHMN. CHENAL: May we have a second.

2 MEMBER PALMER: Second.

3 MEMBER HAENICHEN: Second.

4 CHMN. CHENAL: Okay. Is there any further
5 discussion?

6 (No response.)

7 CHMN. CHENAL: All in favor say aye.

8 (A chorus of ayes.)

9 MEMBER WOODALL: Pass.

10 CHMN. CHENAL: Okay. Let's look at lines 15
11 through 20 on page 1 of Exhibit 2. May I have a motion
12 for approval of that language.

13 MEMBER JONES: So move.

14 CHMN. CHENAL: A second.

15 MEMBER PALMER: Second.

16 CHMN. CHENAL: Any further discussion?

17 (No response.)

18 CHMN. CHENAL: All in favor say aye.

19 (A chorus of ayes.)

20 CHMN. CHENAL: Okay. Let's scroll down to
21 page 2, and we will look at lines 1 through 14.

22 MEMBER JONES: I move to approve.

23 CHMN. CHENAL: All right. Well, let's read
24 them. And let me ask for the motion.

25 All right. So on Exhibit 1, lines 1 through 14

1 on page 2, may I have a motion to approve the language.

2 MEMBER PALMER: Mr. Chairman --

3 MEMBER JONES: Move.

4 MEMBER PALMER: -- a question.

5 CHMN. CHENAL: Yes.

6 MEMBER PALMER: This shows me representing the
7 general public, and to my recollection I represent
8 agriculture.

9 MEMBER VILLEGAS: Mr. Chairman, it shows me as
10 general public and it should be counties.

11 CHMN. CHENAL: Yes. Let's make those changes.
12 That's why we go through these slowly and carefully.

13 So Member Villegas is representing counties.
14 And Member Palmer on line 12 representing -- let me pull
15 the statute and look at how that language is in the
16 statute.

17 I think we could -- the statute says, which is
18 A.R.S. Section 40-360.01(b)(6), says six members
19 appointed by the Commission to serve for a term of two
20 years, of which three members shall represent the
21 public, one member shall represent incorporated cities
22 and towns, one member shall represent counties, and one
23 member shall be actively engaged in agriculture.

24 So I think we could get away with saying
25 representing agriculture, but I will ask the applicant

1 if they concur with that, as well as the Committee.

2 MR. DERSTINE: The applicant would concur as
3 long as Member Palmer concurs.

4 MEMBER PALMER: I do.

5 CHMN. CHENAL: I mean it would either be that or
6 saying appointed member actively engaged in agriculture,
7 and I think that's a little awkward. So I think
8 agriculture works. So we would make those changes.

9 So any further changes for discussion?

10 (No response.)

11 CHMN. CHENAL: So with respect to Exhibit 1,
12 lines 1 through 14 on page 2 of Exhibit 1, may I have a
13 motion for approval of the language. I think we already
14 have Member Jones moved with the changes reflected.

15 MEMBER JONES: Uh-huh.

16 CHMN. CHENAL: Yes?

17 MEMBER JONES: Yes.

18 CHMN. CHENAL: And Member Palmer?

19 MEMBER PALMER: Second it.

20 CHMN. CHENAL: We have a motion and second.

21 Any further discussion?

22 (No response.)

23 CHMN. CHENAL: All in favor say aye.

24 (A chorus of ayes.)

25 CHMN. CHENAL: And let's then look at Exhibit 2,

1 lines 1 through 14 on page 2. With the changes
2 reflected on the screen, may we have a motion for
3 approval.

4 MEMBER HAENICHEN: So moved.

5 CHMN. CHENAL: We have a motion. May I have a
6 second.

7 MEMBER VILLEGAS: Second.

8 CHMN. CHENAL: Let's talk loudly into the
9 microphone. A motion and a second.

10 Any further discussion?

11 (No response.)

12 CHMN. CHENAL: All in favor say aye.

13 (A chorus of ayes.)

14 CHMN. CHENAL: Okay. Let's scroll down,
15 Patrick. Let's just take the rest of page 2 on each
16 exhibit.

17 All right. I think we need to talk about the
18 language starting with line 16. It says the following
19 parties were granted intervention and the rest of that,
20 and I think we can delete that because there were no
21 intervenors in this case. So I would suggest we strike
22 the sentence on lines 16. And intervenor is also
23 underlined in paragraph 19, and strike that.

24 MR. DERSTINE: Mr. Chairman.

25 CHMN. CHENAL: Yes.

1 MR. DERSTINE: If we can also make one
2 correction to line 15 in this draft, we would like to
3 include after Snell & Wilmer, Marcus Jerden, insert the
4 word Marcus Jerden before the word and, and then insert
5 the word of before TEP on line 16.

6 CHMN. CHENAL: Sure. And let's make them for
7 both.

8 I am looking at the statutes because I want to
9 add some additional language in line 20.

10 I will ask the Committee if they agree. We have
11 the statement in writing that was offered by the Sierra
12 Club, which is allowed by statute. It says a party, a
13 person may make a limited appearance in the proceeding
14 by filing a statement in writing, and I am not sure that
15 is captured in the litany there. It is evidence,
16 testimony, and exhibits. I am not sure, you know,
17 limited statement in writing authorized by statute is
18 any one of those. And it wasn't offered by the
19 applicant. It says comments of the public. Maybe it
20 would apply, but maybe we would add after public, comma,
21 statements in writing as authorized by statute.

22 MEMBER WOODALL: Excuse me, Mr. Chairman, but
23 wasn't the Sierra Club letter identified as an exhibit?

24 CHMN. CHENAL: Well, actually it was.

25 MEMBER WOODALL: So...

1 CHMN. CHENAL: So maybe we will take that back.
2 Yeah, I think you are correct on that. It is an exhibit
3 in the record.

4 So all right. Any further discussion on the
5 language on Exhibit 1, lines 18 through 23?

6 Member Haenichen.

7 MEMBER HAENICHEN: Well, perhaps this is
8 nitpicking or a technicality, but if you read line 21,
9 upon motion duly made and seconded, voted blank to blank
10 to grant TEP. Well, what if we don't grant?

11 MR. DERSTINE: We will change it.

12 MEMBER WOODALL: I personally would consider
13 that to be a technical and conforming language change,
14 and if we deny it --

15 MEMBER HAENICHEN: I don't agree.

16 MEMBER WOODALL: That's just what I think, so...

17 MR. DERSTINE: We could leave it blank for the
18 time being.

19 MEMBER HAENICHEN: I think you should, because
20 it is like, oh, well, this is just perfunctory, we are
21 going to approve this.

22 MR. DERSTINE: It is very presumptive on our
23 part. I think there should be just a blank to blank
24 TEP.

25 CHMN. CHENAL: Yes. All right. And if we could

1 make those changes on both.

2 All right. With those changes we have
3 discussed, is there any further discussion with regard
4 to that, the language on lines 18 through 23 on page 2
5 of Exhibit 1?

6 (No response.)

7 CHMN. CHENAL: May I have a motion to approve as
8 to form.

9 MEMBER HAENICHEN: I move that we approve that
10 as modified.

11 CHMN. CHENAL: As modified. A second.

12 MEMBER RIGGINS: Second.

13 CHMN. CHENAL: We have a motion and second.
14 Any further discussion?

15 (No response.)

16 CHMN. CHENAL: Okay. All in favor say aye.

17 (A chorus of ayes.)

18 MEMBER WOODALL: Pass.

19 CHMN. CHENAL: Okay. Let's look at Exhibit --
20 before we go scrolling, let's stay with Exhibit No. 2 on
21 the right side of the screen. We have got to go through
22 this.

23 Okay. Lines 18 through 23 on page 2 of
24 Exhibit 2, may I have motion as to approval as to form
25 as modified.

1 MEMBER PALMER: So moved.

2 CHMN. CHENAL: Can I have a second.

3 MEMBER DRAGO: Second.

4 CHMN. CHENAL: Motion and a second.

5 Any further discussion?

6 MEMBER VILLEGAS: Mr. Chairman, question.

7 CHMN. CHENAL: Yes, Member Villegas.

8 MEMBER VILLEGAS: Are the parentheses needed on
9 the last wording, as described below?

10 CHMN. CHENAL: Excellent. Mr. Jerden, I am
11 surprised you didn't catch that. You got an award
12 sitting behind you and on Exhibit 1 there is no
13 parentheses around as described below, but in the second
14 one there is. So I think those should be removed.

15 MR. DERSTINE: Agreed.

16 MEMBER HAENICHEN: Good catch.

17 MR. DERSTINE: Yes.

18 CHMN. CHENAL: Mr. Jerden looks confused. I
19 don't think he sees the --

20 MR. JERDEN: Way over there.

21 CHMN. CHENAL: There and there. All right, very
22 good.

23 Well, with that excellent catch by Member
24 Villegas, with the language as modified on the screen,
25 may I have a motion to approve lines 18 through 23 on

1 page 2 of Exhibit 2.

2 MEMBER VILLEGAS: So moved.

3 CHMN. CHENAL: May I have a second.

4 MEMBER DRAGO: Second.

5 CHMN. CHENAL: We have a motion and a second.

6 Any further discussion?

7 (No response.)

8 CHMN. CHENAL: All in favor say aye.

9 (A chorus of ayes.)

10 MEMBER WOODALL: Pass.

11 CHMN. CHENAL: I think we will take it a
12 paragraph at a time then. So let's review the language
13 on page 3 of Exhibit 1, lines 1 through 8.

14 Member Woodall.

15 MEMBER WOODALL: Do we have an Exhibit A
16 somewhere?

17 MR. BECK: Not quite yet.

18 MEMBER WOODALL: So it will be provided?

19 MR. BECK: Yes.

20 MEMBER WOODALL: Okay, thanks.

21 CHMN. CHENAL: All right. As to Member
22 Woodall's point, I think it is a point we will need to
23 throw up on the screen what Exhibit A will look like
24 before we vote to approve anything.

25 So again, Exhibit 1 on page 3, lines 1

1 through 8, any further discussion?

2 (No response.)

3 CHMN. CHENAL: May I have a motion to approve
4 that language as to form.

5 MEMBER JONES: So moved.

6 CHMN. CHENAL: May I have a second.

7 MEMBER HAENICHEN: I will second.

8 CHMN. CHENAL: Okay. All in favor say aye.

9 (A chorus of ayes.)

10 CHMN. CHENAL: Let's look at similar language on
11 Exhibit 2, page 3, lines 1 through 6. And I will
12 anticipate Member Woodall's question. Again, there is
13 an Exhibit A reference there, which probably is going to
14 be a different -- well, will it be a different Exhibit A
15 than on the RICE CEC?

16 MR. BECK: Probably the same base map, but it
17 will show the RICE units specifically.

18 CHMN. CHENAL: So they will be different
19 attachments. So we will have to see those at some
20 point.

21 So any discussion regarding that language?

22 (No response.)

23 CHMN. CHENAL: So may I have a motion to approve
24 the language on Exhibit 1. We went through Exhibit 1.
25 We are on Exhibit 2, Exhibit 2, page 3, lines 1 through

1 6.

2 MEMBER VILLEGAS: So moved.

3 CHMN. CHENAL: May we have a second.

4 MEMBER RIGGINS: Second.

5 CHMN. CHENAL: A motion and second.

6 Any further discussion?

7 (No response.)

8 CHMN. CHENAL: All in favor say aye.

9 (A chorus of ayes.)

10 CHMN. CHENAL: Okay. Let's go to paragraph --

11 MEMBER PALMER: Mr. Chairman.

12 CHMN. CHENAL: Yes, Member Palmer.

13 MEMBER PALMER: Just a point of clarification,
14 and it may be straining at it. But on the first page in
15 the caption we refer to this as the reciprocating
16 internal combustion engine generating project. And then
17 when we get here it just refers to it as RICE.

18 We have spent two days, and we all understand
19 what RICE is. I am wondering somewhere if there should
20 be the term RICE either in the caption or the full name
21 spelled out just so that those who read this that
22 haven't had the advantage of sitting and listening to
23 testimony know what that means.

24 CHMN. CHENAL: I think, Member Palmer, at the
25 bottom of page 1 you will see --

1 MEMBER PALMER: Is it there?

2 MR. DERSTINE: Page 2.

3 CHMN. CHENAL: Page 2, sorry, excuse me, bottom
4 of page 2.

5 MEMBER PALMER: Okay, yeah.

6 CHMN. CHENAL: For construction of the
7 reciprocating internal combustion engine generation
8 project. So it is defined there.

9 MEMBER PALMER: Thank you.

10 CHMN. CHENAL: That's okay.

11 So we are on Exhibit 1, page 3, lines 9 through
12 15. Let's take a moment to read that.

13 Member Haenichen.

14 MEMBER HAENICHEN: On line -- wait a minute. I
15 have to find it now. Where is the substation? Oh,
16 yeah, there on line 8, we don't have an antecedent for a
17 substation so far. Don't we have to somewhere say part
18 of this project is --

19 CHMN. CHENAL: Member Haenichen, can you help us
20 find out where are you referring to?

21 MEMBER HAENICHEN: Yeah, at line 8, page 3 of
22 Exhibit 2.

23 CHMN. CHENAL: All right. So are we all looking
24 at the same thing? Okay.

25 MEMBER HAENICHEN: We call it the new Irvington

1 substation.

2 CHMN. CHENAL: Member Haenichen, you are looking
3 at Exhibit 2; we are looking at Exhibit 1. We are
4 not --

5 MEMBER HAENICHEN: Well, I am way ahead of you.

6 CHMN. CHENAL: You are way ahead.

7 MR. DERSTINE: You have always been.

8 CHMN. CHENAL: We didn't need to put that on the
9 record, Mr. Derstine. Some things are rather obvious
10 and they don't need to be pointed out so brusquely.

11 MEMBER HAENICHEN: My apologies to the Chairman
12 and the other participants in this hearing.

13 CHMN. CHENAL: Back to Exhibit 1 on the left
14 side of the screen, lines 9 through 15, this is on
15 Exhibit 1, page 3, lines 9 through 15.

16 Do we have any discussion regarding that
17 language?

18 (No response.)

19 CHMN. CHENAL: All right. May I have a motion
20 to approve the language on Exhibit 1, page 3, lines 9
21 through 15.

22 MEMBER PALMER: Motion to approve.

23 CHMN. CHENAL: May I have a second.

24 MEMBER DRAGO: Second.

25 CHMN. CHENAL: We have a motion and second.

1 Any further discussion?

2 MEMBER HAENICHEN: Yes.

3 CHMN. CHENAL: Yes, Member Haenichen.

4 MEMBER HAENICHEN: Part of our job here is to
5 see if the units have environmental compatibility.
6 Shouldn't maybe we have some language in that paragraph
7 that addresses that issue? I mean we have talked on and
8 off about all the great environmental advantages, but
9 this looks like you are approving without meeting that
10 criteria. I don't know.

11 CHMN. CHENAL: I will think out loud for a
12 moment. I believe there is some language, or certainly
13 some conditions or findings that make the statement.
14 But I don't know that there is language, to Member
15 Haenichen's point, it is probably in the findings, but I
16 don't know if there is any factual finding that will
17 support the -- conclusions of law I should say. There
18 is a conclusion of law that it meets the statutory
19 requirements, but I am not sure there is findings of
20 fact.

21 MEMBER HAENICHEN: May I make a suggestion?

22 MR. DERSTINE: There is a finding of fact in
23 paragraph number 3 on page 11 of Exhibit 1 that says:
24 The RICE project and the conditions placed on the RICE
25 project in the certificate effective ly minimize the

1 impact of the project on the environment and the ecology
2 of the state.

3 And we are certainly not opposed to inserting
4 some additional language here in the overview section if
5 that's appropriate.

6 CHMN. CHENAL: And Mr. Derstine, where were you
7 reading from again?

8 MR. DERSTINE: Under the findings of fact and
9 conclusions of law.

10 CHMN. CHENAL: What page and what paragraph?

11 MR. DERSTINE: It is the second to the last
12 page, page 11, of Chairman's Exhibit 1.

13 CHMN. CHENAL: Okay.

14 MR. DERSTINE: Numbered paragraph 3.

15 CHMN. CHENAL: Yeah. And I didn't have that in
16 front of me when I was going by memory. Yes, it is that
17 standard language that's there. But I am not sure if
18 the language in paragraphs leading up to that --

19 Member Haenichen, you had some suggestions.

20 MEMBER HAENICHEN: I might suggest this is very
21 simple to do. On line 9, say the purpose of the RICE
22 project is to provide TEP's system with environmentally
23 compatible, comma, new fast start, just put
24 environmentally compatible after with.

25 MEMBER JONES: Mr. Chairman, I guess --

1 CHMN. CHENAL: Okay. Just a reminder to the
2 members, we need to hear what you say. Bring the
3 microphones up when you --

4 MEMBER JONES: The microphone needed to be on.

5 MR. DERSTINE: Right.

6 CHMN. CHENAL: Oh.

7 MEMBER JONES: It helps.

8 CHMN. CHENAL: That would help.

9 MEMBER JONES: My comment is if we are going to
10 make that change in the location, should we consider a
11 comma after new, instead of new fast, new, comma, fast
12 start as opposed to used or old or --

13 MEMBER HAENICHEN: Well, you can take the word
14 new out completely.

15 MEMBER JONES: That would solve it as well.

16 MEMBER DRAGO: Mr. Chairman.

17 CHMN. CHENAL: We need the mikes on.

18 MEMBER DRAGO: I have a suggestion. Along with
19 Member Haenichen's comment, isn't the fast start, fast
20 ramping thermal resources, are they not enabled with
21 renewable resources to some degree? Could we say
22 something along that line? Because it is -- they are
23 part of it, the renewable part --

24 CHMN. CHENAL: Well, I mean --

25 MEMBER DRAGO: -- some of the environmental

1 leadership that they are doing.

2 MEMBER HAENICHEN: Well, it says it on line 11,
3 renewable, enhanced renewable energy --

4 MEMBER DRAGO: There you go.

5 MEMBER HAENICHEN: -- production. It is already
6 in there.

7 CHMN. CHENAL: Member Woodall.

8 MEMBER WOODALL: I disagree with the concept of
9 putting in under purpose environmentally compatible,
10 because typically purpose is the business determination
11 and the need for the utility. So I personally will not
12 be voting aye for this one.

13 CHMN. CHENAL: Well, we have some draft language
14 that we are looking at a change to include the words
15 environmentally compatible and striking the word new.
16 And we have had some comments on it. Is there further
17 discussion on that language with the changes noted?

18 (No response.)

19 CHMN. CHENAL: All right. I am going to ask for
20 a motion to approve on Exhibit 1, page 3, lines 9
21 through 15, the language with the changes reflected on
22 the screen.

23 MEMBER HAENICHEN: So moved.

24 MEMBER JONES: Second.

25 CHMN. CHENAL: We have a motion and second.

1 Any further discussion?

2 (No response.)

3 CHMN. CHENAL: All in favor say aye.

4 (A chorus of ayes.)

5 MEMBER WOODALL: Nay.

6 CHMN. CHENAL: All opposed.

7 MEMBER WOODALL: Oh, I am sorry.

8 CHMN. CHENAL: No. Nay, okay.

9 MEMBER WOODALL: That was me.

10 CHMN. CHENAL: The ayes have it. Very good.

11 Now, let's move to Exhibit 2, and I believe we
12 are looking at lines 7 through 11. Do we have the same
13 concept to apply the environmentally compatible concept
14 or language to apply to the language that we are looking
15 at on Exhibit 2?

16 MEMBER JONES: Mr. Chairman.

17 CHMN. CHENAL: Member Jones.

18 MEMBER JONES: Transmission, this may be --
19 that's just -- I do believe there is a difference in
20 purpose. And I believe transmission tends to be more
21 agnostic with regard to this. It is a -- structural and
22 engineering pretty much are the only considerations. It
23 is a support to the generating project. So I am
24 comfortable with the way it is.

25 CHMN. CHENAL: Well, let me just -- I mean we

1 are looking at the language of a document that's
2 entitled certificate of environmental compatibility with
3 respect to the transmission line. So I might suggest
4 that, even though they are transmission lines, that they
5 also need to be environmentally compatible. That's the
6 document.

7 Member Haenichen.

8 MEMBER HAENICHEN: There really is at least one
9 aspect of environmental compatibility, and that is
10 viewshed issues.

11 CHMN. CHENAL: Member Woodall.

12 MEMBER HAENICHEN: And we have talked about
13 that.

14 MEMBER WOODALL: I take the same position that I
15 did on the prior. I don't believe that's purpose. And
16 there is a conclusions or finding of fact that the
17 project is environmentally compatible with the
18 conditions that will be imposed. So I am not voting for
19 this one either.

20 CHMN. CHENAL: Well, I am -- interesting. I
21 just -- there is something that seems out of balance
22 here, that there is a fluctuation between the two CEC
23 drafts we are looking at.

24 One is, you know, the purpose of the RICE unit,
25 it has to meet environmental compatibility at least in

1 that language. And we are not imposing the concept with
2 respect to the transmission lines. I mean it seems to
3 me that, to be consistent, that we need to incorporate
4 that concept into the Exhibit 2 with regard to the
5 transmission line, or we don't need it in the first one.
6 Otherwise, it seems like it is out of synch, to my sense
7 of balance in the universe. But I may very well be
8 walking the plank here and will fall overboard. But to
9 me, I would either say it should be in both or should be
10 in neither.

11 MEMBER WOODALL: Do you want me to articulate my
12 position on that?

13 CHMN. CHENAL: I think the position of Member
14 Woodall is it should be in neither.

15 MEMBER WOODALL: That was actually ironic. So
16 yes, that is my position. But you have voted and I
17 personally have no strong feelings for it. I just don't
18 think it is necessary and I am going to vote nay.

19 CHMN. CHENAL: Sure. But if we were to include
20 the concept somewhere between lines 7 and 11, where
21 would we put it and how would it read?

22 MEMBER JONES: Mr. Chairman, with the issue of
23 transmission, are they environmental -- more
24 environmentally compatible or compliant?

25 CHMN. CHENAL: Well, I mean we are putting in

1 transmission lines, over two miles of transmission
2 lines, and there is, you know, there was quite a bit of
3 testimony on it. And I mean it has to be done in an
4 environmentally compatible manner, otherwise we wouldn't
5 be issuing a CEC for it. We would have to consider the
6 environment as we issue the CEC.

7 So I mean on one level it seems like it is
8 self-evident that it has to be done in an
9 environmentally compatible way. I am just looking for
10 language, if we were going to consider language, what --
11 how it should read.

12 MEMBER PALMER: Mr. Chairman, after the words,
13 too, could it state environmentally compatible after the
14 word new?

15 CHMN. CHENAL: So it reads: The purpose of the
16 transmission line project is to accommodate construction
17 of the new environmentally compatible Irvington 138kV
18 substation. Let's try that language.

19 MEMBER HAENICHEN: If I may, the only problem
20 with that is that implies we only care about the
21 environmental compatibility of that substation --

22 CHMN. CHENAL: Yeah.

23 MEMBER HAENICHEN: -- and not the transmission
24 line.

25 CHMN. CHENAL: Member Woodall.

1 MEMBER WOODALL: Is there anyplace in the
2 record, in the testimony, where the applicant indicates
3 that the purpose and need includes environmental
4 compatibility? I didn't hear anything in the record
5 regarding that. I see environmental compatibility as a
6 conclusion of law or finding that we would make, and I
7 just want to know was there anything in the record where
8 you articulated that.

9 MR. DERSTINE: No, Member Woodall.

10 MEMBER WOODALL: Thank you.

11 MR. DERSTINE: Conceptually we, I, and the way
12 the manner in which the application is drafted is that
13 we addressed the purpose and need for the facilities, be
14 it the RICE project or the transmission relocation
15 project, and to outline the purpose and need of those
16 and then present you with the evidence required by
17 40-360.06 as to the environmental compatibility of those
18 two projects and manner in which we would seek to
19 minimize any environmental impacts.

20 I appreciate Member Haenichen's comment in terms
21 of a suggestion there should be something in the body of
22 the CEC addressing environmental compatibility. At the
23 same time, I am a little bit worried about the language
24 of the CEC, somehow imposing some sort of ambiguous
25 condition on our project itself, environmentally

1 compatible, fast start, fast ramping thermal resources
2 with mechanical inertia.

3 I am not opposed to including some language
4 somewhere else, but the modification of the description
5 of the RICE as environmentally compatible, again, I
6 think to your point, I would consider the description of
7 the project and the purpose of the project to be
8 separate from your finding that, that the project, aside
9 from applicant satisfying the purpose and need elements,
10 that, in addition to that, you have satisfied and made a
11 record that that project is indeed environmentally
12 compatible.

13 CHMN. CHENAL: Member Haenichen.

14 MEMBER HAENICHEN: I tend to agree with your
15 concerns here, Mr. Derstine. We are not talking about
16 conditions.

17 I wonder if the environmental compatibility
18 language could have been injected earlier, before we got
19 to conditions and wouldn't that cover --

20 MR. DERSTINE: I think --

21 MEMBER JONES: Mr. Chairman.

22 CHMN. CHENAL: Yes, Member Jones.

23 MEMBER JONES: I tend to agree with Jack on this
24 one, because it is perhaps in the preamble somewhere
25 earlier or even perhaps later. But as we reconsider

1 this, any new technology or that might be brought on
2 line or new, are we kind of setting a precedent that in
3 future CECs we are going to have to kind of include this
4 language going forward?

5 CHMN. CHENAL: I agree. I will ask that, with
6 respect to Exhibit 2, the language environmentally
7 compatible be removed at this point. That was, I think,
8 my language. And I don't think we -- for the reasons
9 stated. I tend to agree with Mr. Derstine as well. I
10 think it is a valid concern that it is another
11 requirement on the RICE project that maybe the statute
12 doesn't require, or it could -- well, let me just leave
13 it at that. It could impose a condition that may be
14 problematic.

15 MR. DERSTINE: May I suggest that the applicant
16 make an effort to come up with a sentence or language
17 within this portion of the draft CEC both as to
18 Chairman's Exhibit 1 and Chairman's Exhibit 2 that
19 captures Member Haenichen's desire to have some
20 discussion of finding of environmental compatibility,
21 but not to necessarily connote them with the description
22 of the need and the purpose of the facilities, and that
23 we could do that overnight and have that ready in the
24 morning.

25 CHMN. CHENAL: Sure. I think that's a valid

1 suggestion, Mr. Derstine. And then when we do that we
2 will revisit Exhibit 1 there, you know, the language on
3 page 3, lines 9, 9 and 10. We will leave it in now,
4 because we have kind of voted on it, but we will come
5 back and revisit that language based on what you have
6 offered to provide us tomorrow. I think that's a good
7 suggestion.

8 So let's complete, though, on Exhibit 2, on
9 page 3, lines 7 through 11, let's at least make sure we
10 have covered up to the same point on both CECs,
11 Exhibits 1 and 2.

12 So the language as written without any changes
13 to it, is there any further discussion?

14 (No response.)

15 CHMN. CHENAL: May I have a motion to approve
16 Exhibit 2, page 3, lines 7 through 11.

17 MEMBER HAENICHEN: I move.

18 MEMBER RIGGINS: Second.

19 CHMN. CHENAL: Any further discussion?

20 (No response.)

21 CHMN. CHENAL: All in favor say aye.

22 (A chorus of ayes.)

23 CHMN. CHENAL: We could stop there. I tell you
24 what. Let's go to the last, the last part, C on both,
25 on both. Because then we will finish kind of the

1 prefatory language and then we will begin the
2 conditions. So I think that's a good place to stop.
3 Let's complete this process and then we will come back
4 and revisit what we have covered tomorrow with the
5 concept that Mr. Derstine just offered, some additional
6 language on environmental compatibility.

7 So on Exhibit 1, page 3, lines 16 through 20, is
8 there any discussion? Let's read it and then see if
9 there is any discussion.

10 Member Woodall.

11 MEMBER WOODALL: Okay. So Exhibit A is going to
12 show where it is, and you have also identified it by a
13 general location map. So it is the same Exhibit A? You
14 didn't mean to have two different exhibits?

15 MR. BECK: Actually, our intent at this point
16 was to have two exhibits, one that would show the
17 transmission lines for the transmission CEC, a
18 centerline.

19 MEMBER WOODALL: I am talking about you have got
20 two Exhibit As in this form. Is that what you intended?

21 MR. BECK: No. It would be one Exhibit A for
22 each CEC.

23 MEMBER WOODALL: Right. So references to
24 Exhibit A on this Chairman's exhibit on page 3 is the
25 same document, and you didn't plan on having anything

1 different. It is all in one.

2 MR. BECK: Correct.

3 MR. DERSTINE: Correct.

4 MEMBER WOODALL: Thank you.

5 CHMN. CHENAL: So is there any further
6 discussion on the language, Exhibit 1, page 3, lines 16
7 through 20?

8 (No response.)

9 CHMN. CHENAL: Mr. Derstine.

10 MR. DERSTINE: Mr. Chairman, just a bit of
11 wordsmithing.

12 CHMN. CHENAL: Yes.

13 MR. DERSTINE: On line 18, to insert and the
14 before the word general, so that it reads, the
15 certificate approves construction of the RICE project on
16 TEP's Irvington campus, comma, and the placement of the
17 RICE units, comma, shown on Exhibit A, period.

18 CHMN. CHENAL: Okay. And you strike the word
19 general, or you are just going to keep general?

20 MR. DERSTINE: We would like to keep it.

21 CHMN. CHENAL: And the general placement.

22 MR. DERSTINE: Correct.

23 CHMN. CHENAL: Okay. All right.

24 Any further changes?

25 MR. DERSTINE: And then a hyphen to project

1 between TEP and controlled on line 19.

2 CHMN. CHENAL: Okay. The cursor is slowly
3 moving its way over to between TEP and controlled on
4 line 19. There we go. All right.

5 Any further discussion with regard to this, the
6 language as modified on the screen?

7 (No response.)

8 CHMN. CHENAL: So may I have a motion to approve
9 on Exhibit 1, page 3, lines 16 through 20 as modified on
10 the screen.

11 MEMBER HAENICHEN: So moved.

12 MEMBER RIGGINS: Second.

13 CHMN. CHENAL: We have a motion, a second.
14 Any further discussion?

15 (No response.)

16 CHMN. CHENAL: All in favor say aye.

17 (A chorus of ayes.)

18 CHMN. CHENAL: Okay. Let's move to Exhibit
19 No. 2, page 3, lines 12 through 21.

20 MR. DERSTINE: If I could jump in, Mr. Chairman,
21 before Member Haenichen criticizes our heavy-handedness
22 in presumptiveness. We would like to strike the word
23 approved from the heading on section C, so that would
24 read overview of transmission line project description
25 and deletes the word approved, so that they are the same

1 as C on the RICE.

2 It could be shortened up to simply straight
3 transmission line project description, and we would
4 delete the word approved and make a conforming change
5 back to Exhibit 1 for the same section C of the RICE
6 project description so that they would be the same
7 headings.

8 CHMN. CHENAL: Okay. Now, I would suggest also
9 go to line 18 and again a hyphen between TEP and
10 controlled.

11 MEMBER JONES: Mr. Chairman.

12 CHMN. CHENAL: Member Jones.

13 MEMBER JONES: If we are going to be doing that
14 grammatically, shouldn't and no land acquisition
15 required, should there be an is? It just doesn't appear
16 grammatically --

17 MR. DERSTINE: No, you're right. So it is line
18 16 if we are on Exhibit 2, no land acquisition is
19 required.

20 CHMN. CHENAL: Very good.

21 MR. DERSTINE: And then the only suggested
22 change from the applicant is, as to line 17, inserting
23 the word foot after the numeric 150, so it reads
24 construction is for a 150-foot right-of-way.

25 CHMN. CHENAL: Anything else, Mr. Jerden?

1 All right. I think -- I want to just ask the
2 Committee if they have a recollection that we did have
3 evidence of a 500-foot corridor, 250 feet on either side
4 of the centerline.

5 MEMBER WOODALL: It is in the application, isn't
6 it?

7 MR. DERSTINE: Yes.

8 MEMBER JONES: And it was in one of the
9 exhibits. Yeah, it was mentioned.

10 MR. BECK: Mr. Chairman and Committee, our
11 position is that since it is all on TEP land, a corridor
12 doesn't make a whole lot of sense, a description of a
13 corridor. So one thought was that we just reference we
14 would build the lines as shown on Exhibit A, which we
15 will have a centerline reference, and leave it at that
16 for this project. Because this project is so unique,
17 the use of a corridor doesn't provide much value, I
18 don't think, to anybody in the public, nor to us.

19 We did identify in the application the potential
20 for a 500-foot corridor. And I believe in my direct
21 testimony, written testimony, I raised the issue of
22 whether or not it was applicable in this case.

23 CHMN. CHENAL: And the highlighted language in
24 yellow, that is the applicant's language on the draft
25 initially, is that correct?

1 MR. BECK: Correct. And I highlighted that for
2 discussion purposes.

3 CHMN. CHENAL: I see. I think that's a fair
4 question for discussion. Do we want to stick with the
5 applicant's language as they offered it with the
6 500-foot corridor? And there was -- it is in the
7 evidence. Or do we basically delete the language after
8 Exhibit A? I guess that's what the applicant would be
9 requesting.

10 MR. BECK: That is correct.

11 MEMBER JONES: Mr. Chairman, I am fine with that
12 because, again, it kind of sets a condition that is not
13 really applicable in this particular instance, so...

14 CHMN. CHENAL: Is that the general consensus of
15 the Committee?

16 MEMBER RIGGINS: I agree with that.

17 MEMBER WOODALL: Because of the special
18 circumstances of this, I think it is absolutely
19 appropriate. Normally I would want a legal description
20 and a definition of where on planet earth the centerline
21 is, but I don't think those are required here.

22 CHMN. CHENAL: I think these are all valid, wise
23 considerations. So we will strike the language after
24 Exhibit A, and somewhere there should be a period.

25 So is there any further discussion with regard

1 to the language under consideration?

2 MEMBER HAENICHEN: I move this as modified.

3 CHMN. CHENAL: All right. So as modified will
4 be the Exhibit 2, page 3, lines 12 through 20 as with
5 the changes reflected on the screen. Member Haenichen
6 has moved. May I have a second.

7 MEMBER PALMER: Second.

8 CHMN. CHENAL: Any further discussion?

9 (No response.)

10 CHMN. CHENAL: We have a motion and a second.

11 All in favor say aye.

12 (A chorus of ayes.)

13 CHMN. CHENAL: All right. Approved.

14 So we are now -- oh, Member Woodall.

15 MEMBER WOODALL: I am just wondering if the
16 applicant is likely to have more Mr. Jerden inspired
17 technical grammatical changes in the nature of proofing
18 that they could have ready sometime tomorrow rather
19 than -- is that possible? Okay. Thank you. I see you
20 nodding so I am assuming that's assent.

21 MR. DERSTINE: Yes, it is assent.

22 MEMBER WOODALL: Thank you.

23 MR. DERSTINE: In addition to drafting some
24 proposed language for consideration by the Committee
25 with regard to the environmental finding in these early

1 sections before we get to the conditions, we will also
2 make a better effort to clean up the grammar and the
3 wordsmithing so that we don't have to spend so much time
4 on those issues.

5 MEMBER WOODALL: And I also indicated that, if
6 after this thing is finalized either the Chairman and/or
7 applicant determine that there are other grammatical
8 technical language, that the Chairman would be empowered
9 to just go ahead and make those. That's what my
10 proposal was.

11 CHMN. CHENAL: Okay. But here is the question
12 that I have. We have started a process where we are
13 operating off Chairman's Exhibits 1 and 2. They are in
14 the record; they are on the screen. If we now come in
15 tomorrow with changes that you make, now we have got to
16 introduce this as --

17 MR. DERSTINE: Another exhibit.

18 CHMN. CHENAL: -- separate exhibits. And I
19 think it is going to make the record very hard to follow
20 even though there will be a few cases where, you know,
21 we will have to put in a hyphen and a punctuation mark.

22 MR. DERSTINE: I think that's a point well
23 taken.

24 MEMBER WOODALL: If I may, Mr. Chairman, my
25 suggestion would be that you have a piece of paper and

1 basically indicate where those changes are so, when we
2 reach them, the applicant will be ready to say, hey, we
3 think there should be a hyphen here or there. I am not
4 suggesting you do another exhibit, just that we be ready
5 to go on the technical changes. That's all I'm
6 suggesting.

7 MR. DERSTINE: Okay.

8 CHMN. CHENAL: That's a good idea.

9 Okay. So I think we made some good progress. I
10 think this is working well. I think we will be able to
11 go through pretty quickly tomorrow with the rest of the
12 conditions.

13 MEMBER HAENICHEN: Did we vote on that last
14 motion?

15 CHMN. CHENAL: We did vote on the last, on the
16 language on Exhibit 2, lines 12 through 21.

17 MEMBER HAENICHEN: Thank you.

18 CHMN. CHENAL: I think we just did, did we not?

19 MR. SPENCER: Yes.

20 CHMN. CHENAL: So I think we are finished with
21 the prefatory language and we can start in tomorrow with
22 the conditions.

23 Are there any other housekeeping items we should
24 address before we adjourn for this evening?

25 MS. DARLING: Take dessert with you.

1 CHMN. CHENAL: Take dessert with us, okay.

2 So I think we made some good progress today.

3 And I think it was wise to not try and rush this and get
4 it done. I think we picked up some things slowing it
5 down a little that we might have missed if we went
6 through a little too quickly.

7 So we will resume the deliberations tomorrow at
8 9:00 a.m. And thanks, everyone. I think this was a
9 good day.

10 MR. DERSTINE: Thank you.

11 (The hearing recessed at 5:07 p.m.)

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1 STATE OF ARIZONA)
2 COUNTY OF MARICOPA)

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