

BEFORE THE PUBLIC SERVICE COMMISSION  
STATE OF MISSOURI

TRANSCRIPT OF PROCEEDINGS  
EVIDENTIARY HEARING

January 27, 2016  
Jefferson City, Missouri  
Volume 9

In the Matter of the Application of )  
Ameren Transmission Company of Illinois )  
For Other Relief Or, In The Alternative )  
A Certificate Of Public Convenience And )  
Necessity Authorizing it To Construct, )  
Install, Own, Operate, Maintain And ) File Number  
Otherwise Control And Manage A ) EA-2015-0146  
345,000-volt Electric Transmission Line )  
From Palmyra, Missouri To The Iowa )  
Border And An Associated Substation Near )  
Kirksville, Missouri )

RONALD D. PRIDGIN, presiding  
SENIOR REGULATORY LAW JUDGE  
DANIEL Y. HALL, Chairman  
STEPHEN M. STOLL,  
WILLIAM P. KENNEY,  
SCOTT T. RUPP,  
MAIDA J. COLEMAN,  
COMMISSIONERS.

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P R O C E E D I N G S

JUDGE PRIDGIN: All right. Good morning. We are on the record. Looking at my witness list, it looks like the next witness will be Jameson Smith for MIS0. So if he's prepared to take the stand and come on up. And then I assume we're following the list of witnesses as filed earlier: Dr. Smith, Natelle Dietrich, David Murray, et cetera?

MR. LOWERY: Yes, Your Honor. We're on schedule for today.

JUDGE PRIDGIN: Just to let you know, the Commission has agenda set for noon, so I will look for a natural break somewhere -- I don't know -- from 11:15 on. If I can't find one, I may have to abruptly cut someone off. I'll try not to do that. But I'll look for a natural break for the Commission to get to agenda, and then we'll resume this afternoon.

Anything further from counsel before Mr. Smith takes the stand?

All right. Mr. Smith, if you'll raise your right hand to be sworn, please.

(Witness sworn.)

JUDGE PRIDGIN: Thank you very much, sir. You may have a seat. And Mr. Harden -- I'm sorry, there you are.

1 MR. SMALL: Thank you, Your Honor.

2 DIRECT EXAMINATION

3 QUESTIONS BY MR. SMALL:

4 Q. Would you please state your name for the  
5 record.

6 A. Jameson T. Smith.

7 Q. And are you the Jameson T. Smith whose  
8 surrebuttal was -- testimony was filed in this case on  
9 behalf of Midcontinent Systems Operator?

10 A. I am.

11 Q. And do you have your surrebuttal testimony  
12 with you on the stand today?

13 A. I do.

14 Q. And is your surrebuttal testimony comprised  
15 of a written text and three schedules; an MVP report, a  
16 triennial review, and a excerpt from an EIA report?

17 A. It is.

18 Q. Do you have any additions or corrections to  
19 your testimony?

20 A. I do. I have one slight correction. In the  
21 surrebuttal testimony, we referred to the schedules as JTS  
22 S-1, -2, and -3, and the actual schedules were labeled as  
23 JTWs 1, 2, and 3.

24 Q. So the correction is that the schedules --

25 A. Yes, sir. The schedules should be changed

1 to the JTS 1, 2, and 3.

2 Q. And then there will be consistency between  
3 the texts and the schedules that are attached; is that  
4 correct?

5 A. Yes, sir.

6 Q. Any other additions or corrections to your  
7 testimony?

8 A. No. There are none.

9 Q. If I asked you the questions stated in your  
10 surrebuttal testimony subject to the corrections to the  
11 labeling of the schedules that you indicated on the stand,  
12 would your answers be the same here today?

13 A. They would be.

14 MR. SMALL: Your Honor, I move for admission  
15 of the surrebuttal testimony of Jameson T. Smith, including  
16 the text of what has now been labeled as JTS-1, JTS-2,  
17 JTS-3, subject to cross-examination. And the witness is  
18 tendered for cross-examination.

19 (MISO Exhibit 35 was offered into evidence.)

20 JUDGE PRIDGIN: Mr. Small, thank you. 35  
21 has been offered. Any objections? Hearing none, 35 is  
22 admitted.

23 (MISO Exhibit 35 was received into  
24 evidence.)

25 JUDGE PRIDGIN: I don't see an order of

1 cross for MISO witnesses, so I'm just going to wing it from  
2 least adverse to most adverse, as best as I can figure.

3 Any cross from ATXI?

4 MR. LOWERY: Yes, Your Honor. I do have a  
5 little bit of cross.

6 CROSS-EXAMINATION

7 QUESTIONS BY MR. LOWERY:

8 Q. Good morning --

9 A. Good morning.

10 Q. -- Mr. Smith. Mr. Smith, in your triennial  
11 review, you have some business cases that are available on  
12 your website, some spreadsheets that are posted, do you  
13 not?

14 A. Yes, we do.

15 Q. And one of those spreadsheets lays out the  
16 various energy zones, lays out the capacity factors that  
17 are assumed for wind in those zones. Are you familiar with  
18 that?

19 A. Yes, I am.

20 Q. And I think we talked yesterday that the  
21 zone that's in north -- in northeast Missouri that MISO has  
22 identified as Missouri Zone C --

23 A. Yes, it is.

24 Q. -- is that right? And the capacity factor,  
25 I think MISO assumed for wind in that area was 33 percent;

1 **is that right?**

2 A. That is correct.

3 **Q. In developing the capacity factors that MISO**  
4 **developed, what tower heights were assumed?**

5 A. We used 80-meter tower heights.

6 **Q. And you heard the testimony yesterday, did**  
7 **you not, that Ameren has studied the use of larger towers,**  
8 **100-meter towers?**

9 A. I have.

10 **Q. And that Ameren's analysis indicates that**  
11 **those would produce capacity factors that were higher. I**  
12 **believe it was 37.5 percent.**

13 A. They did say that.

14 **Q. Do you recall that? Does that sound**  
15 **reasonable to you, that if there were larger towers in that**  
16 **area that you could expect to get larger -- or higher**  
17 **capacity factors?**

18 A. I am not a wind production expert, but I  
19 have seen the information that shows the technology is  
20 advancing to higher hub height capabilities, which do  
21 produce higher capacity factors.

22 **Q. Those same spreadsheets that I was referring**  
23 **to, there's a figure of 1,347 megawatts as of 2028. Are**  
24 **you familiar with that?**

25 A. I am.



1 Q. And there was some discussion about that  
2 yesterday. And I want to make sure I understand, the  
3 Commission understands what that figure represents, because  
4 I think there was some disagreement between the premise of  
5 my questions and Mr. Powers on that yesterday, and what  
6 maybe he thought that the figure represented.

7 As I understand it, what MISO's analysis  
8 indicates is that the -- that with the Mark Twain line and  
9 the rest of the MVP portfolio in place that as of 2028,  
10 1,347 megawatts of wind generation located in the Missouri  
11 Zone C could be connected to Mark Twain, and that energy  
12 could be fully deliverable. Is that what that represents?

13 A. That is what our analytics have said.

14 Q. And that's without running into transmission  
15 constraints?

16 A. That is correct. Actually, the 1,347 is  
17 where the transmission constraints would begin, so that's  
18 where that number comes from.

19 Q. And what's the rating of the Mark Twain  
20 line? Do you know?

21 A. I do not know, specifically. I believe I  
22 saw references of numbers greater than 1,700 MVA.

23 Q. Is it fair to say, in your opinion, that  
24 nowhere -- no way that -- there's no way that anywhere near  
25 that much wind, or other generation for that matter, could

1 be accommodated in the region without construction of new  
2 345 kV transmission in the area?

3 A. Can you repeat that question?

4 Q. Sure. Do you have an opinion about whether  
5 or not anywhere near 1,347 megawatts of generation could be  
6 connected in that area without construction of 347 kV  
7 transmission in the area?

8 A. I do not believe so. The purpose of the  
9 multi-value project portfolios was to enable and deliver  
10 wind across the footprint. So that 1,347 is predicated on  
11 the MVPs existing.

12 Q. Now, I believe there's been some testimony  
13 filed in this case suggesting that some amount of wind  
14 could perhaps be accommodated on the 161 kV system. Do you  
15 recall that?

16 A. I do.

17 Q. And as I understand it, that testimony was  
18 premised on a 2007 inter-connection study for a wind farm  
19 which I believe was going to be located in Putnam County,  
20 which is a little bit west of where we're talking about  
21 here; and that the study suggested that some issue could be  
22 resolved for about \$11 million of upgrades on the 16 -- or  
23 some 161 kV line.

24 A. Uh-huh.

25 Q. Are you familiar with that study?

1           A.       I am.

2           **Q.       Does that study indicate that for spending**  
3 **about \$11 million that a material amount of wind generation**  
4 **could actually be constructed and actually sold to load in**  
5 **Missouri?**

6                   MS. MYERS:  Objection, beyond the scope of  
7 direct.

8                   JUDGE PRIDGIN:  Mr. Lowery?

9                   MR. LOWERY:  Well, cross, I believe, is  
10 unlimited in Missouri, and if it's relevant to the matter  
11 before the Commission, I think I can ask him questions  
12 about it.

13                   JUDGE PRIDGIN:  Okay.  I'll overrule.

14                   WITNESS:  The study that was performed was  
15 performed in 2007.  It may have been relevant for that  
16 particular point in time, but since 2007 there have been a  
17 number of changes, and generation or connection studies are  
18 dependent on the fleet that exists at the time of the study  
19 as well as the transmission infrastructure at the time of  
20 the study.  So as of today, that \$11 million number is not  
21 as relevant.

22 BY MR. LOWERY:

23           **Q.       And even if we were in 2007, as I understand**  
24 **it, the study didn't conclude that all of the generation**  
25 **that was being considered at the time could actually be**

1 **sold or was deliverable to load, it only concluded that**  
2 **some small fraction of that could be interconnected; isn't**  
3 **that right?**

4 A. That is correct. The study focused on a --  
5 20 percent of the total capacity of the unit to be  
6 interconnected, which was -- I believe it was a  
7 300-megawatt unit, so it would've been a 60-megawatt  
8 evaluation.

9 Q. **And all it really concluded is that you can**  
10 **perhaps spend \$11 million and you could -- you could**  
11 **deliver 60 megawatts. Whether you could deliver more was**  
12 **not concluded by the study; isn't that right?**

13 A. That is correct.

14 Q. **And that project wasn't built?**

15 A. That is correct.

16 Q. **Now, yesterday, I believe on redirect,**  
17 **Mr. Powers sort of summarized his position at the very end**  
18 **of that redirect, I believe. And these are -- this is my**  
19 **characterization. You may or may not agree with it.**

20 **But he was significantly critical of the MVP**  
21 **analysis, both the 2011 analysis and the 2014 analysis. Is**  
22 **that a fair characterization, that he was pretty critical**  
23 **of the overall analysis?**

24 A. That's the way I understood it. Yes.

25 Q. **Did you understand that his premise was that**

1 **only solar facilities would be built, to the extent**  
2 **renewable generation would be built in MISO, including**  
3 **Missouri, and that that fact, based on his opinion, would**  
4 **somehow invalidate your analysis? Was that the premise as**  
5 **you understood it?**

6 A. I believe so. Yes.

7 Q. I assume you disagree with that premise?

8 A. Very much so.

9 Q. Can you explain for the Commission why you  
10 disagree?

11 A. The -- the multi-value project portfolio  
12 study, along with the regional generation outlet study that  
13 preceded it focused on meeting renewable energy standards  
14 or renewable portfolio standards across the MISO footprint.

15 Working with -- through our stakeholder  
16 processes, some 200-plus meetings that we had had with our  
17 stakeholders, to focus on how we were going to help our  
18 membership meet those obligations, the discussion  
19 eventually got to what renewable resources we're going to  
20 need to implement.

21 We paid attention to carve-outs such as the  
22 solar carve-outs. I believe the Missouri renewable energy  
23 standard does have one. A number of other states do have  
24 solar carve-outs as well. So we took those into account.  
25 But at that time, and continue to today, the MISO

1 generation inter-connection queue continues to be heavily  
2 weighted by wind resources to meet those renewable  
3 portfolio standards.

4 **Q. Do you have an opinion about whether the**  
5 **implementation of a Clean Power Plan -- what that does**  
6 **directionally to your analysis if you were to re-run the**  
7 **analysis exactly to take into account the fact that we have**  
8 **a Clean Power Plan now? Do you have an opinion about what**  
9 **that would do to your analysis?**

10 A. The MVP portfolio, along with renewable  
11 portfolio standards, renewable energy standards across the  
12 states actually support compliance with the Clean Power  
13 Plan. Do they go all the way? I don't believe they will,  
14 but they do help get us there.

15 And I can also point to the MVP 2011 report  
16 as indication that when we ran those scenarios -- I think  
17 Mr. Kramer referenced them on Monday -- one of those  
18 scenarios was looking at -- or two of the scenarios,  
19 actually, looked at a carbon-constrained world, and  
20 actually additional benefits were identified associated  
21 with the MVPs.

22 We did not use those in our justification of  
23 the projects, because we wanted to go a more conservative  
24 route, but we saw our benefits increase due to compliance  
25 with a carbon-restricted world.

1           **Q.       And that carbon-restricted world, based on**  
2 **the Clean Power Plan, is the world we now have; isn't that**  
3 **fair to say?**

4           A.       Yes. At the time of the study, we were  
5 hypothesizing on the Waxman-Markey bill on -- in the  
6 Senate. That did not go through, but promulgated -- and  
7 the last year was the Clean Power Plan that will start  
8 restricting the production of carbon in 2022.

9           **Q.       One last topic I wanted to ask you about. I**  
10 **also think it's fair to say that Mr. Powers, in his**  
11 **testimony, implied that if there are congested-related**  
12 **issues, if there are reliability issues, et cetera, in the**  
13 **region -- I'll say in the MISO footprint for this purpose**  
14 **-- that MISO would only consider building wires, building**  
15 **more transmission to address the issue. Did you**  
16 **essentially understand him to make that allegation?**

17          A.       Yes.

18          **Q.       Isn't it true that under MISO's tariff, the**  
19 **MISO is required to consider alternatives and to consider**  
20 **them on an even playing field, such as demand response,**  
21 **such as adding generation in a given area --**

22          A.       That is correct.

23          **Q.       -- if a stakeholder proposes an alternative?**

24          A.       That is correct. Our stakeholder processes  
25 allow for ample opportunity for stakeholders to provide

1 alternatives to transmission solutions.

2 Q. And if an alternative is actually proposed,  
3 you have to consider it on an even playing field; isn't  
4 that right?

5 A. Yes, we do.

6 Q. And those stakeholders could include  
7 renewable energy developers, including a solar developer.  
8 Correct?

9 A. Yes, sir.

10 Q. Or they could include an entity like EnerNOC  
11 or other entities that are engaged in the demand response  
12 business; isn't that right?

13 A. That is correct.

14 MR. LOWERY: Thank you, Your Honor. I  
15 don't have any further questions.

16 JUDGE PRIDGIN: Mr. Lowery, thank you.  
17 Cross for Staff?

18 MS. MYERS: No questions, Your Honor.

19 THE COURT: I don't see anybody here for  
20 United for Missouri, IBEW. Public Counsel?

21 MR. ALLISON: No questions.

22 JUDGE PRIDGIN: Neighbors United.

23 MS. HERNANDEZ: May I approach?

24 JUDGE PRIDGIN: You may.

25 Mr. Linton, I'm sorry I missed you. Did you



1 have any cross?

2 MR. LINTON: No probl em. I have no cross.

3 JUDGE PRIDGIN: I 'm very sorry. Chai rman,  
4 thank you.

5 Ms. Hernandez, when you' re ready.

6 (Neighbors Uni ted Exhi bi t 81 was marked for  
7 i denti fication by the court reporter.)

8 CROSS-EXAMI NATION

9 QUESTIONS BY MS. HERNANDEZ:

10 Q. Good morni ng, Mr. Smi th.

11 A. Good morni ng.

12 Q. I 've handed you what's been marked Exhi bi t  
13 81. Do you recognize this document?

14 A. I do.

15 Q. Would you agree it's MIS0's response to, in  
16 particular, Data Request 2.8, 2.9 -- or 2-9 -- excuse me --  
17 and 2-10, submitted by Neighbors United to MIS0?

18 A. I woul d agree.

19 Q. Now, on the first page of the attachment of  
20 the response -- let me back up. These are your responses  
21 to those particular questions. Correct?

22 A. Yes. They appear to be.

23 Q. And then under Data Request Number 2-8, do  
24 you see that on the first page?

25 A. I do.

1           **Q.       The question to you there was: Missouri PSC**  
2 **Witness Stahlman states in his rebuttal testimony at Page**  
3 **4, Lines 7 through 9, "Staff's review of the MTEP 14 MVP**  
4 **triennial review was unable to locate the cost/benefit**  
5 **ratio of specific projects. It appears that the study was**  
6 **performed on the entire portfolio."**

7           A: "Does MISO agree that the cost/benefit  
8 ratio as presented in the MTEP 11 MVP study and the MTEP 14  
9 MVP triennial review, including those for Missouri, are  
10 based on the entire MVP portfolio and do not represent the  
11 cost/benefit ratio of specific projects like the Mark Twain  
12 line? Please explain. If no, please state so."

13                   Did I read that question correctly?

14           A.       Yes, ma'am.

15           **Q.       Okay. And your response, which follows to**  
16 **the next page, "MISO calculated benefit/cost ratios that**  
17 **contained in the 2011 multi-value project analysis report**  
18 **and the MTEP 14 MVP triennial -- triennial review report**  
19 **which are based upon construction of the entire MVP**  
20 **portfolio.**

21                   **The benefit/cost ratios are specific to**  
22 **local resource zones (one of which is comprised entirely**  
23 **from MISO footprint located in Missouri), but are not based**  
24 **upon specific MVP projects (e.g. MVPs 7 and 8 in**  
25 **Missouri). "**

1                   **Did I read that -- your response correctly**  
2 **there?**

3           A.       Yes.

4           **Q.       Going to Data Request Number 2-9, there's a**  
5 **question you were asked there: Please explain whether MISO**  
6 **agrees that no cost/benefit ratio analysis was done by MISO**  
7 **as a part of the MVP process that evaluates the**  
8 **cost/benefit ratio of the MVP portfolio with and without**  
9 **the Mark Twain line. If MISO disagrees, please state so.**

10                   **Did I read that question correctly?**

11           A.       Yes.

12           **Q.       And your response there -- we need to go**  
13 **down to under "supplemental response," and Number 9 is:**  
14 **MISO calculated benefit/cost ratios regarding the MVP**  
15 **portfolio and all of those ratios are both stated in 2011**  
16 **multi-value project analysis report and the MTEP 14 MVP**  
17 **triennial review report. For a description of those**  
18 **cost/benefit ratios see the response to Data Request Number**  
19 **2-8.**

20                   **Did I read that -- your response to that**  
21 **question correctly?**

22           A.       Yes.

23           **Q.       And then Data Request Number 2-10, the**  
24 **question to you was: Please explain (a) what Missouri**  
25 **projects are included in the Missouri benefit-to-cost**

1 ratios of 2.0 to 2.9 in the MTEP 2011 and 2.3 to 3.3 in the  
2 triennial review and (b) how both Missouri cost ratios were  
3 calculated, and include any supporting documentation.

4 Did I read that question correctly?

5 A. Yes.

6 Q. And then turning the page, do you agree your  
7 response was, "The MISO benefit/cost ratios in 2011  
8 multi-value project analysis report and the MTEP 14 MVP  
9 triennial review report are not based upon MVP projects but  
10 upon local resource zones"?

11 See the response to Data Request Number 2-8.  
12 The benefit/cost ratios for LRZ 5, which encompasses the  
13 MISO footprint located in Missouri, were calculated using  
14 the analysis described (along with full calculations) in  
15 the MTEP 14 MVP triennial review detailed business case at  
16 the following location, and you give a website address.

17 A. Uh-huh.

18 Q. Is that your response to that?

19 A. Yes.

20 Q. If you could turn to Page 6 of your  
21 surrebuttal testimony.

22 A. I am there.

23 Q. If you look at Question -- the first  
24 question on that page --

25 A. Line 4?

1           **Q.       Right, Line 4. Let me point you to Line**  
2 **8 --**

3           A.       Okay.

4           **Q.       -- where you state that you're involved in**  
5 **MISO's review of the Clean Power Plan, the final rule**  
6 **recently adopted by the United States Environmental**  
7 **protection Agency, and the impacts of greater dependence on**  
8 **natural gas within areas where MISO operates. Did I read**  
9 **your --**

10          A.       Yes, you did.

11          **Q.       -- response to that question correctly?**  
12 **Okay. And then I guess in your response there you were**  
13 **talking about greater dependence on natural gas within**  
14 **areas where MISO operates. Would you agree that Missouri**  
15 **is going to be very dependent on natural gas to meet the**  
16 **Clean Power Plan?**

17          A.       I can't answer that question at this point.

18          **Q.       So you were talking about greater dependence**  
19 **on natural gas within areas of MISO, but you don't know**  
20 **what Missouri's needs are?**

21          A.       No. The resource planning for each of the  
22 utilities is the responsibility of the utilities. My role  
23 in evaluating the impacts is understanding that the rules  
24 driven by the EPA are going to drive a switch in generation  
25 in the MISO footprint. MISO has historically a 70-percent

1 energy production from coal-fired fleet.

2 As rules such as the Mercury and Air Toxic  
3 Standard rules, as the Clean Power Plan become more  
4 prevalent in how resources are planned, the expectation is  
5 that we will start seeing a switch from coal to natural gas  
6 fired resources, along with a number of other resources,  
7 generally moving away from that coal-fired fleet.

8 My role at MISO is to try to help  
9 understand -- because we don't have the insight or the  
10 responsibilities to plan the resource fleet going forward,  
11 we have to understand what those potential impacts could be  
12 so that we can maintain system reliability.

13 **Q. Okay. Well -- okay. From that response, if**  
14 **I can have you turn to Page 17.**

15 A. I'm there.

16 **Q. And the question and answer -- your answer**  
17 **at Lines 11 through 15, you talk about the finding of wind**  
18 **power as the source that would most economically meet the**  
19 **majority of renewable energy needs in the MISO footprint;**  
20 **is that correct?**

21 A. Yes.

22 **Q. Would you agree that there's -- from your**  
23 **study, there's no finding on whether this is the most**  
24 **economic way to meet the Missouri requirements for the RPS**  
25 **standards?**

1           A.       I don't believe we asked that particular  
2 question. We looked at everything from a portfolio  
3 perspective and a system perspective.

4           **Q.       So I think the answer to my question would**  
5 **be yes, that you made no finding on whether that was the**  
6 **most economic way to meet Missouri's standards?**

7           A.       We -- our -- yes. We targeted the footprint  
8 as a whole as our optimization, not any particular state.

9           **Q.       If I could have you turn to Page 15 of your**  
10 **surrebuttal, Footnote 9.**

11           MR. SMALL: I'm sorry. What page are you?

12           MS. HERNANDEZ: 15. Page 15, Footnote 9.

13           MR. SMALL: Thank you.

14 BY MS. HERNANDEZ:

15           **Q.       Are you there?**

16           A.       Yes, ma'am.

17           **Q.       In Footnote 9, you state, "The costs**  
18 **considered in MISO's studies included compensation for the**  
19 **acquisition of land rights associated with transmission**  
20 **line routes." Did I read that correctly?**

21           A.       Yes, you did.

22           **Q.       Do you know how much compensation was in the**  
23 **cost/benefit study that you're referencing there?**

24           A.       No. There were planning estimates provided  
25 by our membership, and planning estimates include all

1 things including historical context resulting from  
2 construction and purchasing of previous lines. So these  
3 are planning estimates only that come to us in an aggregate  
4 number.

5 **Q. In an aggregate number?**

6 A. In a dollars-per-mile number for a total  
7 cost of a transmission line.

8 **Q. Did you have a Missouri-specific number?**

9 A. We did, actually. We asked each of our  
10 states, primarily because -- our states vary in population  
11 and terrain from Montana to Ohio, including Michigan,  
12 Canada down to Missouri, so transmission structures to be  
13 built, land to traverse, how many times you have to turn  
14 are going to vary based off of where you're at, so we did  
15 have localized numbers to reflect those costs.

16 **Q. Do you know what the localized number was?**

17 A. Not at the top of my head. I'm sorry. It  
18 would most likely be within the assumption sets that were  
19 sitting probably at that reference. But I don't know  
20 exactly where it's at.

21 **Q. And that number is not provided in your**  
22 **testimony either?**

23 A. Not in this testimony, no.

24 **Q. If you'd turn to Page 19 of your surrebuttal**  
25 **testimony, Lines 23 to 24, and then continuing on to 20 --**



1 A. I am there.

2 Q. -- you state in response to your question on  
3 Line 23 that, "The MVP portfolio supports the development  
4 of renewable generation and the proximity of the energy  
5 zones to natural gas pipeline allows for the potential  
6 utilization of the energy zones by new natural gas fired  
7 units." Did I read your response correctly?

8 A. Yes.

9 Q. Would you agree that it's possible that the  
10 Mark Twain transmission project could be fully used by  
11 natural gas and not wind?

12 A. MISO is a non-discriminatory --

13 Q. I'm sorry. I think that was a yes or no  
14 question.

15 A. It is unlikely. No. I mean, can it  
16 physically do so? Yes. It is likely? No.

17 Q. Thank you.

18 MS. HERNANDEZ: That's all the questions I  
19 have, but I would like to offer Exhibit 81.

20 (Neighbors United offered Exhibit 81 for  
21 evidence.)

22 JUDGE PRIDGIN: Ms. Hernandez, thank you.  
23 81 has been offered. Any objections? Hearing none, 81 is  
24 admitted.

25 (Neighbors United Exhibit 81 was received

1 into evidence.)

2 JUDGE PRIDGIN: Time for Bench questions.

3 Mr. Chairman?

4 CHAIRMAN HALL: Yes. Good morning,

5 Mr. Smith.

6 WITNESS: Good morning.

7 EXAMINATION

8 QUESTIONS BY CHAIRMAN HALL:

9 Q. Let me start off with, what is the status of  
10 the -- well, my understanding is that of the 17 projects in  
11 the portfolio, 15 -- are the state regulatory processes  
12 completed in terms of certificates on 15 of them? This one  
13 remains and then one in Wisconsin. What's the status of  
14 the Wisconsin project?

15 A. I will have to refer to my legal counsel on  
16 that one. He is more in tune with the other projects on  
17 that. I believe that the answer is that the project hasn't  
18 been requested for permitting yet, but that is the only  
19 thing that has not happened.

20 And I believe that -- just a correction:  
21 Not all states, I believe, require the same, so I want to  
22 make sure -- we haven't received 15, because I don't think  
23 all states we serve require that.

24 Q. Yeah. I'm sure you're correct on that.  
25 Thank you for that clarification. So what -- the -- ATXI

1 **has indicated that they would like to have this project**  
2 **completed during calendar year 2018. What happens if it is**  
3 **not completed in that timeframe?**

4 A. I would have to refer you back, because I  
5 agree completely with Mr. Kramer's response in that regard,  
6 to -- as the project gets delayed, its benefit is not  
7 received associated with that projects.

8 And then if it's delayed too far, then we do  
9 start reaching into other reliability issues that we're  
10 going to have to start thinking about because the rest of  
11 the system is building out appropriately. And what you're  
12 going to end up having is wind energy from Iowa, stopping  
13 at your border, trying to access the 161 kV system which is  
14 going to offer different challenges.

15 **Q. So would you say that there would be a**  
16 **direct pocketbook effect on Missouri ratepayers at some**  
17 **point in time?**

18 A. What you would see is the market cost for  
19 energy would start to separate from the rest of the  
20 footprint. You would see energy costs, production costs --  
21 the wholesale energy costs would essentially be stopping at  
22 the borders at that point.

23 You would get some of the value of what the  
24 existing system provides, but you would start to see a  
25 price separation between the energy costs between the

1 Ameren Missouri ratepayers versus the -- and I don't want  
2 to say ratepayers -- just the wholesale cost, I guess I  
3 should say, between what's available to Missouri to what's  
4 available to its neighbors.

5 **Q. Is there any way to quantify that impact?**

6 A. I would point to -- Mr. Schatzki's,  
7 probably, analysis is probably the best place to start with  
8 that quantification, because I believe he looks at the with  
9 and without discussion of the Mark Twain Line where MISO  
10 looks at the portfolio as a whole.

11 **Q. Now, I understand that MISO did a**  
12 **cost/benefit analysis for the entire portfolio. What I'm**  
13 **not clear about is whether or not MISO did an analysis**  
14 **project by project.**

15 A. We did not do analysis project by project.

16 **Q. But I do understand that there are some**  
17 **specific benefits assigned to Missouri in the MISO analysis**  
18 **of the MVP portfolio.**

19 A. Yes.

20 **Q. And I've got a couple of those categories**  
21 **here, and I was wondering if you could elaborate on them a**  
22 **little bit for me.**

23 A. Sure.

24 **Q. First, congestion and fuel savings.**

25 A. Yes. That is the actual production cost

1 number, so what it's looking at is what generation you have  
2 available for your load consumption and the transmission  
3 constraints. So it's the efficiencies of the market  
4 dispatches.

5 So the MVPs will provide a more efficient  
6 access to lower cost energy across the system. The  
7 Missouri -- specifically, when we look at that information,  
8 we looked specifically at the Missouri production cost  
9 numbers, and looked at the change case associated with the  
10 portfolio and without the portfolio. And Missouri  
11 generation saw savings associated with the numbers that I  
12 think you're referring to.

13 **Q. Operating reserves?**

14 A. Operating reserves are just to make sure  
15 that the system has the right flexible capacity available  
16 to it to be able to operate the system in the five-minute  
17 dispatch world, which is in the real-time world. Those  
18 operating reserves, I believe, have zones of costs, and the  
19 reflection for Missouri is the Missouri savings associated  
20 with that zone of costs.

21 **Q. Transmission line losses?**

22 A. Transmission line losses are a direct  
23 interaction with the resources needed to maintain resources  
24 adequacy in the long run. So adding the transmission --  
25 the MVP portfolio reduces losses on your system by a

1 certain amount of megawatts. Those megawatts then don't  
2 have to be covered for resource adequacy going forward.

3 So if you have a 1,000 megawatt system and  
4 you've reduced your -- 1,200 megawatts, let's say, system  
5 -- and that would include loading losses. If I reduce my  
6 losses by 100 megawatts by adding this system, then my  
7 resource adequacy target is no longer 1,200 times my 15  
8 percent; it's now 1,100 times 15 percent. So the capital  
9 savings associated with that deferred capacity is what's  
10 captured there.

11 **Q. System planning reserve margin?**

12 A. Much of the same conversation there, but  
13 what that isn't taking in account is that every zone --  
14 local resource zone, which is defined as the Missouri Local  
15 Resource Zone 5, which is the Missouri portion of MISO, has  
16 constraints in the capacity that's needed to meet its  
17 obligations for reliability from the resource fleet.

18 And those constraints tend to drive from  
19 import and export capabilities into Missouri, so that is a  
20 limiting factor associated with the needs. So by  
21 increasing the transfers in and out of Missouri, you're  
22 allowing for more external capacity to meet your internal  
23 needs which will also lower your resource adequacy targets.

24 **Q. Now, I'm not sure if this one is applicable**  
25 **or not. Wind turbine investment?**

1           A.       The wind turbine investment actually is  
2 because this is where we took in account as one of the  
3 premises of the regional generation outlet study that led  
4 to the MVPs.

5                   The hypothesis that we made -- and I've got  
6 a graphic in here if you want me to point you to it -- the  
7 -- we made two assumptions:

8                   One, let's source all renewable energy  
9 standards locally, the resources to meet those standards  
10 locally; let's look at meeting the standards regionally,  
11 where you potentially -- you want to take advantage of the  
12 most economically developed wind resources across the  
13 footprint; and then we looked at a combination of local and  
14 regional sourcing of those resources.

15                  What we found is that based off of capital  
16 investment costs of generation, plus capital investment  
17 costs of transmission, we found a -- for lack of a better  
18 term right now -- a sweet spot that combined local and  
19 regional generation development.

20                  So by enabling the MVPs to access both local  
21 resources as well as regional resources, if the RES  
22 requirement in the state of Missouri was to be met with  
23 building resources within the state, what we've done is  
24 we've given the optionality to the state of Missouri to  
25 take advantage of resources in Iowa or North Dakota or

1 South Dakota or Minnesota -- take advantage of their  
2 capacity factors to minimize the capital investment  
3 associated with the building of those renewable resources.

4 **Q. And future transmission investment?**

5 A. That is a -- looking at a situation -- and  
6 I'll refer to specifically in this case, you look at  
7 something like what ATXI identified as potential voltage  
8 issues in the northeast part of the state.

9 By building the MVP lines, there are certain  
10 reliability issues that are being forecasted -- not -- you  
11 don't have to quite build yet because it's down the road,  
12 but these MVP lines go ahead and solve. So it's  
13 essentially an investment that no longer has to be made to  
14 meet those reliability considerations. The MVPs are taking  
15 care of that.

16 **Q. So in light of all these benefits, is it**  
17 **possible that as a result of construction of this project,**  
18 **along with the whole MVP portfolio, that Missouri**  
19 **ratepayers could actually see a reduction --**

20 A. I --

21 **Q. -- in their rates?**

22 A. I am not a rate specialist. All I can tell  
23 you is that you should see a reduction in the wholesale  
24 energy available to --

25 **Q. Well, and there would be at least some**



1 **correlation between wholesale prices and retail prices?**

2 A. I would hope so. Yes.

3 **Q. How critical to MISO's analysis was the**  
4 **development or is the development of wind energy in north**  
5 **Missouri?**

6 A. Not as critical. The MVPs focused on the  
7 gathering and the delivery of the renewable resources  
8 across the system.

9 Whether Missouri has an RES or not, whether  
10 Missouri builds locally or not, the MVP lines, especially  
11 the Mark Twain line, especially considering Missouri's  
12 perspective, the MVP lines in the portfolio associated with  
13 it provide access to that regional economic generation.

14 Whether you need it or not, it is going to  
15 impact the production costs across the system, and it  
16 should lower that wholesale energy cost.

17 **Q. This document right here --**

18 A. Yes, sir.

19 **Q. -- I don't know how to identify that for the**  
20 **record.**

21 A. I think Mr. Kramer referred to it as the  
22 jellybean chart.

23 **Q. Jellybean chart?**

24 A. Yes.

25 **Q. Okay. Is there a more legal description?**

1           A.       Can I see which one you're looking at  
2 specifically? Yes. That is -- it is essentially a  
3 representation of the MISO existing transmission system --

4           **Q.       Just to make sure, so the record is clear,**  
5 **what document are we looking at?**

6                   **Counsel?**

7           MR. LOWERY: It's in Mr. Smith -- it's one  
8 of Mr. Smith's schedules.

9           MR. SMALL: I believe he's looking at the --

10          MR. LOWERY: Yeah.

11          MR. SMALL: -- pre-filed exhibit.

12          WITNESS: Yeah. So you could -- in my -- in  
13 Schedule 1 that I submitted, there are a number of  
14 representations of that graphic. I'm trying to find where  
15 the first instance is.

16          MR. LOWERY: I think the one that the  
17 chairman has is on Page 80 of the MVP report -- Page 83 of  
18 your first schedule.

19          WITNESS: Okay. Perfect.

20 BY CHAIRMAN HALL:

21          **Q.       Where it says RGOS Zone --**

22          A.       Yes.

23          **Q.       -- what's that stand for?**

24          A.       Regional generation outlet study.

25          **Q.       Okay. And are those blue circles wind**

1 **zones?**

2 A. Yes, sir. They are energy resource zones.

3 **Q. And how were those wind zones -- how were**  
4 **those determined?**

5 A. They were determined through significant  
6 stakeholder interactions, utilizing technical data from the  
7 National Renewable Energy Lab, NREL, that they developed in  
8 their EWITS study of 2008 which projected wind capability  
9 across much of the eastern United States.

10 We took that data, did some statistical  
11 analysis that considered the technical capabilities in  
12 regions, plus the distance to load, and found a set of  
13 zones to test as an assumption of where new resources could  
14 be.

15 **Q. So we're -- so transmission constraints were**  
16 **taken into account in identification of these zones?**

17 A. Distance to load was taken into account, not  
18 necessarily transmission constraints, primarily because the  
19 renewable energy zones, the -- the -- renewable energy is  
20 generally site-specific, so you can't just build a wind  
21 unit in downtown St. Louis to meet their needs; you  
22 actually have to go remote.

23 So what we were finding in our footprint is  
24 the transmission capacity needed for integrating a lot of  
25 these renewable resources just did not exist because the

1 renewable resources locations were very remote in general.

2                   So when I find -- when we tried to find a  
3 balance of distance to load, you would see the Missouri  
4 zones pop up as trying to find a balance of access to  
5 regional wind resources that have significant value in the  
6 upper Midwest and those that would provide a little bit  
7 more local delivery, such as the ones in Missouri to the  
8 loads in -- at least in our footprint, which would be  
9 St. Louis.

10               **Q.       If you turn to Page 10 of your surrebuttal,**  
11 **I want to make sure I understand your testimony, Lines 22**  
12 **to 24. Do I read that correctly that you're saying that**  
13 **one of the reasons why we haven't seen wind development --**  
14 **well, generally -- or maybe more specifically in north**  
15 **Missouri is because of transmission constraints?**

16               A.       It was a systemic problem across our  
17 footprint, that prior to us developing the regional  
18 generation outlet study to the MVPs, is we were seeing a  
19 significant amount of wind resources in our queue and a  
20 significant amount of wind resources exit our queue.

21                   And that's when, actually, members from our  
22 state governor agencies, our state regulatory bodies  
23 started saying, "We need to solve this problem because  
24 we're not going to meet our RPS's if we're not going to get  
25 these resources met."

1           And that actually predicated where we got to  
2 this point of working with the rest of our stakeholder  
3 public in developing these assumption to resource zones so  
4 that we could better plan a transmission system to meet  
5 those needs across our footprint.

6           **Q. I believe you answered some questions with**  
7 **regard to this from Mr. Lowery, but I want to make sure I**  
8 **understand it, as well. Mr. Powers provided a great deal**  
9 **of written and oral testimony that wind development is very**  
10 **unlikely in north Missouri. And I guess he argued that**  
11 **there were a variety of other options available and much**  
12 **more likely.**

13           **I mean, how do you respond directly to his**  
14 **assertion that it's just not economical to develop wind in**  
15 **that area?**

16           A. Well, I guess my first thing I would look at  
17 is the MISO generation inter-connection queue. I can have  
18 a lot of opinions of my own, but the generation  
19 inter-connection queue is a commitment of developers to  
20 commit money to building resources.

21           Right now, our generation inter-connection  
22 queue, I think at the point I wrote my testimony, had a  
23 17:1 wind-to-solar ratio in regards to what was -- what was  
24 being developed. And, to me, I -- the only thing I could  
25 look at is that kind of market perspective.

1           There are going to be a number of factors  
2 that the developers are going to have to take into  
3 consideration that are going to drive investment, specific  
4 locations.

5           I think it's promising to note that, you  
6 know, there is a new -- if I understand correctly, a couple  
7 weeks ago -- a new resource was proposed in that area. We  
8 have noticed that as the MVPs start to see their approvals,  
9 you do see wind projects move from former locations to  
10 something that will take advantage of that inter-connection  
11 capability that's being developed. You'll also see new  
12 resources pop in those areas.

13           **Q.       And then with regards to the -- to the Clean**  
14 **Power Plan, I believe you said, again in response to a**  
15 **question from Mr. Lowery, that this project would "help get**  
16 **us there." Can you explain what that means?**

17           A.       Say that one more time, please.

18           **Q.       I think Mr. Lowery asked you about the Clean**  
19 **Power Plan and its relationship to the MVP portfolio -- and**  
20 **I may be butchering that line of inquiry. But my**  
21 **understanding of what you said is that -- is that the**  
22 **portfolio in general, or maybe this project in particular,**  
23 **would help get us there. I assume that meant towards 111-D**  
24 **compliance.**

25           A.       Yes.

1           **Q.       But could you -- could you connect the dots**  
2 **for me?**

3           A.       Yes. I will do my best. The -- so the  
4 Clean Power Plan has multiple objectives over the next 15  
5 years. There's interim periods of compliance, and then  
6 there's the end target in 2030. A lot of change is going  
7 to have to happen within the MISO footprint for the fleet  
8 to comply with the restrictions that are being applied from  
9 the Clean Power Plan.

10                   The movement that our states have made over  
11 the past five to ten years in regards to renewable energy  
12 requirements is helping push into an easier compliance path  
13 the -- to the extent that some of our recent analytics are  
14 showing that MISO membership should be able to adjust and  
15 comply -- I don't want to say easily and cost-free, but  
16 they should be able to be more compliant through at least  
17 2025 when these MVPs and the renewable portfolio standards  
18 come to their full maturity across our footprint. And I  
19 think the reason for that is is because we are adding  
20 carbon-neutral resources and a transmission system that can  
21 deliver those.

22                   After 2025, you start seeing a tightening of  
23 those rules, and you're going to see more fleet change.  
24 You're going to see more -- I don't want to say more  
25 transmission, but maybe different transmission, different

1 utilization. The resource mix is going to change  
2 significantly under a carbon-constrained world with the  
3 Clean Power Plan.

4 And our system, I believe -- and our results  
5 in the MVP initial analysis that said there's going to be  
6 carbon benefits associated with this set of projects are  
7 proving to be true in our current analysis as well, because  
8 we have a -- an -- well, I just don't want to say too many  
9 words -- easy and unimpactful, but they're -- it's going to  
10 make it easier for us to comply with these projects in  
11 line. If the MVP portfolio wasn't there, we'd be starting  
12 back from 2008 numbers, not 2015 numbers, and that's a big  
13 difference on where you need to go for compliance.

14 **Q. Are you familiar with the Grain Belt Express**  
15 **set of transmission projects, in particular the Clean Line**  
16 **Express from western Kansas?**

17 A. Only in discussion, Commission -- Chairman  
18 -- only in discussion. I have -- I was not -- did not  
19 partake in any of those analytics.

20 **Q. So you don't have any sense as to how the**  
21 **MVP projects in general or the Mark Twain in particular**  
22 **might be affected by the existence of a clean line**  
23 **transmission line?**

24 A. That was an HVDC line. Correct?

25 **Q. Yes.**



1           A.       So in the regional generation outlet study  
2 that we performed, we looked at three primary transmission  
3 solution scenarios to integrate these renewable resources.  
4 Those scenarios included a -- what we called a native  
5 voltage, which means don't build anything -- don't build  
6 any new type of technology in an area.

7                       There was a scenario where we looked at  
8 expanding the extreme high-voltage 765 grid from our  
9 eastern footprint to the west. And then the other  
10 component looked at how do you -- could you use high  
11 voltage direct current transmission to meet those needs?

12                      All three scenarios were fleshed out and  
13 optimized to the best of our abilities at that time, but  
14 all three scenarios resulted in a 25 to \$30 billion worth  
15 of investment and enabled wind that was three or four times  
16 greater than what we were looking for in regards to our  
17 renewable energy standards.

18                      So we took those three scenarios and we  
19 created -- and we found common elements associated with  
20 those, tweaked to some extent to make sure that they were  
21 matching, because what we were finding were corridors were  
22 important, not necessarily technology.

23                      And the MVP -- the candidate MVP portfolio  
24 that came out of the RGOS study then was tweaked further  
25 and refined in the MVP analysis was a portfolio that was

1 consistent with all three of those broader, longer-term  
2 strategies that we looked at.

3 So a Mark Twain line, including with the MVP  
4 portfolio, does not, in my opinion, in a longer --  
5 long-term strategic renewable energy, carbon-mitigation  
6 world does not -- does not predetermine a bad answer for  
7 HVDC or high voltage or native. It is actually a first  
8 step to that next level of potential development.

9 **Q. How did the Mark Twain project originate?**  
10 **Did it originate with Ameren or did it originate with MISO?**

11 A. It originated through our stakeholder  
12 processes. So as we were going through and identifying  
13 congestion areas, constraints, MISO depends on its local  
14 TOs and their expertise -- and TOs, by transmission owners  
15 -- we depend on our local transmission owners and their  
16 expertise and understanding what are good potential  
17 projects to meet. And then we work together as we satisfy  
18 trying to meet the objectives of economic efficiency; in  
19 this case, renewable -- enabling renewable energy across  
20 the system.

21 MISO expertise is at a regional -- as a  
22 whole, our stakeholders and our membership are the experts  
23 on their local areas, and we depend upon each other to get  
24 both perspectives and both views. So did MISO propose it?  
25 Did the local transmission owner propose it? I don't

1 remember that specifically, but I know that it went through  
2 our stakeholder processes, and it was through all our  
3 membership, not just --

4 **Q. How would you respond to Mr. Powers'**  
5 **testimony yesterday that -- that ISOs view transmission as**  
6 **the solution to all problems? And I don't know if he used**  
7 **the exact words that I did -- that there's a bias towards**  
8 **transmission when there are other possible ways to solve**  
9 **issues, ISOs will always answer with more transmission.**

10 A. I just completely disagree with that. Our  
11 stakeholders are -- run the gamut of perspectives from  
12 state regulatory to consumer advocacies to transmission  
13 owners to generators to IPPs to market, market  
14 participants, as well as a sector that focuses on  
15 environmental and distributed resources.

16 And throughout our processes, as we go  
17 through our standard reliability analytics, as we go  
18 through from a -- from a bottom-up build, which would come  
19 from our transmission owners, to a top-down build, which  
20 would come from MISO, all of our plans, all of our  
21 development go through a very robust stakeholder process  
22 that allows for anybody to come in and offer alternatives.

23 And if they offer those alternatives to  
24 particular reliability solutions, economic solutions, we  
25 will consider those and we will look at those and we will

1 see if there is additional value or better value associated  
2 with that. We just have to be --

3 **Q. But it's true that if it's not transmission**  
4 **as the answer then it's state commissions that would have**  
5 **jurisdiction --**

6 A. That --

7 **Q. -- largely over developing those solutions?**

8 A. That is correct. And, actually, that's  
9 where I was going with my next --

10 **Q. I'm sorry.**

11 A. -- is that MISO -- we have an authority for  
12 obligating transmission build, but if there is a -- if  
13 there is a solution that looks to be demand response, a  
14 solution that looks to be new generation location, then we  
15 have to get a certain certainty, because we can't obligate  
16 those. That is the responsibility of the local -- the  
17 local regulatory body that takes ownership of that.

18 So it would have to be a significant  
19 coordination between both of those efforts to ensure that  
20 those reliability issues that are identified are going to  
21 be satisfied, whether it's transmission, demand response,  
22 new generation.

23 CHAIRMAN HALL: Okay. Thank you. I have no  
24 further questions.

25 WITNESS: Thank you.

1 JUDGE PRIDGIN: Mr. Chairman, thank you.  
2 Commissioner Stoll?

3 EXAMINATION

4 QUESTIONS BY COMMISSIONER STOLL:

5 Q. Thank you. Good morning.

6 A. Good morning.

7 Q. I do have just a couple questions. When was  
8 the first multi-value portfolio approved? What year was  
9 that? Was that 2011?

10 A. Yes. It was part of our 2011 MTEP approval  
11 process.

12 Q. Okay. And are all the projects -- I  
13 probably should know this, but are all the projects in the  
14 MVP under FERC Order 1000 jurisdiction?

15 A. I am --

16 Q. Are they lesser or some --

17 A. The MVPs were approved prior to FERC Order  
18 1000 because we didn't have the cost competitive -- or the  
19 competitive build function, so these were all pre-FERC  
20 Order 1000.

21 Q. Okay. You're not sure if there -- if --  
22 under current circumstances they'd be under the FERC Order  
23 1000 jurisdiction or not?

24 A. So I am stretching way outside my realm of  
25 expertise, but any project that has a cost/share component,

1 like an MVP portfolio, would fall under FERC Order 1000  
2 guidelines when it comes to the competitive bidding of  
3 transmission.

4 **Q. Okay. In your surrebuttal testimony, on**  
5 **Page 8, you talk about the 2014 MVP triennial review. What**  
6 **exactly takes place during that review?**

7 A. So what we do is we go in and we update all  
8 of our economic models. We update all of our assumptions.  
9 And we look at -- basically re-run the system.

10 Now -- so 2011, dated models, so we -- every  
11 three years, FERC has mandated us to do a triennial review,  
12 so we go in and we update all of our economic models in --  
13 which most of those benefits were based off of, and make  
14 sure that those benefits still exist. So we update things  
15 like gas prices, other fuel prices, capital costs. All  
16 those things that would drive the economic value of the  
17 system get updated in the -- in that triennial review.

18 **Q. Okay. So since this was in the first MVP**  
19 **multi-value portfolio, were any changes made to that 2011**  
20 **portfolio as a result of the triennial review?**

21 A. No, sir. We did not make any changes. It  
22 was just a review to ensure that the portfolio still  
23 provided the benefits that we did. Now, that is -- that  
24 was just the mission of that.

25 **Q. Okay. So they are reviewed as a whole**

1 **rather than --**

2 A. Yes.

3 **Q. -- individual projects, but to make that**  
4 **determination as a whole, I guess, you know, they do look**  
5 **at -- they run the model on each of the projects? Would**  
6 **that --**

7 A. The model is run on the portfolio in service  
8 as a whole. We can --

9 **Q. Okay.**

10 A. -- pull out -- when you look at the value,  
11 for example, of the LRZ-5, which is Missouri, that pulls  
12 out specific information from that full portfolio  
13 implemented. It pulls out information specifically to  
14 Missouri to identify. But it does not look at any project  
15 individually.

16 **Q. Is this process similar to other RT0 ISO**  
17 **processes to select projects? I don't know if you know**  
18 **that, but --**

19 A. I -- our peers to our east and to our west  
20 have variations of how they do this type of planning. Is  
21 it similar? I'm sure there's probably some similarities  
22 with -- you may be more familiar with the southwest power  
23 pool than we would have at PJM, but they're not going to be  
24 exact processes.

25 **Q. Okay. You mentioned that the stakeholder**

1 process -- I don't think you said state regulators, but you  
2 said state something are involved in the stakeholder  
3 process.

4 A. I may have said regulatory bodies.

5 Q. Yes, regulatory bodies. And who is that?  
6 Is that the Department of Natural Resources in Missouri  
7 or --

8 A. So the -- our membership, it would be more  
9 reference to the OMS. The organization of MISSO states is a  
10 -- is a -- one of our ten stakeholder sectors that  
11 participate in our planning process, as well as the state  
12 consumer advocates also have a representation as one of the  
13 ten sectors within. So that is where our state regulatory  
14 review comes in.

15 COMMISSIONER STOLL: Okay. I think that's  
16 all my questions, then. Thank you.

17 JUDGE PRIDGIN: Okay. Commissioner Stoll,  
18 thank you. Commissioner Kenney?

19 COMMISSIONER KENNEY: No.

20 JUDGE PRIDGIN: Commissioner Coleman?

21 COMMISSIONER COLEMAN: No, thank you.

22 JUDGE PRIDGIN: Thank you. Any recross  
23 based on the questions? ATXI?

24 MR. LOWERY: Just a couple, Your Honor.

25 RECCROSS EXAMINATION



1 QUESTIONS BY MR. LOWERY:

2 Q. The chairman was asking you about the Clean  
3 Power Plan and your comments that it would help us get  
4 there.

5 A. Uh-huh.

6 Q. Do you remember that? Am I correct that the  
7 Clean Power Plan is really about displacing megawatt hours  
8 that are currently being generated by carbon-based  
9 generation with megawatt hours that are either generated by  
10 generation that produces less carbon or that produces no  
11 carbon, so a megawatt hours initiative, effectively?

12 A. It -- well, it's a carbon-tonnage production  
13 initiative. So it set a target. Depending on how you want  
14 to look at it, if you look at it from a mass compliance  
15 perspective, they have capped the amount of carbon  
16 production you can have in your system.

17 Q. But -- and I may not understand this  
18 correctly, but as I understand the way the electric system  
19 would work, in order to reduce carbon, you've got to reduce  
20 megawatt hours carbon-based generation, don't you?

21 A. Yes. You have to offset it with less  
22 carbon-producing or no carbon-producing resources.

23 Q. And I guess where I'm going with this is,  
24 you know, there's been testimony in the case about the  
25 various value at various hours of the year of various kinds

1 of generation and there's a thought out there that maybe  
2 solar is more valuable at the peak because it's a hot,  
3 sunny day, and solar is operating and the wind is not  
4 operating in the middle of the afternoon in St. Louis in  
5 July.

6 But from a Clean Power Plan perspective,  
7 shaving the peak in July isn't really going to get us there  
8 in terms of the Clean Power Plan; what you need is you need  
9 a displaced megawatt hours through many hours of the year.  
10 Isn't that fair to say?

11 A. Yes.

12 Q. And wind is going to do that more  
13 effectively than solar; isn't that right?

14 A. Yes. From a market energy perspective,  
15 normally when you have your wind resources online,  
16 generally off-peak times, your major displacement is going  
17 to be your coal-fired resources rather than your gas-fired  
18 resources, which are normally utilized during peak hours.

19 Q. And just to take us -- to put some math to  
20 it, if I had a -- if I have a wind resource -- and I'm just  
21 going to use the analysis Black and Veatch did Ameren  
22 Missouri that's in the IRP that said 100 meter towers would  
23 have, I think, a 37.5 percent capacity factor.

24 If I have a 20-percent capacity factor for  
25 solar, I discussed with Mr. Powers yesterday, you had a

1 mixture of fixed and tracking. Just from a mathematics  
2 perspective, if I take 37 and I divide it by the 20, I've  
3 got to have about 85 percent more solar to get the same  
4 number of megawatt hours than I do wind. Right?

5 A. I'm going to take your -- I'm a recovering  
6 engineer, so I'm going to take your math as --

7 Q. 37 divided by 20 is 85. That's right, isn't  
8 it?

9 A. Okay. Yes.

10 Q. And I want to also -- one other thing about  
11 the Clean Power Plan, there's been some discussion about  
12 the utilization of gas instead of coal. Right?

13 A. Uh-huh.

14 Q. Are there some features of the Clean Power  
15 Plan that -- and I'm referring specifically to a term I've  
16 heard called leakage --

17 A. Uh-huh.

18 Q. -- that effectively may limit the ability of  
19 natural gas to certainly solve all of the issues that are  
20 -- that are required by the Clean Power Plan?

21 A. Yes, to some extent. The leakage is more of  
22 a making sure the economics -- that you just don't go out  
23 and build a brand-new gas plant to replace an old gas plant  
24 and get outside of -- because -- I apologize. 111-D is an  
25 existing source performance standard. So leakage is to

1 make sure you don't retire an existing source and replace  
2 it with a higher carbon-emitting new source.

3           However, under a rate compliance scenario,  
4 under the Clean Power Plan, they give you these credits --  
5 and they're called gas ERCs -- energy -- I don't know what  
6 the RC stands for now that I'm put under pressure. But you  
7 can create these gas ERCs that can offset your production  
8 of coal plants.

9           The problem is, is post-2025 in our  
10 modeling, gas units become net consumers of renewable or  
11 energy efficiency generated ERCs and produce no more gas  
12 ERCs. So beyond 2025, all new resources under a rate  
13 regime in compliance with the CPP are going to require new  
14 carbon-neutral resources to meet.

15           You're not going to be able to meet your  
16 existing source performance standard with new gas capacity,  
17 because your old gas capacity is going to require you to  
18 offset your gas production, because gas also produces  
19 carbon on it. So it's not a one-for-one in that regard.  
20 So, really, the CPP is more of a push towards renewables  
21 than it is towards gas. They just allow gas to help you  
22 ramp down to those levels.

23           **Q. Do you have any doubt in your mind that the**  
24 **CPP is going to drive significant additional wind**  
25 **development in the MISO region?**

1 A. I do not have any doubt in my mind at all.

2 Q. Thank you.

3 MR. LOWERY: I have no further questions,  
4 Your Honor.

5 JUDGE PRIDGIN: Mr. Lowery, thank you.  
6 Staff?

7 MS. MYERS: Yes.

8 RECROSS EXAMINATION

9 QUESTIONS BY MS. MYERS:

10 Q. Mr. Smith, Chairman Hall had asked you about  
11 where this Mark Twain -- Mark Twain project had originated.  
12 You responded that it originated through the stakeholder  
13 process. Correct?

14 A. Uh-huh. Yes, ma'am.

15 Q. And then Commissioner Stoll had further  
16 asked you about the stakeholders, and you had said that  
17 there were ten stakeholders. Correct?

18 A. Ten stakeholder sectors.

19 Q. Sectors.

20 A. Yes.

21 Q. Could you list those sectors?

22 A. Not by memory. I can try. We have the  
23 organization of MISO states. You have your state utility  
24 -- or state consumer advocates. You have your transmission  
25 owners, your transmission developers. You have your market

1 participants. You have your environmental other sector.  
2 And I'm going to fail on the last four right now.  
3 Transmission-dependent utilities and large industrial  
4 customers, and then there's two more that I'm just blanking  
5 on at this point.

6 **Q. Well, thank you. And so within each of**  
7 **those sectors, there's also multiple participants.**  
8 **Correct?**

9 A. Yes. Yes, there are. Actually -- so you  
10 take transmission-dependent utility sector represents some  
11 I think 15 transmission-dependent utilities. The T0 sector  
12 is -- reflects -- I believe we're in the forties, maybe  
13 even 50. The OMS reflects all of our states. Same thing  
14 with the state consumer advocates. And there are some  
15 450-plus registered market participants within MISO.

16 **Q. Thank you.**

17 MS. MYERS: I have no further questions.

18 JUDGE PRIDGIN: Ms. Myers, thank you.

19 United for Missouri any cross?

20 MR. LINTON: Yes, sir.

21 RECROSS EXAMINATION

22 QUESTIONS BY MR. LINTON:

23 **Q. Good morning, Mr. Smith.**

24 A. Good morning.

25 **Q. My name is David Linton, and I represent**

1 **United for Missouri. Chairman Hall had a few questions for**  
2 **you about the sequencing of these lines in the MVP, and you**  
3 **also commented about if the sequence isn't exactly right,**  
4 **there will be a market price divide. Do you remember that?**

5 A. I don't know if I referred to it as a  
6 sequencing. It was if this -- if the project is delayed --

7 **Q. Okay.**

8 A. -- the -- what that impact would be. And  
9 yes, I believe you would start to see a market price  
10 separation from the neighbors on the outside.

11 **Q. Okay. When you do a analysis of your MVPs,**  
12 **you analyze the economic benefits based on what you -- what**  
13 **would be called an adjusted production cost model?**

14 A. That is correct.

15 **Q. Could you explain that to me?**

16 A. An adjusted production cost model is --  
17 well, the adjusted production cost is essentially the  
18 production costs associated with your generation, plus your  
19 purchases, less your sales is what the adjusted production  
20 cost is. So it tries to take into account that you don't  
21 live in a vacuum, and that when you are producing that you  
22 are going to have some purchases and sales on the system,  
23 but those purchases and sales are going to be limited by  
24 your transfer capabilities across your system.

25 **Q. So you dispatch the system, then, based upon**

1 **the congestion you see on the system?**

2 A. That is correct. Our dispatch algorithms  
3 look at -- it would prefer to do a complete merit-order  
4 dispatch, but then it starts to get constrained by  
5 transmission congestion on the system which starts to -- or  
6 starts to make other generators that are less economic  
7 generate because your transmission system can't contain or  
8 can't handle what you've -- what you're trying to do.

9 **Q. So in this case what you would do is you**  
10 **would model the existing state and then compare that to the**  
11 **system when you put the Mark Twain project in, and you**  
12 **would re-dispatch based upon the congestion in those two**  
13 **system --**

14 A. We would --

15 **Q. -- integrations?**

16 A. We would look at it from the context of the  
17 whole portfolio that includes the Mark Twain, but it's a  
18 with-or-without discussion. What does the system look like  
19 in its production costs without the portfolio? What does  
20 the system cost look like with the portfolio?

21 **Q. So when the chairman was talking about**  
22 **prices going down, prices going up, and you suggested there**  
23 **might be a separation in prices, it's more likely than not**  
24 **that if this unit -- or this line doesn't go into effect or**  
25 **doesn't go into service in the right sequence, the**



1 **congestion is going to remain and the prices will not go**  
2 **down, but it's not likely that they will go up?**

3 A. It would limited --

4 **Q. Is that right?**

5 A. It would be -- what you would end up having  
6 is your limitation to your resources would be off the  
7 existing system. So will they go up? I can't answer that.  
8 I can tell you separation will occur. Will they physically  
9 go up? You would probably default back to your current  
10 situation, would be my guess.

11 **Q. And you would just avoid the reduction in**  
12 **cost --**

13 A. You would avoid the reduction in the cost,  
14 but then you would also have to start taking into account  
15 the extra costs associated with the reliability that you're  
16 not managing that you were getting out of the Mark Twain  
17 line.

18 **Q. Okay. Thank you.**

19 MR. LINTON: No further questions.

20 JUDGE PRIDGIN: Mr. Linton, thank you.

21 Public Counsel?

22 MR. ALLISON: No questions.

23 JUDGE PRIDGIN: Neighbors United?

24 MS. HERNANDEZ: Yes.

25 RE CROSS EXAMINATION

1 QUESTIONS BY MS. HERNANDEZ:

2 Q. Chairman Hall asked you some questions about  
3 the MVP portfolio potential benefits for Missouri in  
4 different categories. Do you remember that line of  
5 questioning?

6 A. I do.

7 Q. And those potential benefit numbers in those  
8 different categories, those were for all Missouri projects.  
9 Correct?

10 A. Those benefits are associated with the  
11 entire MVP portfolio.

12 Q. Okay. The entire MVP --

13 A. Yes. I -- anything you hear from me will be  
14 in reference to the entire MVP portfolio.

15 Q. So the -- no -- okay. There was no specific  
16 number for the Mark Twain transmission project?

17 A. Not for the Mark Twain. We can produce  
18 numbers that are specific to the state of Missouri, which  
19 is what Chairman Hall was referring to, but that was in  
20 reference to the entire portfolio.

21 Q. And it's your understanding that the  
22 Commission is being asked to approve just the Mark Twain  
23 transmission project. Correct?

24 A. I do understand that.

25 Q. Okay. Thank you.

1 JUDGE PRIDGIN: Ms. Hernandez, thank you.  
2 Redirect?

3 MR. SMALL: Yes. Thank you, Your Honor.

4 REDI RECT EXAMI NATION

5 QUESTIONS BY MR. SMALL:

6 Q. **First of all, Mr. Smith, would you turn to**  
7 **Schedule JTS-1, Page 83 of that schedule, and Page 8 of the**  
8 **actual report that was attached to your testimony.**

9 A. 83 of the schedule, Page 80 of the report?

10 Q. **Yeah. It has a map. Do we have the same**  
11 **page?**

12 A. I am there. Section 10, proposed  
13 multi-value project portfolio overview?

14 Q. **Yes. Just to be clear, is that the map that**  
15 **was referred to by the chairman?**

16 A. That is the one I was looking at.

17 Q. **Thank you. Could you also turn to Schedule**  
18 **JTS-1 MVP report, Schedule -- Page 52, and Page 49 of the**  
19 **actual report.**

20 A. I am there.

21 Q. **And is this a -- in this portion of the**  
22 **attachment, is this the discussion of the -- of the**  
23 **benefits that you responded to the chairman's questions?**

24 A. It is. This is the breakdown of how those  
25 benefits are, but it's not the breakdown for the Missouri

1 benefits. This is the entire portfolio.

2 Q. So this is -- these numbers are for the  
3 entire portfolio, but there are corresponding numbers for  
4 the Missouri portion of the footprint; is that correct?

5 A. Yes.

6 Q. Okay. With respect to these numbers, you've  
7 probably -- you've heard testimony about the effect of  
8 local reliability projects. How does -- how do the  
9 benefits and costs of local -- of doing the local  
10 reliability benefits fit into the picture that -- of total  
11 benefits and costs that you were discussing with the  
12 chairman?

13 A. If you look at this graphic Figure 8.1 on  
14 the report Page 49 and the JTS Schedule 1, Page 52, it  
15 would be the bar that represents Number 6 there, which is  
16 titled "Future Transmission Investment." That is the  
17 deferment of the -- that is the deferment of the  
18 reliability projects as I discussed.

19 Q. So would the -- now, these numbers are for  
20 the entire portfolio. It's a report for the entire  
21 portfolio. Correct?

22 A. Yes.

23 Q. And how would that compare, do you know,  
24 with the Missouri portion of the footprint, as far as  
25 proportionality of the benefits?

1           A.       That I can't answer. I don't know  
2 specifically what the costs of the reliability solutions  
3 associated with the Missouri part that was in  
4 Mr. Kramer's --

5           **Q.       So what would happen if the local**  
6 **reliability matters were met or dealt with outside of the**  
7 **context of the MVP projects -- or the Mark Twain project?**

8           A.       Worst case scenario: You would, one, incur  
9 an additional set of costs to solve those reliability  
10 problems; and, two, only reduce your portfolio benefits by  
11 that 226 to \$794 million, which is a small percentage of  
12 the total benefits identified of 15 -- 15 billion to 50  
13 billion, roughly.

14          **Q.       Now, there have been several questions from**  
15 **different persons having to do with this being a total**  
16 **portfolio, and you were asked a question -- do you recall**  
17 **being asked a question about the progress of the MVP**  
18 **portfolio?**

19          A.       I do.

20          **Q.       And would you turn to your Schedule JTS-2,**  
21 **Page 21 of this schedule, and Page 20 of the report?**  
22 **That's the triennial review that's attached to your**  
23 **testimony.**

24          A.       I am there.

25          **Q.       And can you describe -- what's the**

1 **relationship between the materials found on that page and**  
2 **the discussion about the progress on the MVP portfolio?**

3 A. The materials on this page do reflect what  
4 the current status is from a -- if there's a regulatory  
5 need, what that status is and if the construction has  
6 already begun, but this material is dated to the MTEP 14  
7 timeframe, and that's been over a year since this has been  
8 updated.

9 So a more updated chart would reflect all  
10 projects being through their -- if there was a need for  
11 regulatory approval, through that regulatory approval,  
12 except for the two Missouri identified projects, and then  
13 the discussion that we had in regards to the one Wisconsin  
14 project where they have not yet to file for their  
15 approvals.

16 **Q. Okay. And is that something that can be**  
17 **found from public information from MIS0?**

18 A. It is. It is. It actually gets updated on  
19 a fairly regular basis.

20 **Q. And is there a more updated version of that**  
21 **chart available to the public from MIS0?**

22 A. There is.

23 MR. SMALL: Your Honor, I'd like to have an  
24 exhibit marked as Exhibit Number 82, I believe.

25 JUDGE PRIDGIN: Yes, sir.

1 MR. SMALL: May I approach?

2 JUDGE PRIDGIN: Yes, you may.

3 (MISSOURI Exhibit 82 was marked for  
4 identification by the court reporter.)

5 REDIRECT EXAMINATION

6 QUESTIONS BY MR. SMALL:

7 Q. Do you have the revised chart in front of  
8 you?

9 A. I do.

10 Q. And is that the more current, updated  
11 information to the chart that you have in the triennial  
12 review that you referred to just now?

13 A. Yes.

14 Q. And what are the differences between the two  
15 charts?

16 A. Generally, the differences are focused on  
17 the regulatory status of the various projects. What you'll  
18 see in the updated version are basically more filled-in  
19 circles. The processes have been ongoing across our  
20 footprint, and you'll see that, as I mentioned before, the  
21 only remaining projects left are the two Missouri projects  
22 as well as the one in -- the one remaining in Wisconsin.

23 Q. Okay. And the one in Wisconsin that you're  
24 referring to, which I believe says MVP 5, there's a note on  
25 the left that there are two projects; is that -- is that

1 **your understanding?**

2 A. Yes.

3 **Q. Do you know the status of those two**  
4 **projects?**

5 A. I know that the project known as the  
6 Badger-Coulee Line has made it through the process, and  
7 then the other project, the Cardinal to Hickory Creek, is  
8 the one that is yet to be applied for.

9 MR. SMALL: With that, Your Honor, I have no  
10 further questions.

11 JUDGE PRIDGIN: All right. Thank you.

12 Mr. Smith, thank you very much.

13 WITNESS: Thank you.

14 JUDGE PRIDGIN: You may step down.

15 MR. SMALL: If I may ask to have Exhibit  
16 Number 82 moved into the record.

17 (MISO Exhibit 82 was offered into evidence.)

18 JUDGE PRIDGIN: 82 has been offered. Any  
19 objections? Hearing none, Exhibit 82 is admitted.

20 (MISO Exhibit 82 was received into  
21 evidence.)

22 JUDGE PRIDGIN: This looks to be a good time  
23 to take a break. Let us resume at 10:05. Just as a  
24 heads-up because agenda today is at noon, our lunch break  
25 will probably go longer than an hour to accommodate, you



1 know, both time for lunch and agenda. So I wanted to let  
2 the parties know so they can plan accordingly. Anything  
3 further before we go off the record? Hearing nothing, we  
4 will resume at 10:05. Thank you. We are off the record.

5 (Off the record.)

6 JUDGE PRIDGIN: All right. Good morning.  
7 We're back on record. I understand Dr. Smith is on the  
8 stand and will be ready to testify here shortly.

9 Once again, I'll look for a natural break  
10 somewhere around 11:30, maybe before, maybe after. I'm  
11 going to take probably a 90-minute break or so. That will  
12 give time for both agenda and lunch. I wanted to give you  
13 a heads-up on that.

14 I apologize for the temperature of the room.  
15 I know it's been too warm, and now it's a little too cool.  
16 I turned the fans off. For my next trick, I'll be setting  
17 sprinklers off, although I can't think of anything else.  
18 I -- sincerely, I apologize, but at least it's not as warm  
19 with the fans off. I turned the thermostat back up. I  
20 hope that will make everyone more comfortable.

21 Anything further before Dr. Smith is sworn  
22 in?

23 All right. Hearing nothing, Doctor, if  
24 you'll raise your right hand to be sworn, please.

25 (Witness sworn.)

1 JUDGE PRIDGIN: Thank you very much, sir.  
2 And Mr. Hernandez, when you're ready.

3 MR. HERNANDEZ: Your Honor, it's  
4 Mr. Hernandez.

5 JUDGE PRIDGIN: Mr. Hernandez, when you're  
6 ready, sir.

7 DIRECT EXAMINATION

8 QUESTIONS BY MR. HERNANDEZ:

9 Q. Please identify yourself for the record.

10 A. My name is Dr. Dennis Smith.

11 Q. And where are you employed?

12 A. I am the medical director of an emergency  
13 department at Moberly Regional Medical Center, Moberly,  
14 Missouri.

15 Q. And you're the same Dr. Smith that caused to  
16 be prepared rebuttal testimony that's been pre-marked as  
17 Exhibit 40, to include DS-01, DS-02, DS-03, DS-04, DS-05,  
18 DS-06, and DS-07?

19 A. I am.

20 Q. Do you have any corrections to that  
21 testimony?

22 A. I do.

23 Q. You do have corrections?

24 A. Oh, no, I do not. I'm sorry.

25 Q. And if I asked you the same questions

1 contained in your testimony today, would your answers be  
2 the same?

3 A. Yes, they would.

4 Q. And is your testimony true and accurate to  
5 the best of your knowledge, information, and belief?

6 A. Yes.

7 MR. HERNANDEZ: Your Honor, I'd like to  
8 offer Exhibit 40 and tender the witness for  
9 cross-examination.

10 (NU Exhibit 40 was offered into evidence.)

11 JUDGE PRIDGIN: Mr. Hernandez, thank you.  
12 Exhibit 40 has been offered. Any objections? Hearing  
13 none, Exhibit 40 is admitted.

14 (NU Exhibit 40 was received into evidence.)

15 JUDGE PRIDGIN: Cross-examination, Public  
16 Counsel, Mr. Allison?

17 MR. ALLISON: No questions.

18 JUDGE PRIDGIN: United for Missouri?

19 MR. LINTON: I have no questions. Thank  
20 you.

21 JUDGE PRIDGIN: Staff?

22 MR. WESTEN: No questions, Your Honor.  
23 Thank you.

24 JUDGE PRIDGIN: MISSO?

25 MR. SMALL: No questions, Your Honor.

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JUDGE PRIDDIN: ATXI?

MR. TRIPP: Yes, Your Honor.

CROSS-EXAMINATION

QUESTIONS BY MR. TRIPP:

**Q. Good morning, Dr. Smith.**

A. Good morning.

**Q. Dr. Smith, you're testifying on behalf of Neighbors United as an expert in the unacceptable risk to human health related to electromagnetic fields associated with the Mark Twain transmission line. Correct?**

A. I am.

**Q. And you don't hold any degree in environmental health. That's true. Correct?**

A. I do not.

**Q. And you list on your curriculum vitae that's attached to your testimony that you've had extensive training in non-ionizing radiation warfare in the military. Correct?**

A. Yes.

**Q. And that primarily had to do with training you received for deployments to Bosnia and Iraq. Correct?**

A. Yes.

**Q. When we're talking about training on non-ionizing radiation warfare, that focused on microwaves, which are -- it focused on microwaves. Correct?**

1 A. That is correct.

2 Q. And microwaves are at a higher frequency  
3 than the EMF fields we're talking about in this case.  
4 Correct?

5 A. Yes, they are.

6 Q. And I don't know if you can see that. Let  
7 me give you a hard copy.

8 MR. TRIPP: May I approach, Your Honor?

9 JUDGE PRIDGIN: You may.

10 BY MR. TRIPP:

11 Q. What I'm showing you is a -- what that is  
12 has been admitted into evidence as part of Mr. Silva's  
13 testimony, which I'll get you a hard copy here.

14 MR. TRIPP: May I approach the witness, Your  
15 Honor?

16 JUDGE PRIDGIN: You may.

17 MR. TRIPP: Thank you.

18 BY MR. TRIPP:

19 Q. Now, when we talk about a different  
20 frequency, Dr. Smith, the extremely low frequency -- the  
21 frequency we're talking about with regard to the  
22 electromagnetic fields for the power lines in this case  
23 would be here on the left. Correct?

24 A. That's correct.

25 Q. Like -- in this case 60 hertz?

1 A. Yes.

2 Q. And microwaves, there's like a satellite  
3 dish there, and it points to the microwave frequencies  
4 which are in the gigahertz range. Correct?

5 A. That is correct.

6 Q. And is that consistent with your  
7 understanding?

8 A. Yes, it is.

9 Q. Okay. In the training that you received in  
10 the military with regard to EMF exposure, it was minimal.  
11 Correct?

12 A. That is correct.

13 Q. And, Dr. Smith, you've not published any  
14 scientific or medical papers in any peer-related journals  
15 related to EMF -- or actually on any topic. True?

16 A. I have not.

17 Q. And the training that you received -- I'm  
18 sorry. You've not worked as an epidemiologist. Correct?

19 A. In the military, whenever you're deployed,  
20 you do epidemiologic duties related to the deployment, but  
21 I have not done any specific work in that field.

22 Q. And I believe you testified earlier you're  
23 the director of the emergency room department at Moberly  
24 Regional?

25 A. That is correct.

1 Q. As a clinical physician, Dr. Smith, both in  
2 the military and since then, you've never treated anyone  
3 who you believed at the time of that treatment was  
4 suffering from EMF exposure. True?

5 A. At that time I would not have been aware of  
6 their EMF exposure.

7 Q. So that statement is true?

8 A. True.

9 Q. You first became interested in researching  
10 the possible health effects of EMF after Grain Belt Express  
11 proposed to place a DC transmission line in Randolph  
12 County; isn't that true?

13 A. That is correct.

14 Q. In fact, with regard to that line, you  
15 learned at some point that the line was planned to go  
16 through your own property. True?

17 A. That is correct.

18 Q. And you provided testimony before this  
19 Commission in opposition to the Grain Belt transmission  
20 project. Correct?

21 A. I did.

22 Q. Do you have your testimony in front of you?

23 A. I do have.

24 Q. If you'll go to Page 3, Line 16. Are you  
25 there?

1 A. Yes.

2 Q. All right. At Page 3, Line 16, when you  
3 refer to the electric industry and its supporters who  
4 downplay the risk of EMF to health, you were not singling  
5 out ATXI by that statement; isn't that correct?

6 A. I was not singling out one company. No.

7 Q. And that would include ATXI?

8 A. That would -- yes.

9 Q. You do believe that ATXI's use of a  
10 statement by the World Health Organization that "current  
11 evidence does not conform -- confirm the existence of any  
12 health consequences from exposure to low-level EMFs." You  
13 believe that is double speak, though. Correct?

14 A. I do. Yes.

15 Q. Okay. You admit that that statement is a  
16 statement from the World Health Organization. Correct?

17 A. That is correct.

18 Q. And when you state in your testimony at Page  
19 5, Lines 17 through 18 --

20 A. I'm there.

21 Q. -- "Industry has often faulted the research  
22 in this area as showing bias for having study sizes too  
23 small." You do not mention ATXI there. Correct?

24 A. No. I simply said "industry."

25 Q. And you don't even know whether Ameren



1 **transmission has even sponsored such research. Correct?**

2 A. I do not.

3 Q. **Dr. Smith, attached to your testimony is**  
4 **Schedule DS-07. It's a paper that you cite as evidence --**  
5 **I'm sorry. I didn't wait for you to get there. It's that**  
6 **Pall paper, P-a-l-l.**

7 A. I have that study. Yes.

8 Q. **All right. And that's a paper that you cite**  
9 **as evidence for the harmful effects of EMF exposure and as**  
10 **evidence of long-term health effects. Correct?**

11 A. That is correct.

12 MR. TRIPP: Your Honor, may I approach?

13 JUDGE PRIDGIN: You may.

14 MR. TRIPP: I need it marked as an exhibit.  
15 I believe we're at 83.

16 JUDGE PRIDGIN: That's what I have, I  
17 believe. Let me double-check. Yes.

18 (ATXI Exhibit 83 was marked for  
19 identification by the court reporter.)

20 BY MR. TRIPP:

21 Q. **Dr. Smith, what you have before you marked**  
22 **as Exhibit 83 is a table, actually, from that study that's**  
23 **included in Schedule DS-07. Correct?**

24 A. Yes, it is.

25 Q. **And with regard to that study, on that**

1 **table, there are eight studies checkmarked. Correct?**

2 A. Yes, there are.

3 Q. **And those studies are the ones that have**  
4 **EMFs -- or EMF exposure administered in the study as having**  
5 **a frequency of 60 hertz like the fields of the power**  
6 **systems in North America, as well as those of 50 hertz, the**  
7 **frequency of fields from the power system in Europe, and**  
8 **then there's one study that has both 50 and 60; is that**  
9 **correct?**

10 A. Yes, it is.

11 Q. **And of these --**

12 MR. TRIPP: Your Honor, move to admit  
13 Exhibit 83 into evidence.

14 (ATXI Exhibit 83 was offered into evidence.)

15 JUDGE PRIDGIN: 83 has been offered. Any  
16 objections? Hearing none, 83 is admitted.

17 (ATXI Exhibit 83 was received into  
18 evidence.)

19 BY MR. TRIPP:

20 Q. **Dr. Smith, of these eight studies with**  
21 **exposures at or similar to the frequency of the**  
22 **transmission power line in this case, it's true, isn't it,**  
23 **that not one of those studies point to a specific cancer as**  
24 **being caused by or attributed to EMF exposure?**

25 A. The study does not point to a specific

1 cancer.

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

3 A. Yes, but that is not the whole story.

4 Q. Well, you understand -- I think you do  
5 understand, Dr. Smith, that your counsel will have a chance  
6 to ask you some questions. I'd just like you to answer the  
7 questions I'm asking you. All right?

8 A. Yes.

9 Q. All right. Thank you. Sir, if you go to  
10 your testimony at Page 3, Lines 18 and 19.

11 A. I'm there.

12 Q. You contend in your testimony that people in  
13 the path of the Mark Twain transmission line will live  
14 their lives near the lines on a daily basis, and in some  
15 case -- cases 24 hours a day. Correct?

16 A. Yes, I do.

17 Q. Now, at the time you wrote your rebuttal  
18 testimony, and even as late as a couple weeks ago, you've  
19 not been provided any information on the actual route in  
20 this case. True?

21 A. I was provided only some e-mail information  
22 regarding that there were some people living very near --  
23 within a short distance.

24 Q. But in terms of actually seeing a map with a  
25 route line on it, you've never seen that?

1 A. I have not seen a map.

2 Q. But as you understand it based upon other  
3 testimony in this case, the closest residence to the line  
4 is about 550 yards?

5 A. Yes.

6 Q. You've done no calculations of the levels of  
7 the electromagnetic fields at the closest residence in the  
8 power line in this case. True?

9 A. I have not.

10 Q. You wouldn't even know how to do that; isn't  
11 that fair?

12 A. That's fair.

13 Q. And --

14 MR. TRIPP: May I approach the witness, Your  
15 Honor?

16 JUDGE PRIDGIN: Yes, you may.

17 BY MR. TRIPP:

18 Q. Dr. Smith, I'm handing you what's already  
19 been admitted into evidence as Exhibit 5, which is the  
20 testimony of Dr. Bailey in this case.

21 A. I have it. Yes.

22 Q. Okay. And would you turn to Pages -- Page  
23 29 and Page 30 -- well, 29 first.

24 A. I'm there.

25 Q. All right. Page 29 has a table where

1 **there's calculated magnetic fields for the project segments**  
2 **with average loading. Correct?**

3 A. Yes.

4 **Q. And then Page 30 has a table calculated**  
5 **magnetic fields of average loadings in the proposed Mark**  
6 **Twain transmission line at the closest residence. Correct?**

7 A. Yes.

8 **Q. And you have no reason to disbelieve or**  
9 **discount those calculations that were performed by**  
10 **Dr. Bailey. Correct?**

11 A. I have no way to dispute his calculations.  
12 Correct.

13 **Q. Okay. Fair to say that based on**  
14 **Dr. Bailey's calculations, there's no residents near the**  
15 **proposed line that experiences anything like the 90**  
16 **milligals EMF exposure level. True?**

17 A. That's true.

18 **Q. Now, you've stated that there's enough**  
19 **evidence to link EMF exposure from high-voltage power lines**  
20 **to childhood leukemia and other health problems, such as**  
21 **breast cancer that the International Agency for Research on**  
22 **Cancer lists EMF as a Group 2-B carcinogen risk. True?**

23 A. I have stated that. Yes.

24 **Q. And isn't it true that that IARC study was**  
25 **able to -- was unable to find a definitive link between**

1 **childhood leukemia and EMF?**

2 A. They did not remove EMF from that list as a  
3 potential 2-B carcinogen.

4 Q. **Okay. Let me -- listen to my question here,**  
5 **please, Dr. Smith.**

6 A. I will listen. Yes.

7 Q. **Okay. Isn't it true that the IARC study --**  
8 **it was unable to find a definitive link between childhood**  
9 **leukemia and EMF?**

10 A. They did not find the definitive link.

11 Q. **Or a definitive link?**

12 A. They did not find a definitive link.

13 Correct.

14 Q. **Now, this IARC report classified the**  
15 **evidence for carcinogenicity of AC electric fields and**  
16 **static electric and magnetic fields as inadequate; isn't**  
17 **that true?**

18 A. Yes.

19 Q. **And animal studies did not find an**  
20 **association between EMF and leukemia; isn't that true?**

21 A. Animals do not develop childhood leukemia,  
22 so they will never find that link.

23 MR. TRIPP: May I approach, Your Honor?

24 JUDGE PRIDGIN: You may.

25 BY MR. TRIPP:

1           **Q.       Now, I noticed, Dr. Smith, that today your**  
2 **answer was they don't develop childhood leukemia. In your**  
3 **deposition testimony, you just said leukemia. Do you**  
4 **recall telling me that?**

5           A.       I do. Yes.

6           **Q.       Is there -- are -- is your testimony somehow**  
7 **different today than it was in your deposition?**

8           A.       I had intended to say childhood leukemia, so  
9 I probably should've made that correction, but childhood  
10 leukemia is what I have looked into.

11          **Q.       And so you had a chance to review your**  
12 **deposition and make corrections; isn't that true?**

13          A.       I did. Yes.

14          **Q.       And you didn't make that correction; isn't**  
15 **that true?**

16          A.       I did not.

17                   MR. TRIPP: 84.

18                   JUDGE PRIDGIN: Yes, sir. 84.

19                   (ATXI Exhibit 84 was marked for  
20 identification by the court reporter.)

21 BY MR. TRIPP:

22          **Q.       Dr. Smith, it's fair to say when you told me**  
23 **in your deposition that animals don't get leukemia that one**  
24 **of the questions I might ask is whether that's true, isn't**  
25 **it?**

1 A. Yes.

2 Q. And that first study that I've shown you  
3 that's marked as Exhibit 84 --

4 A. I'm there. Yes.

5 Q. Okay. And that has to do with a study that  
6 talks about leukemias and they're using miniature swine for  
7 research; is that fair?

8 A. Yes, it is.

9 Q. I've got several other studies, but -- so  
10 are you telling this Commission today that animals don't  
11 get leukemia, so you can't really study the link between  
12 leukemia and EMF in animals?

13 A. I cannot tell the Commission that animals do  
14 not get any form of leukemia.

15 Q. And do you cite any paper in your testimony  
16 at all that shows that animals don't get childhood  
17 leukemia?

18 A. I did not cite a paper. No.

19 Q. Okay. Are you aware of any research that  
20 says that?

21 A. I have seen some papers, yes, but I do not  
22 have those available.

23 Q. All right. So it wouldn't surprise you that  
24 they do studies with mice, with dogs, with swine and the --  
25 with regard to the disease leukemia?



1 A. It would not surprise me. No.

2 Q. All right. Now, Dr. Smith, with regard to  
3 breast cancer, which was the other reason that you said the  
4 Group 2-B designation was given to EMF, the IARC study  
5 specifically stated that breast cancer was not a factor in  
6 the overall evaluation and designation of EMF as a Group  
7 2-B carcinogen; isn't that true?

8 A. Yes.

9 Q. I want to go back to your statement where  
10 you said that the statement from the World Health  
11 Organization that was cited by ATXI regarding EMF exposure  
12 was double speak. I think at -- Page 4, Lines 7 through 9  
13 I think is where we are.

14 MR. WILLIAMS: What line?

15 MR. TRIPP: 7 through 9.

16 WITNESS: I'm there.

17 MR. TRIPP: Yeah. I had to find it. Sorry.

18 BY MR. TRIPP:

19 Q. While that statement is taken from the WHO  
20 literature it fails to show that ongoing concerns about  
21 adverse health effects have triggered the WHO to call for  
22 research in multiple health areas. I read that correctly?

23 A. Yes, you did.

24 Q. And you've attached as Schedule DS-03 to  
25 your testimony the 2007 WHO research agenda for extremely

1 **low frequency fields. Correct?**

2 A. Yes, I have.

3 **Q. And the way that they stated the priority of**  
4 **research in that document is that it's not calling for**  
5 **confirmed known health concerns, but to reduce the**  
6 **uncertainty arising from studies that have been done and**  
7 **which are inconclusive; isn't that true?**

8 A. That is correct.

9 **Q. And you believe that more recent studies**  
10 **would be appropriate to look at. Fair?**

11 A. I do.

12 MR. TRIPP: May I approach, Your Honor?

13 JUDGE PRIDGIN: You may.

14 MR. TRIPP: Your Honor, I'll interrupt  
15 myself to move to admit Exhibit 84.

16 (ATXI Exhibit 84 was offered into evidence.)

17 JUDGE PRIDGIN: 84 has been offered. Any  
18 objections? Hearing none, 84 is admitted.

19 (ATXI Exhibit 84 was received into  
20 evidence.)

21 BY MR. TRIPP:

22 **Q. Okay. Dr. Smith, with regard to the exhibit**  
23 **that I've handed you marked Exhibit 85, that is a summary**  
24 **of a report prepared -- I'm sorry -- prepared by the**  
25 **European Union Scientific Committee on emerging and newly**

1 identified health risks, which was a 2015 review of  
2 scientific literature regarding EMF exposure. Correct?

3 A. Yes, it is.

4 Q. The summary is entitled "Does  
5 Electromagnetic Field Exposure Endanger Health?" Correct?

6 A. Yes.

7 Q. And on the lower right-hand side it says,  
8 "This fact sheet is based on the opinion of the independent  
9 scientific committee on emerging and newly identified  
10 health risks, potential health effects of exposure to EMF  
11 fields, March 2015." Correct?

12 A. Yes, it is.

13 MR. TRIPP: Your Honor, move to admit into  
14 evidence Exhibit 85.

15 (ATXI Exhibit 85 was offered into evidence.)

16 JUDGE PRIDGIN: 85 is offered. Any  
17 objections? Hearing none, 85 is admitted.

18 (WHEREIN, ATXI Exhibit 85 was received into  
19 evidence.)

20 BY MR. TRIPP:

21 Q. Now, Dr. Smith, you'd agree with me that,  
22 generally speaking, the conclusions identified in Exhibit  
23 85, as they relate to whether EMF exposure is dangerous to  
24 your health, are not much different than the conclusions  
25 from the 2007 WHO report that was cited by ATXI. Correct?

1           A.       The statement in general is correct. I  
2 think they are a little more definitive in some areas.

3           **Q.       And in the areas that they were more**  
4 **definitive on, there was a -- they were more definitive on**  
5 **the fact that there was not a link between EMF exposure and**  
6 **those particular health effects. Correct?**

7           A.       To such things as brain tumors from cell  
8 phones, yes.

9           **Q.       All right. And with regard to whether**  
10 **there's a connection between EMF and Alzheimer's, the EU**  
11 **reports that new studies did not confirm this link. True?**

12          A.       That is true.

13          **Q.       And with regard to childhood leukemia, the**  
14 **EU reports, "This correlation has neither been explained**  
15 **nor supported by animal or cellular studies. So far,**  
16 **research findings were not able to find a possible**  
17 **mechanism to explain this association." Have I read that**  
18 **correctly?**

19          A.       That is read correctly. Yes.

20          **Q.       And that doesn't contradict in any way the**  
21 **2007 WHO report, does it?**

22          A.       No.

23          **Q.       Now, Schedule DS-06 that you've attached to**  
24 **your rebuttal testimony --**

25          A.       Yes. I have that.

1 Q. All right. And that is a 2007 study  
2 entitled "Childhood Leukemia Close to High Voltage Power  
3 Lines." True?

4 A. Yes.

5 Q. And according to that study, there are --  
6 increased odd ratios were observed for the occurrence of  
7 leukemia and living within 50 meters of a high-voltage  
8 line, and no association with living beyond that distance;  
9 isn't that correct?

10 A. Yes.

11 Q. And it's true that the conclusion of that  
12 study was not that there was a direct causation link  
13 between childhood leukemia and EMF exposure even within  
14 that 50-meter distance. True?

15 A. They did not find a direct causation. Yes.

16 Q. Now, that study didn't actually compute the  
17 EMF levels within the homes in which the children who were  
18 included in that study were. Correct?

19 A. Correct.

20 Q. Instead, what the researchers did was they  
21 used GIS information from the address where the child --  
22 that the child gave to the nearest high power voltage line.  
23 Correct?

24 A. Yes.

25 Q. And they didn't even actually measure the

1 **actual distance. True?**

2 A. They used a GPS to locate homes related --  
3 so they didn't actually measure the distance.

4 Q. **All right. Thank you. And in 30 percent of**  
5 **the cases studied, in 23 percent of the control groups,**  
6 **there was not even an exact address for the child being**  
7 **studied available. Correct?**

8 A. That is correct.

9 Q. **Now, one of the other studies you cite in**  
10 **your testimony, Dr. Smith, is the 2009 study by Blank and**  
11 **Goodman. Correct?**

12 A. Yes.

13 Q. **And I think that's at Page 5, Lines 8**  
14 **through 14 that you discuss that study. Correct?**

15 A. Yes.

16 Q. **Now, you cite to that study for the**  
17 **conclusion that cells can be affected at energy levels as**  
18 **low as 5 to 10 milligals. Correct?**

19 A. Yes.

20 Q. **And you agree that there's a WHO review of**  
21 **this study indicating that multiple investigators have been**  
22 **unable to replicate the findings that form the basis for**  
23 **the claims made by Blank and Goodman. True?**

24 A. Yes.

25 Q. **And you cannot say that cellular changes you**

1 reference at these low energy levels are a direct cause to  
2 link to childhood leukemia; isn't that true?

3 A. That is true.

4 Q. Just a few questions to summarize,  
5 Dr. Smith. Aside from the industry-sponsored research you  
6 suggest as biased in your testimony, you also believe that  
7 the World Health Organization is in error with regard to  
8 their conclusions as it relates to EMF and health. True?

9 A. I believe there is room for error from the  
10 World Health Organization. Yes.

11 Q. Well, you believe they're not right, don't  
12 you?

13 A. I believe they're not infallible.

14 Q. You believe they're wrong with regard to  
15 this particular conclusion?

16 A. I believe evidence will come forward to  
17 prove them wrong.

18 Q. And statements made by the EPA regarding EMF  
19 that ATXI relied on, you also believe those are wrong.  
20 Correct?

21 A. I believe the EPA is wrong in many things,  
22 including this.

23 Q. And, in fact, Dr. Smith, you're not aware of  
24 any study or any organization whose opinions differ from  
25 yours with regard to the effects of extra low frequency EMF

1 **and those effects on human health that you don't believe is**  
2 **biased; isn't that true?**

3 A. I have looked at the other studies -- I've  
4 looked at many of the other studies. I haven't looked at  
5 all of the information out there. And I cannot say that  
6 all of the studies are biased. My purpose was only to  
7 raise the question that there may be damage that has not  
8 been identified.

9 Q. **The short answer to my question was no,**  
10 **wasn't it?**

11 A. No.

12 Q. **Okay. We've got a double -- that's pretty**  
13 **unclear. Let's clear that up a little bit. When I asked**  
14 **you, are you aware of any study or any organization whose**  
15 **opinion differs from yours with regard to the effects of**  
16 **human health of ELF EMF that you don't believe is biased,**  
17 **you said no. The answer is no; isn't that correct?**

18 A. Repeat the question, please.

19 Q. **Okay. Well, why -- do you have a copy of**  
20 **your deposition?**

21 A. I do.

22 Q. **Why don't you turn to Page 59, Line 5.**

23 A. Actually, no, I don't have.

24 Q. **Here.**

25 MR. TRIPP: May I approach, Your Honor?



1 JUDGE PRIDGIN: You may.

2 BY MR. TRIPP:

3 Q. There you go. Sorry.

4 A. That's all right. I'm there.

5 Q. Okay. Let me get there, now. At Page 59,  
6 Line 5 of your deposition, I asked you this question: "And  
7 so are you aware of any study or any organization whose  
8 opinion differs from yours with regard to the effects of  
9 human health -- on human health of ELF EMF that you don't  
10 believe is biased?"

11 And your answer was, "I believe all these  
12 organizations are doing what they think is right based on  
13 the information they have, but I don't think that you  
14 can -- I guess my short answer, no." Have I read that  
15 correctly?

16 A. Yes, you did.

17 MR. TRIPP: No other questions, Your Honor.

18 JUDGE PRIDGIN: Mr. Tripp, thank you. Bench  
19 questions. Mr. Chairman?

20 CHAIRMAN HALL: Good morning.

21 WITNESS: Good morning.

22 EXAMINATION

23 QUESTIONS BY CHAIRMAN HALL:

24 Q. Are you being compensated for providing  
25 testimony in this case, or are you doing -- providing this

1 **testimony without remuneration?**

2 A. I'm providing this without any payment.

3 **Q. And if I understand your testimony**  
4 **correctly, looking at Page 6 and then also in response to**  
5 **the last couple of questions from opposing counsel, you're**  
6 **not saying that there is a correlation between exposure to**  
7 **high-voltage transmission lines and health risks, you're**  
8 **just saying that the evidence is mixed; is that correct?**

9 A. No. There is epidemiologic evidence or many  
10 studies that show that there is health effects such as  
11 leukemia when exposed to this type of electromagnetic  
12 field. We use studies like that in medicine often to  
13 stimulate interest in seeking a cause for a disease or to  
14 seek a treatment for a problem.

15 **Q. I guess I'm trying to distinguish between**  
16 **noting the existence of evidence on both sides and, under**  
17 **oath, saying that you believe with certainty that there is**  
18 **a correlation between the two.**

19 A. As a physician, I review literature all the  
20 time. And I am convinced from what I have seen that we  
21 don't have all the evidence and that there is potential for  
22 health problems that have not been identified or completely  
23 linked.

24 And I also, looking at studies, believe that  
25 there is a possible cellular mechanism for that to occur.

1 And so for those reasons I'm convinced that there is  
2 evidence that damage may occur from exposure. And I'm just  
3 concerned about the well-being of people in the path of  
4 these types of lines.

5 **Q. Is there a -- in your opinion, is there --**  
6 **is there a correlation between the voltage and the risk, so**  
7 **high voltage, higher risk, lower voltage, lower risk?**

8 A. From what I have seen, it is my opinion,  
9 that high voltage and cumulative effect are the things that  
10 seem to be making a difference in people's health.

11 **Q. Is there any evidence that distribution**  
12 **lines could cause health risks?**

13 A. The study which he asked about from Great  
14 Britain that was a large study but they used the GPS, those  
15 were distribution lines.

16 **Q. So the answer is yes?**

17 A. Yes.

18 **Q. Okay. I have no further questions. Thank**  
19 **you.**

20 JUDGE PRIDGIN: Mr. Chairman, thank you.  
21 commissioner Stoll?

22 COMMISSIONER STOLL: I think I just have  
23 one.

24 EXAMINATION

25 QUESTIONS BY COMMISSIONER STOLL:

1           **Q.       Following up on the chairman's question,**  
2 **does the amount of exposure -- in your estimation, does the**  
3 **amount of exposure make a difference, the length of**  
4 **exposure?**

5           A.       From the studies that I have looked at and  
6 -- basically what I can glean from those studies is that it  
7 is -- they're looking at the length of exposure, the  
8 intensity of the exposure.

9                   As we mentioned, one of the studies that has  
10 been questioned, but that Blank brought forward, said  
11 that .5 Tesla, which is 5 milligals may be enough to induce  
12 some damage in a cell or cell changes. So yes, it's the  
13 intensity as well as over time.

14           **Q.       Okay. Thank you.**

15           A.       Yes.

16                   JUDGE PRIDGIN: Mr. Stoll, thank you.

17                   Commissioner Kenney?

18                                   EXAMINATION

19                   QUESTIONS BY COMMISSIONER KENNEY:

20           **Q.       Thank you. Just briefly. Excuse me. You**  
21 **mentioned in your testimony that the International Agency**  
22 **on Research and -- on Cancer lists EMFs as a Type 2-B --**

23           A.       That's correct.

24           **Q.       -- Group 2-B carcinogen?**

25           A.       Uh-huh. Yes.

1           **Q.           What does that mean?**

2           A.           That means that -- actually, I can pull that  
3 statement up from the IRC, and it's probably best to just  
4 explain that according to their statement. They say,  
5 "Possibly carcinogenic to humans." They have not found the  
6 exact mechanism for causing cancer in humans.

7                        Again, they're basing this on trends and  
8 epidemiologic studies where they're seeing -- the first  
9 study was bringing forth the question of childhood leukemia  
10 with exposure to high power lines or to electromagnetic  
11 fields. So it hasn't been proven, but it also hasn't been  
12 disproven at this point. So the fact that they're seeing a  
13 trend places it in that category.

14           **Q.           What are the -- what do -- what are the**  
15 **categories? I'm ignorant on this --**

16           A.           Right.

17           **Q.           Is there a Group 1-B and a Group 2-A?**

18           A.           Group 1 is a carcinogenic agent that  
19 actually has been proven through reproducible studies that  
20 cancer occurs with exposure.

21           **Q.           Like radiation --**

22           A.           Ionizing radiation. Yes. Probably  
23 carcinogenic to humans is Group 2-A. That is something  
24 where there have been some studies strongly linking it to a  
25 specific cancer; a mechanism has been identified that could

1 trigger that.

2 **Q. What would that be like?**

3 A. I don't have that list right in front of me.

4 **Q. That's okay, if you don't have it.**

5 A. They've got extensive lists in each of these  
6 categories. That particular list has 66 agents that they  
7 list.

8 **Q. In --**

9 A. In 2-A.

10 **Q. In 2-A?**

11 A. Right.

12 **Q. How many -- so does that show how many are**  
13 **in -- is there a 1-A or a 1-B, or is it just 1?**

14 A. No. Group 1 has 113 agents listed in it.

15 **Q. And Group 2-A has 66?**

16 A. Group 2 -- Group 2-A has 66. Group 2-B, the  
17 possibly carcinogenic to humans, lists 285 agents.

18 Included in that is the HIV virus that leads to sarcoma and  
19 things like that. There are various cancers linked to HIV.

20 The -- in relation to sarcoma, it's probably listed as a  
21 Group 2-A, but there are other cancers that have not been  
22 definitively identified as a mechanism.

23 **Q. Is there a Group 2-C?**

24 A. The next group is 3, not classified as  
25 carcinogenic to humans. And Group 4 is probably not

1 carcinogenic to humans.

2 **Q. All right. Thank you.**

3 JUDGE PRIDGIN: Commissioner Kenney, thank  
4 you.

5 Commissioner Rupp, thank you.

6 Commissioner Coleman?

7 COMMISSIONER COLEMAN: Thank you.

8 EXAMINATIONS

9 QUESTIONS BY COMMISSIONER COLEMAN:

10 **Q. Sir, had you seen this exhibit prior to just**  
11 **being handed it?**

12 A. I did. Yes, ma'am.

13 **Q. Okay. So you've had an opportunity to**  
14 **review. And in today's society, and for many years, this**  
15 **has been quite a conversation, about electromagnetic fields**  
16 **and the results of living around them.**

17 **So why do you think -- do you think that's**  
18 **a -- what's the phrase? -- an urban myth, or -- you know,**  
19 **what do you attribute the high instances of conversations**  
20 **about electromagnetic fields affecting health to a report**  
21 **like this that says that it's probably not so?**

22 A. Well, first of all, I think that we're  
23 becoming exposed more and more in society to  
24 electromagnetic fields, especially those related to power  
25 lines, which are -- they've been seen across Canada,

1 California, different places. So it's generated interest  
2 in the people exposed to that.

3 The bioinitiative which has been mentioned in  
4 the past, I think, probably generated a lot of interest  
5 because there was a large group of people that brought  
6 potential risks forward, and that has been available widely  
7 on the Internet for people to research and take a look at,  
8 and it raises fears in people that are exposed to these  
9 lines.

10 I think that the perception of damage is a  
11 big factor in people's health. They become concerned.  
12 They lose sleep. They're anxious. And so they're  
13 constantly looking to find out if there is a potential  
14 damage to them, and that in itself is harmful to them. I  
15 think that their perception is being confirmed in many  
16 instances. I'm -- I'm sorry.

17 I'm a full-time emergency physician. I have  
18 a practice that keeps me very busy. But I've spent  
19 hundreds of hours looking at this and have pulled up this  
20 information on the Internet and sources that I have  
21 available.

22 I do not have access to the full realm of  
23 research that's available to someone at a university or  
24 some institution like that, but people on the Internet can  
25 pull these same studies up and review them, and certainly



1 would cause them to be fearful.

2 **Q. You testified that you live in the area**  
3 **affected by the Mark Twain line coming through. Correct?**

4 A. No, ma'am. I live in Randolph County, which  
5 was a county that was threatened by the Grain Belt  
6 Express --

7 **Q. Okay.**

8 A. -- line, and that was where I became  
9 interested in looking at this information.

10 **Q. Okay. Thank you. Thank you.**

11 A. Yes, ma'am.

12 JUDGE PRIDGIN: All right, Commissioner  
13 Coleman. Thank you.

14 Any recross based on Bench questions?

15 Mr. Allison?

16 MR. ALLISON: No.

17 JUDGE PRIDGIN: United for Missouri,

18 Mr. Linton?

19 MR. LINTON: No questions.

20 JUDGE PRIDGIN: Staff?

21 MR. WILLIAMS: No questions.

22 JUDGE PRIDGIN: MI SO?

23 MR. SMALL: No questions.

24 JUDGE PRIDGIN: ATXI?

25 MR. TRIPP: Yes, Your Honor, just a few.

1 JUDGE PRIDDIN: Yes, sir.

2 RECROSS EXAMINATION

3 QUESTIONS BY MR. TRIPP:

4 Q. I just want to make sure we understand that  
5 level of evidence we're talking about here, Dr. Smith.  
6 When we talk about epidemiological studies, what that means  
7 is -- it's a report -- people notice there's a trend of  
8 illness from a particular thing that they think is the  
9 cause. Say a group of people persistently end up with an  
10 illness, so then they go back and they start looking at  
11 where -- what the source could be for that illness.  
12 Correct?

13 A. That is correct.

14 Q. And it's basically a retrospective  
15 statistical review. Correct?

16 A. That is correct.

17 Q. And these kinds of studies are not intended  
18 or they don't show causation, they just show a possible  
19 correlation. Correct?

20 A. That's correct.

21 Q. And with regard to the amount -- or the  
22 level of exposure we're talking about here, it depends on  
23 how the power line is configured. Correct?

24 A. That's my understanding. Yes.

25 Q. And what I'm talking about -- in this

1 instance, I'm talking about, you know, someone's home and  
2 the power line. Right?

3 A. Yes.

4 Q. And so it depends on how that power line is  
5 configured. It depends on how far away the line is.  
6 Correct?

7 A. That's correct.

8 Q. And you also agree that even a house  
9 structure itself -- I'm sure there's a scientific word --  
10 but deflects or shields a little bit of that EMF as well.  
11 Correct?

12 A. Yes.

13 Q. And so whether or not there's a link,  
14 whether or not there's a correlation, you can't really tell  
15 this Commission in this case that any house on this  
16 proposed route will experience EMF levels that are even  
17 associated with an increased incidence of childhood  
18 leukemia, because you've never seen the route and you don't  
19 even know the distances; isn't that true?

20 A. That is true.

21 Q. Thank you.

22 JUDGE PRIDGIN: Thank you. Redirect?

23 MR. HERNANDEZ: Yes, sir.

24 REDIRECT EXAMINATION

25 QUESTIONS BY MR. HERNANDEZ:

1           **Q.       Dr. Smith, I'm going to work backwards a**  
2 **little bit. You remember the questions from Commissioner**  
3 **Kenney in regards to the different levels?**

4           A.       Yes, I do.

5           **Q.       And those were actually attached to your**  
6 **testimony; is that correct?**

7           A.       That is correct.

8           **Q.       And those were attached as DS-04?**

9           A.       That is correct.

10          **Q.       And that listed all those groups that you**  
11 **discussed. Correct?**

12          A.       That was an incomplete list that was on the  
13 back of the form. This does not have the full 285 agents  
14 that are possibly carcinogenic. And, in fact, I don't see  
15 that on this partial list that extra low frequency  
16 electromagnetic fields -- actually, they are. They are  
17 listed about mid-page there. So yes. This is a list. I  
18 don't believe the entire list is present here.

19          **Q.       And just for the record, that magnetic**  
20 **fields extremely low frequency is listed under CAS Number**  
21 **000632-99-5, about halfway through the -- that list on the**  
22 **second page of DS-04. Correct?**

23          A.       That is correct.

24          **Q.       You've never claimed to be an**  
25 **epidemiologist. Correct?**

1 A. I have not.

2 Q. **But you have extensive research capability?**

3 A. I do not have the capability as much as I  
4 would like, but I am able to pull up many studies that we  
5 have used here.

6 Q. **And through your experience as a physician,**  
7 **you're able to understand the terminology of most of that**  
8 **research; is that correct?**

9 A. I am.

10 Q. **You didn't come upon this research**  
11 **overnight. Correct?**

12 A. I did not. I spent hundreds of hours  
13 searching.

14 Q. **You mentioned in your testimony on -- in**  
15 **regards to double speak -- I can point you to that specific**  
16 **one -- I believe it's Line 3 -- or Page 3, Lines 7 through**  
17 **9. Excuse me. Do you remember talking about double speak**  
18 **in your testimony?**

19 A. Yes, I do.

20 Q. **Could you explain to the Commission what you**  
21 **meant by double speak?**

22 A. By double speak, I mean that we have an  
23 organization that says that there is no existence of health  
24 consequences of exposure to low -- extra low magnetic  
25 fields, and yet in another document that they produce

1 they're asking for additional research in various health  
2 areas.

3 They've got their high priority research  
4 listed on their agenda for childhood leukemia -- actually,  
5 all -- I believe it was -- amyotrophic lateral sclerosis  
6 was included in that. So if an organization truly believes  
7 there is no evidence of danger, they turn right around and  
8 in another paper ask for additional research in those areas  
9 to clarify.

10 Now, I understand that they're getting a lot  
11 of heat from other organizations that are disagreeing with  
12 them, but they are calling for research in those areas. So  
13 my reason for saying it was double speak is that they  
14 cannot state with a certainty that there is no evidence of  
15 danger to exposure to these fields. They really cannot  
16 reduce the anxiety people have that live in these lines  
17 with statements like that.

18 **Q. And there was testimony -- or there was**  
19 **questioning in regards to the EPA's conclusions that follow**  
20 **the same lines as the WHO. Do you recall that?**

21 A. I do.

22 **Q. And is it your opinion that that same**  
23 **mentality or conclusion that the WHO comes to can be**  
24 **applied -- that double speak can be applied to the EPA as**  
25 **well?**

1           A.       I find that the EPA is even less diligent  
2 about statements. A recent example of the lead in the  
3 water in Flint, Michigan: An organization that's really  
4 concerned about our health should truly be involved with  
5 protecting our health. Failing to notify us of dangers  
6 seems to be a pattern that the EPA has had, and that's why  
7 I cannot comfortably feel that the EPA is giving us the  
8 information that we need.

9           **Q.       Would it be fair to summarize your double**  
10 **speak comments to say that the door is not shut on the**  
11 **research?**

12          A.       That's absolutely what I am trying to  
13 indicate by my testimony.

14          **Q.       Okay. And in your research -- and there was**  
15 **some extensive talk about your -- about leukemia and**  
16 **childhood leukemia. Do you recall --**

17          A.       I do. Yes.

18          **Q.       Is leukemia the only type of cancer that**  
19 **could possibly be -- that's been investigated in regards to**  
20 **EMF?**

21          A.       No, it is not. In fact, there is new  
22 research coming out, a new study from 2013, that was a  
23 meta-analysis that is now -- it came out from Korea. I  
24 just found that one not long ago, again, just by simply  
25 searching the Internet. They were very careful about

1 really not biasing the study. And in that study it was  
2 showing evidence of increased male breast cancer when  
3 exposure was near high power lines like this.

4 MR. HERNANDEZ: I don't have anything else.

5 JUDGE PRIDGIN: Thanks, Mr. Hernandez.

6 Thank you, Dr. Smith. Thank you very much. You may step  
7 down.

8 All right. The next witness is Natelle  
9 Dietrich. If you'll raise your right hand to be sworn,  
10 please.

11 (Witness sworn.)

12 JUDGE PRIDGIN: Thank you very much, ma'am.

13 You may have a seat.

14 And Mr. Williams, when you're ready.

15 MR. WILLIAMS: Thank you.

16 DIRECT EXAMINATION

17 QUESTIONS BY MR. WILLIAMS:

18 Q. Would you please state your name.

19 A. Natelle, N-A-T-E-L-L-E, Dietrich,  
20 D-I-E-T-R-I-C-H.

21 Q. Who is your employer?

22 A. The Missouri Public Service Commission.

23 Q. And in what capacity are you employed by the  
24 Missouri Public Service Commission?

25 A. I am the Commission Staff Director.



1           **Q.       Did you prepare what's been marked for**  
2 **identification as Exhibit Number 27, which is titled the**  
3 **rebuttal testimony of Natelle Dietrich, and it shows a date**  
4 **of preparation of October 1 of 2015, and also lists this**  
5 **case number?**

6           A.       Date of preparation is October 21.

7           **Q.       Correct.**

8           A.       Yes.

9           **Q.       And would that exhibit be your testimony**  
10 **here today?**

11          A.       I have some updated numbers from that  
12 testimony.

13          **Q.       But the testimony is correct as it stands?**

14          A.       Correct.

15          **Q.       And what numbers would you like to update,**  
16 **and why would you like to update them?**

17          A.       Since the testimony was filed in October,  
18 there have been additional public comments, and so I have  
19 numbers through yesterday.

20          **Q.       And would you indicate where those**  
21 **changes -- or would you indicate where the current numbers**  
22 **of the exhibit are and the new numbers -- well, the updated**  
23 **numbers as well? So if you can tie together what**  
24 **information it is you're updating.**

25          A.       Okay. Page 3 of my testimony, starting at

1 Line 6, change October 20, 2015 to January 26, 2016. In  
2 that same line it says there are approximately 3,000 public  
3 comments. Change 3,000 to 3,200. Line 8 starts with 1,266  
4 comments. Updating that number would be 1,445. Line 15,  
5 near the end, it says there are less than ten comments.  
6 Updating that number would be 15. So there are less than  
7 15 comments.

8 Line 16, updating 2,900 in the middle of the  
9 page -- or in the middle of the line to 3,100. And then  
10 down on Line 19, the 3,000 number appears again, and that  
11 would be 3,200.

12 **Q. So is Exhibit 27 the additional information**  
13 **to be provided in your testimony here today?**

14 A. Yes.

15 MR. WILLIAMS: I'd offer Exhibit 27.  
16 (Staff Exhibit 27 was offered into  
17 evidence.)

18 JUDGE PRIDGIN: 27 has been offered. Any  
19 objections? Hearing none, Exhibit 27 is admitted.

20 (staff Exhibit 27 was received into  
21 evidence.)

22 MR. WILLIAMS: I tender the witness for  
23 examination.

24 JUDGE PRIDGIN: Thank you. Cross, ATXI?

25 MR. TRIPP: No questions, Your Honor.

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JUDGE PRIDGIN: MISSOURY?  
MR. SMALL: No questions, Your Honor.  
JUDGE PRIDGIN: United for Missouri?  
MR. LINTON: No questions.  
JUDGE PRIDGIN: Public Counsel?  
MR. ALLISON: No questions.  
JUDGE PRIDGIN: Neighbors United?  
MR. HERNANDEZ: No questions.  
JUDGE PRIDGIN: Any Bench questions?  
CHAIRMAN HALL: No, Judge. Thank you.  
COMMISSIONER KENNEY: I have one question.  
JUDGE PRIDGIN: Yes, sir.

EXAMINATION

QUESTIONS BY COMMISSIONER KENNEY:

**Q. Hello, Ms. Dietrich.**

A. Good morning.

**Q. Those numbers you just mentioned, the 3,200 and the 15 that were in support of it, is that -- are those numbers common in your history of being here regarding transmission lines or pipelines or --**

A. There have only been two other cases of the -- to this --

**Q. Magnitude?**

A. -- magnitude -- thank you -- of this one. In the TranSource case there were only seven comments

1 total, and I couldn't tell you how much were for or  
2 against. In the Grain Belt case, there were about 7,000  
3 public comments and 50 to 100 of them, if even that many,  
4 were in support of the project. The rest were against the  
5 project.

6 **Q. Okay. Those two -- that one and this -- the**  
7 **recent ones -- I've been here for both those. The numbers**  
8 **are very similar?**

9 A. Correct.

10 **Q. Okay. Thank you.**

11 A. Uh-huh.

12 JUDGE PRIDGIN: Commissioner Stoll?

13 COMMISSIONER STOLL: No questions.

14 JUDGE PRIDGIN: Commissioner Coleman, any  
15 recross based on Bench questions?

16 COMMISSIONER COLEMAN: No.

17 JUDGE PRIDGIN: ATXI?

18 MR. TRIPP: No, Your Honor.

19 JUDGE PRIDGIN: MISSO?

20 MR. SMALL: No, Your Honor.

21 JUDGE PRIDGIN: United for Missouri?

22 MR. LINTON: No.

23 JUDGE PRIDGIN: Public Counsel?

24 MR. ALLISON: No.

25 JUDGE PRIDGIN: Neighbors United?

1 MR. HERNANDEZ: No.

2 JUDGE PRIDGIN: Redirect?

3 MR. WILLIAMS: No.

4 JUDGE PRIDGIN: All right. Thank you,  
5 Ms. Dietrich. Thank you very much. You may step down.

6 Mr. Murray -- is David Murray available?  
7 Are we going on to David Murray?

8 MR. WILLIAMS: Do you want to go off the  
9 record for a moment?

10 JUDGE PRIDGIN: We'll go off the record  
11 while we're waiting for Mr. Murray.

12 (Off the record.)

13 JUDGE PRIDGIN: All right. We're back on  
14 the record, and Mr. Murray has taken the stand.

15 Mr. Murray, if you'll raise your right hand  
16 to be sworn, please.

17 (Witness sworn.)

18 JUDGE PRIDGIN: Thank you, sir. You may  
19 have a seat. Mr. Williams, Ms. Myers?

20 DIRECT EXAMINATION

21 QUESTIONS BY MS. MYERS:

22 Q. Mr. Murray, will you please state your full  
23 name for the record.

24 A. Yes. David Murray, M-U-R-R-A-Y.

25 Q. And where are you employed, and in what

1     **capacit y?**

2             A.       Missouri Public Service Commission as a  
3 utility regulatory manager in the financial analysis unit.

4             **Q.       And, Mr. Murray, are you the same David**  
5 **Murray who prepared or caused to be prepared the rebuttal**  
6 **testimony that's been marked as Exhibit 31?**

7             A.       Yes.

8             **Q.       Do you have anything you wish to correct in**  
9 **this testimony?**

10            A.       No.

11            **Q.       With that in mind, if I asked you these same**  
12 **questions today, would your answers be the same?**

13            A.       Yes.

14            **Q.       And is the information in this document true**  
15 **and accurate, to the best of your knowledge and belief?**

16            A.       Yes.

17            MS. MYERS: Judge, Staff offers Exhibit 31,  
18 and tenders Mr. Murray for cross.

19                    (Staff Exhibit 31 was offered into  
20 evidence.)

21            JUDGE PRIDGIN: Thank you. Exhibit 31 is  
22 offered. Any objection? Hearing none, Exhibit 31 is  
23 admitted.

24                    (Staff Exhibit 31 was received into  
25 evidence.)

1 JUDGE PRIDGIN: Cross-examination, ATXI?  
2 MR. TRIPP: No, Your Honor.  
3 JUDGE PRIDGIN: Thank you. MISSO?  
4 MR. SMALL: No questions, Your Honor.  
5 JUDGE PRIDGIN: United for Missouri?  
6 MR. LINTON: No questions.  
7 JUDGE PRIDGIN: Public Counsel?  
8 MR. ALLISON: No questions.  
9 JUDGE PRIDGIN: Neighbors United?  
10 MR. HERNANDEZ: No questions.  
11 JUDGE PRIDGIN: Okay. Thank you. Any Bench  
12 questions? Mr. Chairman?  
13 CHAIRMAN HALL: No, no questions.  
14 JUDGE PRIDGIN: Commissioner Stoll?  
15 COMMISSIONER STOLL: No questions.  
16 JUDGE PRIDGIN: Commissioner Kenney?  
17 COMMISSIONER KENNEY: No questions.  
18 JUDGE PRIDGIN: Commissioner Rupp?  
19 COMMISSIONER RUPP: No.  
20 JUDGE PRIDGIN: Commissioner Coleman?  
21 COMMISSIONER COLEMAN: No.  
22 MR. WILLIAMS: Thanks for coming down.  
23 JUDGE PRIDGIN: Thank you, Mr. Murray.  
24 MR. MURRAY: I apologize for not being here  
25 earlier. Thank you.

1 JUDGE PRIDGIN: Is Mr. Stahlman the next  
2 witness? Is Mr. Stahlman available?

3 MR. LOWERY: Your Honor, while Mr. Stahlman  
4 comes up, I was going to try to take care of a housekeeping  
5 matter. The -- Neighbors United and the company have  
6 agreed that is subject to commissioners or anybody else has  
7 questions, but they don't have any questions for  
8 Dr. Hewings, who is scheduled to appear on Friday, and we  
9 don't have any questions for Ms. Akers, who was also  
10 scheduled to appear on Friday. I suspect that perhaps  
11 there aren't any other questions.

12 If that's the case, Dr. Hewings is just  
13 coming back from Europe. We're going to call him off if he  
14 doesn't need to appear. We've stipulated that the  
15 testimony of those two witnesses can come in, unless the  
16 commissioners or another party have questions.

17 JUDGE PRIDGIN: All right. Thank you.  
18 Mr. Lowery, I'll inquire of the Bench. And the  
19 commissioners will let me know if they need more time to  
20 consider or if they already know and what they want to do  
21 whichever, but we'll be glad to let you know.

22 MR. LOWERY: And hopefully we could let him  
23 know by the end of the day, because he's going to have to  
24 make travel arrangements otherwise.

25 JUDGE PRIDGIN: Certainly.



1 MR. LOWERY: Thank you.

2 JUDGE PRIDGIN: All right. Thank you.

3 Anything else before Mr. Stahlman takes the stand? All  
4 right. If you'll raise your right hand to be sworn,  
5 please.

6 (Witness sworn.)

7 JUDGE PRIDGIN: Thank you, sir. You may  
8 have a seat.

9 DIRECT EXAMINATION

10 QUESTIONS BY MR. JOHNSON:

11 Q. Hello, Mr. Stahlman.

12 A. Good morning.

13 Q. Could you please state your name for the  
14 record.

15 A. Michael L. Stahlman, S-T-A-H-L-M-A-N.

16 Q. And how are you employed?

17 A. As a regulatory economist by the Missouri  
18 Public Service Commission.

19 Q. How long have you worked in that position?

20 A. Approximately five years, five and a half.

21 Q. And are you the same Michael Stahlman that  
22 prepared pre-filed rebuttal testimony marked as Exhibit  
23 Number 32?

24 A. Yes.

25 Q. Do you have any corrections to make to your

1 **testimony at this time?**

2 A. No.

3 **Q. And are the answers you provided to the**  
4 **questions in your rebuttal testimony true and correct, to**  
5 **the best of your knowledge and belief?**

6 A. Yes.

7 **Q. And if you were to -- if I were to ask those**  
8 **same questions today, would your answers be substantially**  
9 **the same?**

10 A. Yes.

11 MR. JOHNSON: Judge, I move to admit into  
12 the record Mr. Stahlman's rebuttal testimony, marked as  
13 Exhibit Number 32, and tender the witness for cross.

14 (Staff Exhibit 32 was offered into  
15 evidence.)

16 JUDGE PRIDGIN: Exhibit 32 is offered. Any  
17 objections? Hearing none, 32 is admitted.

18 (Staff Exhibit 32 was received into  
19 evidence.)

20 JUDGE PRIDGIN: Cross-examination, ATXI?

21 MR. FITZHENRY: Yes, Your Honor.

22 CROSS-EXAMINATION

23 QUESTIONS BY MR. FITZHENRY:

24 **Q. Mr. Stahlman, my name is Ed Fitzhenry. I'm**  
25 **here on behalf of ATXI. Good morning.**

1 A. Good morning.

2 Q. And I do have a few questions for you. I'd  
3 ask you to turn to Page 2 of your testimony, Lines 10 and  
4 11.

5 A. I am there.

6 Q. And there you indicate that the Mark Twain  
7 project is economically feasible because ATXI will be able  
8 to receive payments for the building and operation of the  
9 line through MISO tariffs. Correct?

10 A. Yes.

11 Q. And do I understand correctly that this same  
12 test was applied by the Commission staff with regard to the  
13 Illinois Rivers' project application that was sometime ago  
14 submitted before this Commission?

15 A. I think so. Yes.

16 Q. Now, as a general matter -- excuse me -- do  
17 you believe that -- strike that.

18 Do you believe as a general matter the only  
19 means by which to determine whether a project is  
20 economically feasible is whether the owner of the project  
21 recover its costs?

22 A. I think so. Yes.

23 Q. So the only -- let me be sure I understand  
24 what -- your answer to my question. It's your testimony  
25 that the only way that a project can be determined to be

1 **economically feasible is if the owner can recover its**  
2 **costs?**

3 A. It's assuming, then, that they're going to  
4 recover all their -- not just the cost, but the margins  
5 that they're required to get to maintain operability. Yes.

6 **Q. All right. Thank you. I'd like you to turn**  
7 **to Page 4 of your testimony. Let me know if you're there.**

8 A. Yes.

9 **Q. And I'm looking at your answer on Lines 12**  
10 **through 15. And there you refer to the MTEPs 11 and 14,**  
11 **and there's a reference to social benefits. Do you see**  
12 **that in your testimony?**

13 A. Yes.

14 **Q. And would you agree with me that one of the**  
15 **benefits identified by MISO in the MTEP 11 and 14 was**  
16 **carbon reduction?**

17 A. I have MTEP 14. Let me verify that that is  
18 correct.

19 **Q. Well, you can look at MTEP 11, which was --**  
20 **if you have that.**

21 A. I do not have 11. I have copies of 14.

22 MR. FITZHENRY: May I approach the witness?

23 JUDGE PRIDGIN: You may.

24 MR. FITZHENRY: Counsel, this is an exhibit  
25 that was also sponsored by Mr. Smith and was recently

1 admitted into evidence.

2 BY MR. FITZHENRY:

3 Q. And if you would, Mr. Stahlman, I'm just  
4 going to ask you to read from Page 78, that provision  
5 there.

6 A. The full paragraph?

7 Q. Please.

8 A. "9.6 carbon reduction. With the recommended  
9 MVP portfolio delivering significant amounts of wind energy  
10 across MISO and the neighboring regions, carbon emissions  
11 were reduced because of the more efficient usage of the  
12 generation fleet with conventional generation resources  
13 displaced by wind. Figure 9.8 summarizes the carbon  
14 emission reductions in million tons for each scenario, with  
15 a range of 8.3 to 17.8 million tons annually."

16 Q. Thank you, sir. And then just to be clear  
17 about this matter, going back -- this section that you read  
18 from is titled "Qualitative and Social Benefits"?

19 A. Yes.

20 Q. All right. Thank you. Now, are you aware  
21 of the testimony in evidence that was sponsored by ATX  
22 witness Dr. Schatzki?

23 A. Yes.

24 Q. And would you agree that Dr. Schatzki  
25 calculated the reduction of certain emissions with and

1 **without the Mark Twain project?**

2 A. I think so. Yes. That's more addressed by  
3 staff witness, Sarah Kliethermes.

4 Q. **And would you agree that those emissions**  
5 **that he addressed were, aside from carbon, nitrous oxide,**  
6 **sulfur dioxide, and mercury emissions?**

7 A. Can you direct me to his -- that line in his  
8 testimony?

9 Q. **Do you recall that, sir, from your review of**  
10 **his testimony?**

11 A. I have his testimony. If you can direct me  
12 to --

13 Q. **I don't have a specific page number. If you**  
14 **don't recall, that's fine.**

15 A. I -- right now, I don't recall, but I have  
16 no reason to doubt that.

17 Q. **I want you to assume, subject to check, that**  
18 **he, Dr. Schatzki's testimony analysis does address the**  
19 **reduction of, aside from carbon, also nitrous oxide, sulfur**  
20 **dioxide, mercury emissions with and without the Mark Twain**  
21 **project.**

22 **So my question to you, sir, is: Would you**  
23 **agree that as a general matter reduction of these emissions**  
24 **serves the public health in some manner?**

25 A. In general, I think that is accepted

1 scientific understanding of reducing those emissions.

2 **Q. And to that extent, it also serves the**  
3 **public interest if the public health is benefited by a**  
4 **reduction of these emissions?**

5 A. Yes.

6 **Q. Thank you, sir.**

7 MR. FITZHENRY: That's all the questions I  
8 have.

9 JUDGE PRIDGIN: Mr. Fitzhenry, thank you.  
10 MISSO, any questions?

11 MR. SMALL: No questions, Your Honor.

12 JUDGE PRIDGIN: United for Missouri?

13 MR. LINTON: No questions, Your Honor.

14 JUDGE PRIDGIN: Public Counsel?

15 MR. ALLISON: No questions.

16 JUDGE PRIDGIN: Neighbors United?

17 MR. HERNANDEZ: Just briefly, Your Honor.

18 CROSS-EXAMINATION

19 QUESTIONS BY MR. HERNANDEZ:

20 **Q. Mr. Stahlman, is it still your testimony**  
21 **that there is no specific cost/benefit analysis of the MTEP**  
22 **in the record?**

23 A. Say that again. MTEP, that's Mark Twain?

24 **Q. Mark Twain transmission project.**

25 A. In the MISSO MTEPs there is no specific

1 cost/benefit analysis of the particular line. Dr. Schatzki  
2 addresses that -- the particular line in his testimony.

3 MR. HERNANDEZ: No further questions.

4 JUDGE PRIDGIN: Thank you. Any Bench  
5 questions? Mr. Chairman?

6 CHAIRMAN HALL: Yeah, perhaps just one.

7 EXAMINATION

8 QUESTIONS BY CHAIRMAN HALL:

9 **Q. Do you believe that Ameren receives the same**  
10 **return of investment and return on investment for**  
11 **transmission in Missouri as it does in Illinois?**

12 A. And are we -- to clarify, are we talking  
13 about Ameren Missouri versus Ameren Illinois or Ameren as  
14 corporate?

15 **Q. Yes.**

16 A. Because there is the FERC incentive adders  
17 on the transmission companies --

18 **Q. But those would apply in both states?**

19 A. Yes, generally.

20 **Q. Okay. All right.**

21 A. And it's a question of how it plays out to  
22 the retail rates that fall under the Commission's  
23 jurisdiction versus the FERC's jurisdiction.

24 **Q. So the answer is?**

25 A. I think yes, they both receive -- they could



1 both receive the FERC incentive adders.

2 Q. So the answer to my original question, all  
3 else equal, is yes?

4 A. Yes.

5 CHAIRMAN HALL: Okay. Thank you.

6 JUDGE PRIDGIN: Thank you. Commissioner  
7 questions?

8 COMMISSIONER KENNEY: Thank you for your  
9 testimony.

10 COMMISSIONER STOLL: No questions.

11 JUDGE PRIDGIN: Thank you, Commissioner  
12 Rupp.

13 Commissioner Coleman? Thank you.

14 Any recross based on Bench questions? ATXI?

15 MR. TRIPP: No, sir.

16 JUDGE PRIDGIN: MISSO?

17 MR. SMALL: No questions.

18 JUDGE PRIDGIN: United for Missouri?

19 MR. LINTON: (No verbal response).

20 JUDGE PRIDGIN: Public Counsel?

21 MR. ALLISON: No.

22 JUDGE PRIDGIN: Neighbors United?

23 MR. HERNANDEZ: No.

24 JUDGE PRIDGIN: Thank you. Redirect?

25 MR. JOHNSON: Just one question, Judge.

REDIRECT EXAMINATION

QUESTIONS BY MR. JOHNSON:

**Q. I believe neighbors United asked you about if it was still your belief that there was no isolated cost/benefit analysis conducted for this project. Did you take that into account when determining economic feasibility for this project?**

A. Yes.

**Q. And what impact did the lack of an isolated study have on your determination?**

A. The study results were independent of its economic feasibility. My opinion, that the -- because the project will be funded through the MISO OATT tariffs it will be economically feasible regardless of that study.

**Q. Thank you, Mr. Stahlman.**

MR. JOHNSON: No further questions.

JUDGE PRIDGIN: All right, Mr. Johnson, thank you.

Mr. Stahlman, you may step down.

Let me inquire of counsel if you have Mr. Lange as next witness. If you have an idea how much cross-examination you might have. I know some of these witnesses are going quickly now. But I know some might also take a while.

MR. TRIPP: Your Honor, ATXI would have less

1 than ten minutes.

2 JUDGE PRIDGIN: Any estimates from counsel?

3 MS. HERNANDEZ: Right now, I don't have any  
4 questions planned, but maybe one or two spurred on  
5 discussion.

6 JUDGE PRIDGIN: All right. It sounds like  
7 I'm hearing very little, so let me go ahead and put Mr.  
8 Lange on, and then break for lunch.

9 So Mr. Lange.

10 MR. WILLIAMS: Judge, in the same vein about  
11 witnesses, Staff has no questions at this time for Hewings  
12 or Akers, and probably no one else does either.

13 JUDGE PRIDGIN: All right. Thank you,  
14 Mr. Williams.

15 Mr. Lange, if you'll raise your right hand  
16 and be sworn, please.

17 (Witness sworn.)

18 JUDGE PRIDGIN: Thank you, sir. You may  
19 have a seat.

20 And, Ms. Myers, when you're ready.

21 DIRECT EXAMINATION

22 QUESTIONS BY MS. MYERS:

23 Q. Mr. Lange, please state your full name for  
24 the record.

25 A. It is Shawn, S-H-A-W-N, E. Lange, L-A-N-G-E.

1           **Q.       And where are you employed, and in what**  
2 **capacit y?**

3           A.       I'm employed by the Missouri Public Service  
4 Commission as a Utility Engineering Specialist III.

5           **Q.       Thank you. Are you the same Shawn Lange who**  
6 **prepared or caused to be prepared the rebuttal testimony**  
7 **that's been marked as Exhibit 29 and the surrebuttal**  
8 **testimony that's been marked as Exhibit 30?**

9           A.       Yes.

10          **Q.       Do you have anything you wish to correct in**  
11 **these testimoni es?**

12          A.       No.

13          **Q.       With that in mind, if I asked you these same**  
14 **questions today, would your answers be the same?**

15          A.       Yes.

16          **Q.       Is the information in these documents true**  
17 **and accurate, to the best of your knowledge and belief?**

18          A.       Yes.

19          **Q.       Great.**

20                 MS. MYERS: Judge, Staff offers Exhibi ts 29  
21 and 30, and tenders Mr. Lange for cross.

22                 (Staff Exhibi t 29 and 30 were offered into  
23 evi dence.)

24                 JUDGE PRIDGIN: Ms. Myers, thank you. 29  
25 and 30 are offered. Any objecti ons? Hearing none, 29 and

1 30 are admitted.

2 (Staff Exhibits 29 and 30 were admitted into  
3 evidence.)

4 JUDGE PRIDGIN: Cross-examination, ATXI?

5 MR. FITZHENRY: Yes, Your Honor.

6 CROSS-EXAMINATION

7 QUESTIONS BY MR. FITZHENRY:

8 Q. In -- Mr. Lange, my name is Ed Fitzhenry.  
9 I'm here on behalf of ATXI. Good morning.

10 A. Good morning.

11 Q. It is correct that the purpose of your  
12 testimony was to assess the need for the Mark Twain  
13 project?

14 A. Yes.

15 Q. And as I read through your testimony, it  
16 would be fair to say that you relied upon a number of MISO  
17 studies and analyses as you came to your various  
18 conclusions. Correct?

19 A. Correct.

20 Q. And, sir, are you familiar with the Illinois  
21 Rivers project finding that was made by ATXI earlier this  
22 year with the MPSE?

23 A. I am somewhat familiar with that filing,  
24 yes.

25 Q. And would you agree that in the Staff

1 recommendation that was filed in response to that  
2 application that Staff generally relied upon, again, some  
3 of the same MISO studies and analyses in that case as it  
4 does here to support the project?

5 A. I believe that is correct. Yes.

6 Q. Thank you. Would you please turn to Page 3  
7 of your testimony -- your rebuttal testimony? There -- you  
8 know, actually, at the bottom of Page 2 and at the top of  
9 Page 3, you refer to ATXI witness Kramer's testimony, do  
10 you not? I -- Dr. Schatzki. I'm sorry. No, it is  
11 Mr. Kramer. I take that back.

12 A. That's Page 2 and Page 3?

13 Q. Right. I guess, actually, you quote  
14 Mr. Kramer's testimony starting at the top of Page 3, Lines  
15 1 through --

16 A. Yes.

17 Q. All right. Fair enough. There, in his  
18 testimony, he refers to market efficiency benefits. Do you  
19 see that on Line 3?

20 A. Yes.

21 Q. What is your understanding of what is meant  
22 by market efficiency benefits?

23 A. I believe that was discussed earlier today.  
24 I would believe that would include changes to the amount of  
25 losses that are on a system, perhaps changes to the

1 capacities of the generating units. The generating units  
2 in certain areas may be able to supply more generation  
3 because of this additional line -- those types of benefits.

4 It would change the overall market price --  
5 or it could change the overall market price because of  
6 these additional benefits.

7 **Q. Things like reduction of transmission**  
8 **congestion would also affect these market efficiencies that**  
9 **you speak of?**

10 A. Yes.

11 **Q. And, generally, you heard earlier today that**  
12 **MISO witness Smith answered questions from commissioners**  
13 **that the wholesale prices of energy would also be reduced.**  
14 **Is that also your understanding in terms of what's meant by**  
15 **market efficiency benefits?**

16 A. It could be. Yes.

17 **Q. Okay. Thank you. Now, I'd like you to look**  
18 **at the bottom of Page 4 of the testimony and go on to Page**  
19 **5, Line 22. And there you reference a portion from a MISO**  
20 **document titled "Transmission and Planning," do you not?**

21 A. I do.

22 **Q. Okay. And I'll refer to the bullet points**  
23 **on Page 5, Lines 3 through 22, as MISO objectives. Okay?**

24 A. Okay.

25 **Q. Now, first of all, why do you think it was**

1 **important to provide this information to the Commission?**

2 A. To give a little bit of the overall picture  
3 of where this project is coming from, give a little bit of  
4 the process that this project has been carried through  
5 with.

6 Q. It was your sense, was it not, that some of  
7 these MIS0 objectives would be met by the construction of  
8 the Mark Twain project. Correct?

9 A. Correct.

10 Q. Now, if I could ask you to look at the  
11 bullet -- actually, Bullet Number 3, which begins on Line 6  
12 and concludes at Line 10, Line -- and bullet -- and what  
13 I'll call Bullet 5, which begins on Line 13 through Line  
14 15. I ask you to look at that for a moment.

15 A. Okay.

16 Q. And, generally, these bullet points here  
17 address the benefits associated with transmission and  
18 reliability needs, does it not -- do they not?

19 A. Yes, they do.

20 Q. And would you agree that one of the benefits  
21 of the Mark Twain project is to address certain reliability  
22 benefits that have been addressed by other witnesses in  
23 this docket?

24 A. Yes.

25 Q. Now, I'll ask you to look at Bullet 2 --



1 what I call Bullet 2 that's on Line 5, another objective.  
2 It refers to transmission needs associated with generator  
3 inter-connection service. Do you see that?

4 A. Yes.

5 Q. And in that context, would the ability of a  
6 wind farm to connect to a transmission line Mark Twain be  
7 one of the objectives that's being met as you see it there  
8 on that page of your testimony?

9 A. It could be viewed that way. Yes.

10 Q. Okay. Now, if you would, on Page 7 of your  
11 testimony -- again, I'm speaking about your rebuttal --  
12 Line 1 through 2 you testify, "MISO states that its value  
13 proposition reflects that its continued efforts in regional  
14 planning enables more economic placement of wind resources  
15 in the region." Do you see that?

16 A. Yes.

17 Q. Now, if you were here or observed your  
18 counsel's opening remarks and you've seen the schedule of  
19 what's been called the blue jelly bean map -- do you recall  
20 that?

21 A. Yes.

22 Q. Those blue jelly beans in north and  
23 north-central Missouri, are they the economic placement of  
24 wind resources in regions that MISO is speaking of in this  
25 part of your testimony?

1           A.       I believe so. Yes.

2           **Q.       And turn to Page 8, Line 5. Simply, what is**  
3 **a bulk electric system NERC Category B, thermal constraint?**

4           A.       Excuse me. The -- let me pull it up so I  
5 can get this correct.

6           **Q.       I saw at Footnote 12 you identify and you**  
7 **explain Category C. That was very much appreciated. But I**  
8 **didn't really see or understand what you mean by that**  
9 **particular NERC Category B, thermal constraint.**

10          A.       Category B is an event resulting in the loss  
11 of a single element -- a single element: A generator, a  
12 transmission circuit, or transformer. It is my  
13 understanding -- it's N minus 1 because of thermal loading,  
14 that there are thermal constraints on transformers, on  
15 lines, on the bulk electric system in general.

16                    It will be different for the different  
17 equipment in the area, but there are thermal restrictions  
18 on all the equipment, and because a line or a transmission  
19 circuit transformer or generator fault that it caused  
20 overloading in a certain element.

21          **Q.       Thank you for that explanation, but**  
22 **nonetheless the Mark Twain project will alleviate that**  
23 **particular constraint, in your opinion?**

24          A.       Yes.

25          **Q.       And then on the next line, on Line 6, you**

1 **talk about non-BES NERC Category B constraints. Again, I**  
2 **would like you to kind of explain in layman's terms, if you**  
3 **would, what that is, exactly.**

4 A. Well, Category B would still be the same:  
5 An event resulting in the loss of a single line element.

6 Q. Got it. All right. If you would drop down  
7 to that same page, Lines 14 through 16, and there you  
8 testify that the Mark Twain project will maintain voltage  
9 levels if certain NERC Category C contingencies were to  
10 happen under certain system conditions. I guess the  
11 question to you is, why is that important to you as an  
12 engineer that is, you know, studying a transmission system  
13 and its operation?

14 A. It's reliability of the system, keeping the  
15 lights on, if you will, that voltage issues could cause  
16 issues brown-outs and, you know, that is not good.

17 Q. Is that also called voltage collapse by  
18 people in your field?

19 A. Yes.

20 Q. And then, lastly, Mr. Stahlman (sic), there  
21 was testimony earlier in the week regarding application by  
22 a wind developer, a 400-megawatt wind farm in Schuyler  
23 County would attach to the Mark Twain project. So my first  
24 question to you, sir, is: In your capacity as a staff  
25 engineer, would that kind of information come to your

1 **attention in the ordinary course of your duties?**

2 A. Yes, usually.

3 **Q. And that it is now -- you have knowledge of**  
4 **it, what, then, do you do in your day-to-day duties? Do**  
5 **you kind of follow the application process?**

6 A. Generally speaking, yes. We check up on the  
7 projects to look at where they are, perhaps look at  
8 different studies. Yes.

9 **Q. Okay. Thank you. That's all the questions**  
10 **I have. You've been very helpful.**

11 JUDGE PRIDGIN: All right. Thank you. Any  
12 cross from MISSO?

13 MR. SMALL: No, Your Honor.

14 JUDGE PRIDGIN: United for Missouri?

15 MR. LINTON: No questions.

16 JUDGE PRIDGIN: Public Counsel?

17 Neighbors United?

18 MR. HERNANDEZ: Briefly, Your Honor.

19 CROSS-EXAMINATION

20 QUESTIONS BY MR. HERNANDEZ:

21 **Q. Mr. Lange, you'd agree that no specific**  
22 **cost/benefit analysis of the Mark Twain transmission**  
23 **project by the Commission is being -- and the Commission is**  
24 **being asked to approve in this case; is that correct?**

25 A. I'm sorry. Could you repeat the question?

1           **Q.        Would you agree that there's no specific**  
2 **cost/benefit analysis of the MTTP before the Commission**  
3 **that is being asked to be approved?**

4                   **Do you agree that there's no specific**  
5 **cost/benefit analysis of the MTTE project before the**  
6 **Commission?**

7           A.        For this particular -- the Mark Twain  
8 project itself or --

9           **Q.        For the Mark Twain project itself.**

10          A.        I believe the MISO studies looked at  
11 regional, but not, you know, project by project.

12          **Q.        Specifically not for Missouri. Correct?**

13          A.        Not that I'm aware of.

14          **Q.        And to your knowledge, was the specific**  
15 **cost/benefit analysis of the project in EA-2015-0145 raised**  
16 **as an issue for the Commission's decision?**

17          A.        My scope on that case was very limited. I  
18 know generalities about that case, but as far as what went  
19 into that case, I -- I am very limited in what I know. I  
20 don't know.

21          **Q.        Yes, no, or I don't know?**

22          A.        I don't know. Sorry.

23          **Q.        Okay. Thanks. I'd like to direct you to**  
24 **your rebuttal testimony, Page 3 that was just -- I'd refer**  
25 **you to Page 3, as well. And I'd like to start at Line 8.**

1 **Let me know when you get there.**

2 A. Okay.

3 Q. **And your response to the question on Line 7,**  
4 **which says, "Does Staff recommend the Commission approve**  
5 **the application?" is, "Yes. Staff's analysis indicates**  
6 **that with the imposition of appropriate conditions, the**  
7 **application is sufficient to address the Commission's**  
8 **Tartan criteria"; is that correct?**

9 A. That is correct.

10 Q. **And your response in regards to the -- to**  
11 **Staff's recommendation is only based on the Tartan**  
12 **criteria. Correct?**

13 A. That was the prism that I viewed everything  
14 through. Yes.

15 Q. **Correct. So your position on Staff's**  
16 **approval based on assent of county commissioners' approval**  
17 **of transmission lines over county roads was not part of**  
18 **your analysis in that response. Correct?**

19 A. That was not part of my analysis. No.

20 Q. **And you didn't consider any constitutional**  
21 **issues as well?**

22 A. I did not.

23 MS. MYERS: I'm going to object here, Your  
24 Honor. Mr. Lange is not a lawyer, and these are legal  
25 conclusions.

1 JUDGE PRIDGIN: I'll overrule. I mean, he  
2 can answer if he knows. If he doesn't know, he can say so.

3 WITNESS: I did not.

4 MR. HERNANDEZ: Thank you. No further  
5 questions.

6 JUDGE PRIDGIN: Thank you. Any Bench  
7 questions? Mr. Chairman?

8 EXAMINATION

9 QUESTIONS BY CHAIRMAN HALL:

10 Q. Good morning, Mr. Lange.

11 A. Good morning.

12 Q. Turning to Page 11 of your rebuttal  
13 testimony, Lines 7 and 8, you say, "Much of the Mark Twain  
14 project may not be physically necessary if that area of  
15 Missouri is not developed with wind"; is that correct?

16 A. That is correct.

17 Q. What do you mean by "physically necessary"?

18 A. In the context of the studies that were -- I  
19 guess my testimony prior to that bring up the -- the  
20 studies for the GE744, G578, that those studies were  
21 showing that at that time the project was more Thomas Hill  
22 to Ottumwa, and that if the wind development in Missouri  
23 did not develop that that line was not physically needed.

24 Q. I guess I still don't understand. I mean,  
25 so it wasn't needed. I mean, if it's not needed in some

1 **other way other than physically --**

2 A. Those studies were interconnection studies,  
3 and so at the time they were looking at lines that would  
4 facilitate the addition of the wind farms in that area of  
5 Missouri.

6 **Q. Okay. So it's your belief that -- is it**  
7 **your belief that if there is no wind development in north**  
8 **Missouri, there is not a need for the Mark Twain project?**

9 A. No.

10 **Q. Okay. Explain.**

11 A. It may be that in the future there could be  
12 conditions and development of wind in Iowa that, you know,  
13 a utility in Missouri may purchase or may get a PPA for  
14 that the line would facilitate.

15 It's not to say that any -- basically, with  
16 that statement, I was trying to say that there may be a  
17 scenario in which -- that the line may not be physically  
18 necessary for voltage issues or for bulk electric system  
19 issues. There may be conditions in the future that may  
20 arise that it may not be physically necessary. However  
21 remote, there may be -- I don't know if that answers your  
22 question or not.

23 **Q. So your analysis as to the -- as to the need**  
24 **for the Mark Twain project is not dependent upon the**  
25 **development of wind energy in north Missouri?**



1           A.       Not necessarily. No.  
2                   CHAIRMAN HALL: Okay. Thank you.  
3                   JUDGE PRIDGIN: Mr. Chairman, thank you.  
4                   COMMISSIONER STOLL: No questions.  
5                   JUDGE PRIDGIN: Commissioner Stoll.  
6                   Commissioner Kenney?  
7                   Commissioner Rupp?  
8                   Commissioner Coleman?  
9                   Recross based on Bench questions? ATXI?  
10                  MR. FITZHENRY: I'm not one to keep people  
11 from their lunch. No.

12                  JUDGE PRIDGIN: Mr. Fitzhenry, thank you.  
13                  MISO?

14                  MR. SMALL: I have one question.

15                                   RECCROSS EXAMINATION

16                  QUESTIONS BY MR. SMALL:

17                  **Q.       I'd like to follow-up with the chairman's**  
18 **question about physically necessary. In your testimony,**  
19 **you are not testifying -- you're not testifying that it**  
20 **might -- that it wouldn't be economically desirable, just**  
21 **physically -- wouldn't necessarily be physically necessary?**

22                  A.       I do not touch any of the economic analysis.

23                  **Q.       I think that was the essence of my**  
24 **questions. Thank you.**

25                  JUDGE PRIDGIN: Thank you. United for

1 Missouri ?

2 MR. HERNANDEZ: No questions.

3 JUDGE PRIDGIN: Public Counsel ?

4 MR. ALLISON: No questions.

5 JUDGE PRIDGIN: Neighbors United?

6 MR. HERNANDEZ: No questions.

7 JUDGE PRIDGIN: Redirect?

8 MS. MYERS: Just a few.

9 REDI RECT EXAMI NATION

10 QUESTIONS BY MS. MYERS:

11 Q. Mr. Lange, I believe Mr. Hernandez asked you  
12 about a cost/benefit analysis in this case; is that  
13 correct?

14 A. Yes.

15 Q. And your analysis is based on need; is that  
16 correct?

17 A. It was -- yes.

18 Q. And so what did you analyze in determining  
19 what need was?

20 A. I looked at what the project was going to --  
21 if there was any constraints or conditions on the system  
22 that the project was going to alleviate. I looked at the  
23 import capacity that it would add. I looked at a lot of  
24 the NERC conditions that -- the contingencies that it would  
25 alleviate. I looked at the modeling -- at certain aspects

1 of the modeling -- load flows. That was a part of the  
2 filing.

3 **Q. So the existence or nonexistence of a**  
4 **cost/benefit analysis didn't hinder your analysis?**

5 A. No.

6 **Q. And when you talked about constraints, did**  
7 **you mean physical constraints? What did you mean by that?**

8 A. The NERC constraints, the category A, B, C  
9 constraints.

10 **Q. Okay. Thank you for that clarification.**  
11 **You were also asked about Case EA-2015-0145, I believe.**  
12 **That was the Illinois Rivers Case; is that correct?**

13 A. Yes.

14 **Q. Did you participate in that case at all?**

15 A. No, not directly.

16 **Q. No. Did you submit any testimony in that**  
17 **case?**

18 A. I did not.

19 **Q. So your knowledge of that case is limited.**  
20 **Correct?**

21 A. Very limited.

22 **Q. And then, lastly, Chairman Hall had asked**  
23 **you about whether or not your analysis depended on**  
24 **development of wind in Missouri; is that correct?**

25 A. Correct.

1           **Q.       And you referenced the Thomas Hill line; is**  
2 **that correct?**

3           A.       Yes.

4           **Q.       So when that proposal happened, do you know**  
5 **when that was?**

6           A.       Not off the top of my head. I could go back  
7 and look, but not off the top of my head.

8           **Q.       You don't understand a sort of timeframe?**

9           A.       Probably somewhere around 2007, 2008-ish.

10          **Q.       And so that would be before the Clean Power**  
11 **Plan; is that correct?**

12          A.       Correct.

13          **Q.       And would that change anything, the Clean**  
14 **Power Plan, in your opinion?**

15          A.       Quite possibly. Yes.

16          **Q.       Well, thank you, Mr. Lange.**

17                 MS. MYERS: I have no further questions.

18                 JUDGE PRIDGIN: All right, Ms. Myers. Thank  
19 you.

20                 Mr. Lange, thank you very much. You can be  
21 excused.

22                 Let's recess for lunch until 1:15.

23                 MR. SMALL: Your Honor?

24                 JUDGE PRIDGIN: Yes?

25                 MR. SMALL: Before you recess --

1 JUDGE PRIDGIN: Yes.

2 MR. SMALL: -- MISO doesn't intend on  
3 questioning any further witnesses. We'd asked to be  
4 excused from the remainder of the proceeding.

5 JUDGE PRIDGIN: All right. Thank you. Any  
6 objection?

7 MR. LOWERY: No, Your Honor. And, Your  
8 Honor, one other very quick thing since you're inquiring of  
9 commissioners, I'm inquiring of the parties about whether  
10 -- we don't have any questions for Mr. Walters. I suspect  
11 maybe none of the parties do.

12 If you can inquire of the commissioners,  
13 also, we might be able to move the schedule so that we're  
14 done Thursday. I think Ms. Hernandez is going to check on  
15 one of her witnesses to see if he could appear on Thursday.

16 JUDGE PRIDGIN: All right. Very good.  
17 Thank you. I will see if we have any questions for any of  
18 these Friday witnesses. I think we also have one other  
19 Friday witness, but I'm hearing that might -- we might  
20 start moving these witnesses up, so --

21 MR. WILLIAMS: Judge, I can tell you for  
22 Staff that unless other parties do or is required to be  
23 here otherwise, Staff has no questions of  
24 Mr. Walters.

25 JUDGE PRIDGIN: All right. All right. Very

1 good. Thank you. We will adjourn for lunch until 1:15.

2 Thank you. We're off the record.

3 (Off the record.)

4 JUDGE PRIDGIN: Good afternoon. We are back  
5 on the record. When we left, we had just finished, I think  
6 with Mr. Lange. And Ms. Kliethermes I see is now on the  
7 stand. And let me verify with counsel before we go any  
8 further, I believe the other witnesses that are set for  
9 Thursday will not be available today and so Ms. Kliethermes  
10 will be the final witness of the day. Is that correct?

11 MR. FITZHENRY: That's my understanding.

12 JUDGE PRIDGIN: And then also after  
13 consulting with the Chairman, it doesn't seem like the  
14 bench will have any questions for Dr. Hewings, Ms. Akers or  
15 Mr. Walter. I am of the opinion they can all be excused  
16 and it looks like Mr. Jackson will be the only witness left  
17 for Friday. But I'm hoping we can bump him up to Thursday  
18 and then we will have --

19 MR. LOWERY: Ms. Hernandez in inquiring of  
20 him as I understand it.

21 JUDGE PRIDGIN: Okay.

22 MS. HERNANDEZ: Yeah. I don't have a  
23 response yet. I haven't been able to get a hold of him, so  
24 unfortunately I don't have anything further in terms of  
25 schedule.

1 JUDGE PRIDGIN: Okay. Nobody else is  
2 available today after Ms. Kliethermes?

3 MR. LOWERY: That is correct.

4 JUDGE PRIDGIN: All right.

5 MR. LOWERY: And Judge, in terms of  
6 Mr. Walters, I have had e-mail communication with his  
7 lawyer and she is checking with him but he's in meetings  
8 and -- about testifying by phone tomorrow instead of  
9 Friday.

10 JUDGE PRIDGIN: Okay.

11 MR. LOWERY: Because he was also Friday by  
12 phone.

13 JUDGE PRIDGIN: Correct. And maybe I  
14 misunderstood. I thought I heard the parties say they have  
15 no cross?

16 MR. LOWERY: That's right. I'm sorry.  
17 Nobody has any cross. My apologies.

18 JUDGE PRIDGIN: I don't believe the bench  
19 has --

20 MR. LOWERY: So it wouldn't matter.

21 JUDGE PRIDGIN: All right.

22 MR. WILLIAMS: And Staff is certainly  
23 willing to waive cross on them and stipulate to their  
24 pre-filing.

25 JUDGE PRIDGIN: Okay. Thank you. All

1 right. Anything further from counsel before

2 Ms. Kliethermes is sworn in?

3 All right. Ms. Kliethermes if you'll raise  
4 your right hand to be sworn, please.

5 (Witness sworn.)

6 JUDGE PRIDGIN: Thank you very much. You  
7 may have a seat.

8 And Mr. Williams, when you're ready.

9 DIRECT EXAMINATION

10 QUESTIONS BY MR. HAMPTON WILLIAMS:

11 Q. Please state your name and spell it slowly.

12 A. Sarah Kliethermes, S-A-R-A-H  
13 K-L-I-E-T-H-E-R-M-E-S.

14 Q. Thank you. With whom and in what capacity  
15 are you employed?

16 A. I'm an employee of the Staff of the Missouri  
17 Public Service Commission as a Regulatory Economist III.

18 Q. Ms. Kliethermes, did you prepare or cause to  
19 be prepare rebuttal testimony marked HC, identified as  
20 Exhibit 2-- number 28HC filed on October 21, 2015 in this  
21 case number?

22 A. Yes.

23 Q. On January 25th, 2016 by pleading a  
24 corrected schedule to your testimony identified as schedule  
25 6 and marked HC was filed. Do you have any additional



1 **corrections or changes to that testimony?**

2 A. I do not.

3 **Q. Are all of the answers contained in that**  
4 **testimony true and correct to the best of your knowledge**  
5 **and belief?**

6 A. Yes.

7 **Q. If I were to ask you the same questions**  
8 **today, would your answers be the same?**

9 A. They would.

10 MR. WILLIAMS: Your Honor, I move to submit  
11 rebuttal testimony prepared by Ms. Kliethermes marked as  
12 Number -- Exhibit Number 28HC.

13 (Staff Exhibit 28HC was offered into  
14 evidence.)

15 JUDGE PRIDGIN: And would you also want to  
16 offer 28NP as well?

17 MR. WILLIAMS: Yes, please.

18 (Staff Exhibit 28NP was offered into  
19 evidence.)

20 JUDGE PRIDGIN: All right. Thank you. Any  
21 objections? All right. 28HC and NP are admitted.

22 (Staff Exhibits 28HC and 28NP were received  
23 into evidence.)

24 MR. WILLIAMS: I tender the witness for  
25 examination.

1 JUDGE PRIDGIN: All right. Thank you.

2 Any cross-examination, ATXI?

3 MR. FITZHENRY: No, sir.

4 JUDGE PRIDGIN: MISSO is excused. United for  
5 Missouri?

6 MR. LINTON: No questions, Your Honor.

7 JUDGE PRIDGIN: Public Counsel?

8 MR. ALLISON: No questions.

9 JUDGE PRIDGIN: Neighbors United?

10 MS. HERNANDEZ: No, thank you.

11 JUDGE PRIDGIN: All right. Bench questions,  
12 Mr. Chairman?

13 CHAIRMAN HALL: Just a few, perhaps one.

14 EXAMINATION

15 QUESTIONS BY CHAIRMAN HALL:

16 Q. Good afternoon.

17 A. Good afternoon.

18 Q. Turning to Page 3 of your rebuttal

19 testimony, you recommend that the Commission not rely on --

20 and I'm reading from Lines 4 through 6 -- not rely on the

21 implications -- on any implications in the testimony of

22 Dr. Schatzki, that the project would reduce Missouri retail

23 electric rates or that two, the project would reduce

24 project environmental emissions in Missouri. Could you

25 explain for me why you do not believe -- actually, let me

1 **phrase it this way: Do you believe that the project will**  
2 **have no impact on environmental emissions in Missouri?**

3 A. If I may, the difficulty is in determining  
4 exactly what would happen in Missouri, exactly what would  
5 happen throughout the region. The sort of study that was  
6 done is good for determining region-wide issues. It's less  
7 good for saying, "This is what this plant will do at this  
8 time under these particular circumstances."

9 **Q. In the state of Missouri?**

10 A. In the state of Missouri. To say here is  
11 what will happen at Labadie. Here's what will happen --

12 **Q. Okay. So --**

13 A. Et cetera.

14 **Q. So you are not saying, okay. Well -- keep**  
15 **going.**

16 A. That was it.

17 **Q. Okay.**

18 A. It's fine for -- it's good. It's what you  
19 do for determining expected impact on wholesale rates.  
20 It's not what you do for determining what plants will run  
21 at what time under what circumstances.

22 **Q. Okay. So you do believe that it could**  
23 **impact wholesale rates throughout the MISO footprint? You**  
24 **just don't know if -- how it will affect Missouri**  
25 **ratepayers, essentially. Is that what you're saying?**

1 A. Yes. That's fair.

2 Q. Okay. And then concerning environmental  
3 emissions, you're not commenting on the extent to which  
4 this project could help Missouri comply with 111-D?

5 A. No. Not at all.

6 Q. Okay. Do you have any opinion on that at  
7 all?

8 A. On 111-D matters I would defer to Dan Beck.

9 Q. Okay.

10 A. Specifically what this comment addresses is  
11 if you have hypothetically had two units side-by-side, one  
12 had NOx reducing equipment, the other is not. It is my  
13 understanding that the sort of modeling Mr. Schatzki did  
14 would not cause one unit to run over the other, they would  
15 have a huge impact on those emissions.

16 CHAIRMAN HALL: Thank you. I have no  
17 further questions.

18 JUDGE PRIDGIN: Mr. Chairman, thank you.  
19 Commissioner Stoll?

20 COMMISSIONER STOLL: I have no questions.  
21 Thank you.

22 JUDGE PRIDGIN: Commissioner Rupp?

23 Thank you. Any recross based on bench  
24 questions? ATXI?

25 MR. FITZHENRY: No, sir.

1 JUDGE PRIDGIN: Uni ted for Mi ssouri? We  
2 lost Mr. Linton?

3 Public Counsel?

4 MR. ALLISON: No.

5 JUDGE PRIDGIN: Nei ghbors Uni ted?

6 MS. HERNANDEZ: No, thank you.

7 JUDGE PRIDGIN: Any redi rect?

8 MR. WILLIAMS: No, sir.

9 JUDGE PRIDGIN: All right. Thank you.

10 Ms. Kliethermes, thank you very much. You may step down.

11 And I understand the parties have no more  
12 witnesses for today and that we would begin tomorrow with  
13 Dr. Schatzki. And then witnesses Beck, Haxton, Harris,  
14 Palmer and Jackson would be the only ones left? Very good.  
15 All right. Anything further before we go off the record?

16 All right. Hearing nothing, we will stand  
17 in recess until 8:30 tomorrow morning. Thank you. We're  
18 off the record.

19 (WHEREUPON, the hearing was adjourned until  
20 January 28, 2016 at 8:30 a.m.)

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1	INDEX	
2	MIDCONTINENT INDEPENDENT SYSTEM OPERATOR, INC.	
3	JAMESON T. SMITH	
4	Direct Examination by Mr. Small	536
5	Cross-Examination by Mr. Lowery	568
6	Cross-Examination by Ms. Hernandez	576
7	Examination by Chairman Hall	587
8	Examination by Commissioner Stoll	606
9	Recross Examination Mr. Lowery	610
10	Recross Examination by Ms. Myers	614
11	Recross Examination by Mr. Linton	615
12	Recross Examination by Ms. Hernandez	618
13	Redirect Examination by Mr. Small	624
14	NEIGHBORS UNITED	
15	DR. DENNIS SMITH	
16	Direct Examination by Mr. Hernandez	627
17	Cross-Examination by Mr. Tripp	629
18	Examination by Chairman Hall	650
19	Examination by Commissioner Stoll	652
20	Examination by Commissioner Kenney	653
21	Examination by Commissioner Coleman	656
22	Recross Examination by Mr. Tripp	659
23	Redirect Examination by Mr. Hernandez	660
24	PUBLIC SERVICE COMMISSION	
25	NATELLE DIETRICH	
26	Direct Examination by Mr. Nathan Williams	665
27	Examination by Commissioner Kenney	668
28	DAVID MURRAY	
29	Direct Examination by Ms. Myers	670
30	MICHAEL STAHLMAN	
31	Direct Examination by Mr. Johnson	674
32	Cross-Examination by Mr. Fitzhenry	675
33	Cross-Examination by Mr. Hernandez	680
34	Examination by Chairman Hall	681
35	Redirect Examination by Mr. Johnson	683
36	SHAWN R. LANGE	
37	Direct Examination by Ms. Myers	684
38	Cross-Examination by Mr. Fitzhenry	686
39	Cross-Examination by Mr. Hernandez	693
40	Questions by Chairman Hall	694

1	Redi rect Exami nati on by Ms. Myers	699
2	SARAH KLIETHERMES	
	Di rect Exami nati on by Mr. Hampton Williams	705
3	Exami nati on by Chair man Hall	707
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
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22		
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1  
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4  
5  
6  
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8  
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12  
13  
14  
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16  
17  
18  
19  
20  
21  
22  
23  
24  
25

EXHIBIT INDEX

MARKED RCV' D

AMEREN TRANSMISSION CO. OF ILLINOIS:

ATXI Exhibit 83 Study included in Schedule DS-07	634	635
ATXI Exhibit 84 Study of Leukemia	640	643
ATXI Exhibit 85 Study	643	644

MIDWEST INDEPENDENT SYSTEM OPERATOR:

MISO Exhibit 35 Surrebuttal testimony of Jameson Smith		567
MISO Exhibit 82 Revised chart	624	625

STAFF OF THE MISSOURI PUBLIC SERVICE COMMISSION:

Staff Exhibit 27 Rebuttal testimony of Natelle Dietrich		667
Staff Exhibit 28HC and 28NP Rebuttal testimony of Sarah Kliethermes		706
Staff Exhibit 29 Rebuttal testimony of Sharon Lange		686
Staff Exhibit 30 Surrebuttal testimony of Sharon Lange		686
Staff Exhibit 31 Rebuttal testimony of David Murray		671
Staff Exhibit 32 Rebuttal testimony of Michael Stahlman		675

NEIGHBORS UNITED:

NU Exhibit 81 Responses	576	586
----------------------------	-----	-----



1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
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12  
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CERTIFICATE OF REPORTER

I, LISA M. BANKS, a Certified Court Reporter, within and for the State of Missouri, do hereby certify that the witness whose testimony appears in the foregoing deposition was duly sworn by me; that the testimony of said witness was taken by me to the best of my ability and thereafter reduced to typewriting under my direction; that I am neither counsel for, related to, nor employed by any of the parties to the action in which this deposition was taken, and further, that I am not a relative or employee of any attorney or counsel employed by the parties thereto, nor financially or otherwise interested in the outcome of the action.

  
\_\_\_\_\_  
Li sa M. Banks, CCR



<b>A</b>	600:19	<b>advancing</b> 569:20	<b>agreed</b> 673:6	572:3 591:1
<b>a.m</b> 710:20	<b>addition</b> 697:4	<b>advantage</b> 592:11,25	<b>agrees</b> 580:6	597:19,20
<b>abilities</b> 602:13	<b>additional</b> 575:20 605:1	593:1 599:10	<b>ahead</b> 593:12	610:15 653:2,3
<b>ability</b> 612:18	613:24 622:9	<b>adverse</b> 568:2,2	684:7	659:21 687:24
690:5 714:7	663:1,8 666:18	642:21	<b>Air</b> 583:2	<b>amounts</b> 678:9
<b>able</b> 590:16	667:12 688:3,6	<b>advocacies</b> 604:12	<b>Akers</b> 673:9	<b>ample</b> 576:25
600:14,16	705:25	<b>advocates</b> 609:12 614:24	684:12 703:14	<b>amyotrophic</b> 663:5
613:15 638:25	<b>additions</b> 566:18	615:14	<b>algorithms</b> 617:2	<b>analyses</b> 686:17
645:16 662:4,7	567:6	<b>affect</b> 688:8	<b>allegation</b> 576:16	687:3
676:7 688:2	<b>address</b> 576:15	708:24	<b>alleviate</b> 691:22	<b>analysis</b> 569:10
702:13 703:23	581:16 646:21	<b>afternoon</b> 565:17 611:4	699:22,25	570:7 573:21
<b>abruptly</b> 565:14	647:6 679:18	703:4 707:16	<b>Allison</b> 564:11	573:21,21,23
<b>absolutely</b> 664:12	689:17,21	707:17	577:21 618:22	574:4 575:6,7
<b>AC</b> 639:15	695:7	<b>agencies</b> 597:22	628:16,17	575:9 579:17
<b>accepted</b> 679:25	<b>addressed</b> 679:2	<b>Agency</b> 582:7	658:15,16	580:6,16 581:8
<b>access</b> 588:13	679:5 689:22	638:21 653:21	668:6 669:24	581:14 589:7
590:6 592:20	<b>addresses</b> 681:2	<b>agenda</b> 565:12	672:8 680:15	589:12,13,15
594:13 597:4	709:10	565:16 625:24	682:21 699:4	589:17 594:3
657:22	<b>adequacy</b> 590:24 591:2,7	626:1,12	707:8 710:4	596:11 601:5,7
<b>accommodate</b> 625:25	591:23	642:25 663:4	<b>allow</b> 576:25	602:25 611:21
<b>accommodated</b> 571:1,14	<b>adjourn</b> 703:1	<b>agent</b> 654:18	613:21	616:11 671:3
<b>account</b> 574:24	<b>adjourned</b> 710:19	<b>agents</b> 655:6,14	<b>allowing</b> 591:22	679:18 680:21
575:7 591:13	<b>adjust</b> 600:14	655:17 661:13	<b>allows</b> 586:5	681:1 683:5
592:2 596:16	<b>adjusted</b> 616:13	<b>aggregate</b> 585:3	604:22	693:22 694:2,5
596:17 616:20	616:16,17,19	585:5	<b>alternative</b> 562:11 576:23	694:15 695:5
618:14 683:6	<b>administered</b> 635:4	<b>ago</b> 599:7	577:2	695:18,19
<b>accurate</b> 628:4	<b>admission</b> 567:14	636:18 664:24	<b>alternatives</b> 576:19 577:1	697:23 698:22
671:15 685:17	<b>admit</b> 633:15	676:13	604:22,23	699:12,15
<b>acquisition</b> 584:19	635:12 643:15	<b>agree</b> 573:19	<b>Alzheimer's</b> 645:10	700:4,4,23
<b>Acting</b> 564:11	644:13 675:11	578:15,18	<b>Ameren</b> 562:10	<b>analytics</b> 570:13
<b>action</b> 714:9,13	<b>admitted</b> 567:22	579:7 581:6	563:6,11 569:7	600:13 601:19
<b>actual</b> 566:22	586:24 625:19	582:14 583:22	589:1 603:10	604:17
589:25 620:8	628:13 630:12	586:9 588:5	611:21 633:25	<b>analyze</b> 616:12
620:19 636:19	635:16 637:19	644:21 647:20	681:9,13,13,13	699:18
647:1	643:18 644:17	660:8 677:14	713:3	<b>animal</b> 639:19
<b>add</b> 699:23	667:19 671:23	678:24 679:4	<b>Ameren's</b> 569:10	645:15
<b>adders</b> 681:16	675:17 678:1	679:23 686:25	<b>Ameren's</b> 569:10	<b>animals</b> 639:21
682:1	686:1,2 706:21	689:20 693:21	<b>America</b> 635:6	640:23 641:10
<b>adding</b> 576:21	<b>adopted</b> 582:6	694:1,4	<b>amount</b> 571:13	641:12,13,16
590:24 591:6				<b>annually</b> 678:15
				<b>answer</b> 582:17
				583:16,16
				584:4 587:17

603:6 604:9 605:4 618:7 622:1 636:2,6 640:2 649:9,17 650:11,14 652:16 676:24 677:9 681:24 682:2 696:2 <b>answered</b> 598:6 688:12 <b>answers</b> 567:12 628:1 671:12 675:3,8 685:14 697:21 706:3,8 <b>anxiety</b> 663:16 <b>anxious</b> 657:12 <b>anybody</b> 577:19 604:22 673:6 <b>apologies</b> 704:17 <b>apologize</b> 612:24 626:14,18 672:24 <b>appear</b> 578:22 673:8,10,14 702:15 <b>appears</b> 579:5 667:10 714:5 <b>applicable</b> 591:24 <b>application</b> 562:10 676:13 687:2 692:21 693:5 695:5,7 <b>applied</b> 600:8 625:8 663:24 663:24 676:12 <b>apply</b> 681:18 <b>appreciated</b> 691:7 <b>approach</b> 577:23 624:1 630:8,14 634:12 637:14 639:23 643:12	649:25 677:22 <b>appropriate</b> 643:10 695:6 <b>appropriately</b> 588:11 <b>approval</b> 606:10 623:11,11 695:16,16 <b>approvals</b> 599:8 623:15 <b>approve</b> 619:22 693:24 695:4 <b>approved</b> 606:8 606:17 694:3 <b>approximately</b> 667:2 674:20 <b>area</b> 568:25 569:16 571:2,6 571:7 576:21 598:15 599:7 602:6 633:22 658:2 691:17 696:14 697:4 <b>areas</b> 582:8,14 582:19 599:12 603:13,23 642:22 645:2,3 663:2,8,12 688:2 <b>argued</b> 598:10 <b>arising</b> 643:6 <b>arrangements</b> 673:24 <b>ARTURO</b> 563:16 <b>aside</b> 648:5 679:5,19 <b>asked</b> 567:9 580:5 584:1 585:9 599:18 614:10,16 619:2,22 622:16,17 627:25 649:13	650:6 652:13 671:11 683:3 685:13 693:24 694:3 699:11 700:11,22 702:3 <b>asking</b> 610:2 636:7 663:1 <b>aspects</b> 699:25 <b>assent</b> 695:16 <b>assertion</b> 598:14 <b>assess</b> 686:12 <b>assigned</b> 589:17 <b>Assistant</b> 564:5 564:6 <b>associated</b> 562:14 575:20 584:19 588:7 590:9,11,19 591:9,20 593:3 594:12 601:6 602:19 605:1 616:18 618:15 619:10 622:3 629:9 660:17 689:17 690:2 <b>association</b> 639:20 645:17 646:8 <b>assume</b> 565:6 574:7 599:23 679:17 <b>assumed</b> 568:17 568:25 569:4 <b>assuming</b> 677:3 <b>assumption</b> 585:18 596:13 598:3 <b>assumptions</b> 592:7 607:8 <b>attach</b> 692:23 <b>attached</b> 567:3 620:8 622:22 629:16 634:3	642:24 645:23 661:5,8 <b>attachment</b> 578:19 620:22 <b>attention</b> 574:21 693:1 <b>attorney</b> 563:2,3 563:7,7,8,12 563:15,16,20 564:1 714:11 <b>attribute</b> 656:19 <b>attributed</b> 635:24 <b>ATX</b> 678:21 <b>ATXI</b> 568:3 587:25 593:7 609:23 629:1 633:5,7,23 634:18 635:14 635:17 640:19 642:11 643:16 643:19 644:15 644:18,25 648:19 658:24 667:24 669:17 672:1 675:20 675:25 676:7 682:14 683:25 686:4,9,21 687:9 698:9 707:2 709:24 713:4,5,7 <b>ATXI's</b> 633:9 <b>authority</b> 605:11 <b>Authorizing</b> 562:12 <b>available</b> 568:11 589:3,4 590:2 590:15 593:24 598:11 623:21 641:22 647:7 657:6,21,23 670:6 673:2	703:9 704:2 <b>Avenue</b> 563:8 <b>average</b> 638:2,5 <b>avoid</b> 618:11,13 <b>aware</b> 632:5 641:19 648:23 649:14 650:7 678:20 694:13 <hr/> <b>B</b> <hr/> <b>b</b> 563:2 581:2 691:3,9,10 692:1,4 700:8 <b>back</b> 578:20 588:4 601:12 618:9 626:7,19 642:9 659:10 661:13 670:13 673:13 678:17 687:11 701:6 703:4 <b>backwards</b> 661:1 <b>bad</b> 603:6 <b>Badger-Coulee</b> 625:6 <b>Bailey</b> 637:20 638:10 <b>Bailey's</b> 638:14 <b>balance</b> 597:3,4 <b>Banks</b> 562:23 714:3 <b>bar</b> 621:15 <b>based</b> 574:3 576:1 579:10 579:19,23 581:9 585:14 592:15 607:13 609:23 616:12 616:25 617:12 637:2 638:13 644:8 650:12 658:14 669:15 682:14 695:11
--	---	--	--	--

695:16 698:9 699:15 709:23 <b>basically</b> 607:9 624:18 653:6 659:14 697:15 <b>basing</b> 654:7 <b>basis</b> 623:19 636:14 647:22 <b>bean</b> 690:19 <b>beans</b> 690:22 <b>Beck</b> 709:8 710:13 <b>becoming</b> 656:23 <b>begins</b> 689:11 689:13 <b>begun</b> 623:6 <b>behalf</b> 566:9 629:7 675:25 686:9 <b>belief</b> 628:5 671:15 675:5 683:4 685:17 697:6,7 706:5 <b>believe</b> 569:12 570:21 571:8 571:12,19 572:9 573:6,16 573:18 574:6 574:22 575:13 584:1 587:17 587:20,21 589:8 590:18 595:9 598:6 599:14 601:4 615:12 616:9 623:24 624:24 631:22 633:9 633:13 634:15 634:17 643:9 648:6,9,11,13 648:14,16,19 648:21 649:1 649:16 650:10	650:11 651:17 651:24 661:18 662:16 663:5 676:17,18 681:9 683:3 687:5,23,24 691:1 694:10 699:11 700:11 703:8 704:18 707:25 708:1 708:22 <b>believed</b> 632:3 <b>believes</b> 663:6 <b>Belt</b> 601:14 632:10,19 658:5 669:2 <b>bench</b> 587:2 650:18 658:14 668:9 669:15 672:11 673:18 681:4 682:14 696:6 698:9 703:14 704:18 707:11 709:23 <b>benefit</b> 588:6 619:7 <b>benefit-to-cost</b> 580:25 <b>benefit/cost</b> 579:16,21 580:14 581:7 581:12 <b>benefited</b> 680:3 <b>benefits</b> 575:20 575:24 589:17 593:16 601:6 607:13,14,23 616:12 619:3 619:10 620:23 620:25 621:1,9 621:10,11,25 622:10,12 677:11,15 678:18 687:18	687:22 688:3,6 688:15 689:17 689:20,22 <b>best</b> 568:2 589:7 600:3 602:13 628:5 654:3 671:15 675:5 685:17 706:4 714:7 <b>better</b> 592:17 598:4 605:1 <b>beyond</b> 572:6 613:12 646:8 <b>bias</b> 604:7 633:22 <b>biased</b> 648:6 649:2,6,16 650:10 <b>biasing</b> 665:1 <b>bidding</b> 607:2 <b>big</b> 601:12 657:11 <b>bill</b> 576:5 <b>billion</b> 602:14 622:12,13 <b>bioinitiatve</b> 657:3 <b>bit</b> 568:5 571:20 589:22 597:6 649:13 660:10 661:2 689:2,3 <b>Black</b> 611:21 <b>Blank</b> 647:10,23 653:10 <b>blanking</b> 615:4 <b>blue</b> 595:25 690:19,22 <b>bodies</b> 597:22 609:4,5 <b>body</b> 605:17 <b>border</b> 562:14 588:13 <b>borders</b> 588:22 <b>Bosnia</b> 629:21	<b>bottom</b> 687:8 688:18 <b>bottom-up</b> 604:18 <b>Box</b> 563:9 564:8 564:12 <b>brain</b> 645:7 <b>brand-new</b> 612:23 <b>break</b> 565:13,16 625:23,24 626:9,11 684:8 <b>breakdown</b> 620:24,25 <b>breast</b> 638:21 642:3,5 665:2 <b>briefly</b> 653:20 680:17 693:18 <b>bring</b> 696:19 <b>bringing</b> 654:9 <b>Britain</b> 652:14 <b>broader</b> 603:1 <b>brought</b> 653:10 657:5 <b>brown-outs</b> 692:16 <b>build</b> 593:11 596:20 602:5,5 604:18,19 605:12 606:19 612:23 <b>building</b> 576:14 576:14 588:11 592:23 593:3,9 598:20 676:8 <b>builds</b> 594:10 <b>built</b> 573:14 574:1,2 585:13 <b>bulk</b> 691:3,15 697:18 <b>bullet</b> 688:22 689:11,11,12 689:13,16,25 690:1	<b>bump</b> 703:17 <b>business</b> 568:11 577:12 581:15 <b>busy</b> 657:18 <b>butchering</b> 599:20 <hr/> <b>C</b> <hr/> <b>C</b> 563:1 565:1 568:22 570:11 691:7 692:9 700:8 <b>calculated</b> 579:16 580:14 581:3,13 638:1 638:4 678:25 <b>calculations</b> 581:14 637:6 638:9,11,14 <b>calendar</b> 588:2 <b>California</b> 657:1 <b>call</b> 642:21 673:13 689:13 690:1 <b>called</b> 602:4 612:16 613:5 616:13 690:19 692:17 <b>calling</b> 643:4 663:12 <b>Canada</b> 585:12 656:25 <b>cancer</b> 635:23 636:1 638:21 638:22 642:3,5 653:22 654:6 654:20,25 664:18 665:2 <b>cancers</b> 655:19 655:21 <b>candidate</b> 602:23 <b>capabilities</b> 569:20 591:19
---	---	---	--	--

596:11 616:24 <b>capability</b> 596:8 599:11 662:2,3 <b>capacities</b> 688:1 <b>capacity</b> 568:16 568:24 569:3 569:11,17,21 573:5 590:15 591:9,16,22 593:2 596:24 611:23,24 613:16,17 665:23 671:1 685:2 692:24 699:23 705:14 <b>capital</b> 591:8 592:15,16 593:2 607:15 <b>capped</b> 610:15 <b>captured</b> 591:10 <b>carbon</b> 576:8 601:6 610:10 610:11,15,19 613:19 677:16 678:8,10,13 679:5,19 <b>carbon-based</b> 610:8,20 <b>carbon-constr...</b> 575:19 601:2 <b>carbon-emitting</b> 613:2 <b>carbon-mitiga...</b> 603:5 <b>carbon-neutral</b> 600:20 613:14 <b>carbon-produ...</b> 610:22,22 <b>carbon-restric...</b> 575:25 576:1 <b>carbon-tonnage</b> 610:12 <b>carcinogen</b> 638:22 639:3	642:7 653:24 <b>carcinogenic</b> 654:5,18,23 655:17,25 656:1 661:14 <b>carcinogenicity</b> 639:15 <b>Cardinal</b> 625:7 <b>care</b> 593:15 673:4 <b>careful</b> 664:25 <b>Carmel</b> 563:21 <b>carried</b> 689:4 <b>carve-outs</b> 574:21,22,24 <b>CAS</b> 661:20 <b>case</b> 566:8 571:13 581:15 590:9 593:6 603:19 610:24 617:9 622:8 630:3,22,25 635:22 636:15 636:20 637:3,8 637:20 650:25 660:15 666:5 668:25 669:2 673:12 687:3 693:24 694:17 694:18,19 699:12 700:11 700:12,14,17 700:19 705:21 <b>cases</b> 568:11 636:15 647:5 668:21 <b>categories</b> 589:20 619:4,8 654:15 655:6 <b>category</b> 654:13 691:3,7,9,10 692:1,4,9 700:8 <b>causation</b>	646:12,15 659:18 <b>cause</b> 648:1 651:13 652:12 658:1 659:9 692:15 705:18 709:14 <b>caused</b> 627:15 635:24 671:5 685:6 691:19 <b>causing</b> 654:6 <b>CCR</b> 562:23 714:15 <b>cell</b> 645:7 653:12 653:12 <b>cells</b> 647:17 <b>cellular</b> 645:15 647:25 651:25 <b>Center</b> 563:20 627:13 <b>certain</b> 591:1 593:9 605:15 678:25 688:2 689:21 691:20 692:9,10 699:25 <b>certainly</b> 612:19 657:25 673:25 704:22 <b>certainty</b> 605:15 651:17 663:14 <b>Certificate</b> 562:11 714:1 <b>certificates</b> 587:12 <b>Certified</b> 714:3 <b>certify</b> 714:4 <b>cetera</b> 565:8 576:12 708:13 <b>chairman</b> 562:18 578:3 587:3,4,8 595:17,20 601:17 605:23	606:1 610:2 614:10 616:1 617:21 619:2 619:19 620:15 621:12 650:19 650:20,23 652:20 668:10 672:12,13 681:5,6,8 682:5 696:7,9 698:2,3 700:22 703:13 707:12 707:13,15 709:16,18 711:5,11,21,25 712:3 <b>chairman's</b> 620:23 653:1 698:17 <b>challenges</b> 588:14 <b>chance</b> 636:5 640:11 <b>change</b> 590:9 600:6,23 601:1 667:1,3 688:4 688:5 701:13 <b>changed</b> 566:25 <b>changes</b> 572:17 607:19,21 647:25 653:12 666:21 687:24 687:25 706:1 <b>characterizati...</b> 573:19,22 <b>chart</b> 594:22,23 623:9,21 624:7 624:11 713:11 <b>charts</b> 624:15 <b>check</b> 679:17 693:6 702:14 <b>checking</b> 704:7 <b>checkmarked</b> 635:1	<b>child</b> 646:21,22 647:6 <b>childhood</b> 638:20 639:1,8 639:21 640:2,8 640:9 641:16 645:13 646:2 646:13 648:2 654:9 660:17 663:4 664:16 <b>children</b> 646:17 <b>Chouteau</b> 563:8 <b>circles</b> 595:25 624:19 <b>circuit</b> 691:12 691:19 <b>circumstances</b> 606:22 708:8 708:21 <b>cite</b> 634:4,8 641:15,18 647:9,16 <b>cited</b> 642:11 644:25 <b>City</b> 562:7 563:17,20 564:2,8,13 <b>claimed</b> 661:24 <b>claims</b> 647:23 <b>clarification</b> 587:25 700:10 <b>clarify</b> 663:9 681:12 <b>classified</b> 639:14 655:24 <b>clean</b> 575:5,8,12 576:2,7 582:5 582:16 583:3 599:13,18 600:4,9 601:3 601:15,22 610:2,7 611:6 611:8 612:11 612:14,20
---	--	---	---	--

613:4 701:10 701:13 <b>clear</b> 589:13 595:4 620:14 649:13 678:16 <b>clinical</b> 632:1 <b>Close</b> 646:2 <b>closest</b> 637:3,7 638:6 <b>coal</b> 583:5 612:12 613:8 <b>coal-fired</b> 583:1 583:7 611:17 <b>Coleman</b> 562:20 609:20,21 656:6,7,9 658:13 669:14 669:16 672:20 672:21 682:13 698:8 711:13 <b>collapse</b> 692:17 <b>Columbia</b> 563:4 <b>combination</b> 592:13 <b>combined</b> 592:18 <b>come</b> 565:5 585:3 600:18 604:18,20,22 648:16 662:10 673:15 692:25 <b>comes</b> 570:18 607:2 609:14 663:23 673:4 <b>comfortable</b> 626:20 <b>comfortably</b> 664:7 <b>coming</b> 658:3 664:22 672:22 673:13 689:3 <b>comment</b> 709:10 <b>commented</b> 616:3	<b>commenting</b> 709:3 <b>comments</b> 610:3 664:10 666:18 667:3,4,5,7 668:25 669:3 <b>Commission</b> 562:1 564:7,9 565:12,16 570:3 572:11 574:9 601:17 619:22 632:19 641:10,13 660:15 662:20 665:22,24,25 671:2 674:18 676:12,14 685:4 689:1 693:23,23 694:2,6 695:4 705:17 707:19 711:15 713:12 <b>Commission's</b> 681:22 694:16 695:7 <b>commissioner</b> 606:2,4 609:15 609:17,18,19 609:20,21 614:15 652:21 652:22,25 653:17,19 656:3,5,6,7,9 658:12 661:2 668:11,14 669:12,13,14 669:16 672:14 672:15,16,17 672:18,19,20 672:21 682:6,8 682:10,11,13 698:4,5,6,7,8 709:19,20,22 711:5,12,12,13	711:17 <b>commissioners</b> 562:20 673:6 673:16,19 688:12 702:9 702:12 <b>commissioners'</b> 695:16 <b>commissions</b> 605:4 <b>commit</b> 598:20 <b>commitment</b> 598:19 <b>committee</b> 643:25 644:9 <b>common</b> 602:19 668:19 <b>communication</b> 704:6 <b>companies</b> 681:17 <b>company</b> 562:10 563:6,11 633:6 673:5 <b>compare</b> 617:10 621:23 <b>compensated</b> 650:24 <b>compensation</b> 584:18,22 <b>competitive</b> 606:18,19 607:2 <b>complete</b> 617:3 <b>completed</b> 587:12 588:2,3 588:5 604:10 651:22 <b>compliance</b> 575:12,24 599:24 600:5 600:12 601:13 610:14 613:3	613:13 <b>compliant</b> 600:16 <b>comply</b> 600:8,15 601:10 709:4 <b>component</b> 602:10 606:25 <b>comprised</b> 566:14 579:22 <b>compute</b> 646:16 <b>concerned</b> 652:3 657:11 664:4 <b>concerning</b> 709:2 <b>concerns</b> 642:20 643:5 <b>conclude</b> 572:24 <b>concluded</b> 573:1 573:9,12 <b>concludes</b> 689:12 <b>conclusion</b> 646:11 647:17 648:15 663:23 <b>conclusions</b> 644:22,24 648:8 663:19 686:18 695:25 <b>conditions</b> 692:10 695:6 697:12,19 699:21,24 <b>conducted</b> 683:5 <b>configured</b> 659:23 660:5 <b>confirm</b> 633:11 645:11 <b>confirmed</b> 643:5 657:15 <b>conform</b> 633:11 <b>congested-rela...</b> 576:11 <b>congestion</b> 589:24 603:13	617:1,5,12 618:1 688:8 <b>connect</b> 600:1 690:6 <b>connected</b> 570:11 571:6 <b>connection</b> 572:17 645:10 <b>consequences</b> 633:12 662:24 <b>conservative</b> 575:23 <b>consider</b> 576:14 576:19,19 577:3 604:25 673:20 695:20 <b>consideration</b> 599:3 <b>considerations</b> 593:14 <b>considered</b> 572:25 584:18 596:11 <b>considering</b> 594:11 <b>consistency</b> 567:2 <b>consistent</b> 603:1 631:6 <b>constantly</b> 657:13 <b>constitutional</b> 695:20 <b>constrained</b> 617:4 <b>constraint</b> 691:3 691:9,23 <b>constraints</b> 570:15,17 590:3 591:16 591:18 596:15 596:18 597:15 603:13 691:14 692:1 699:21
---	---	--	---	--

700:6,7,8,9 <b>Construct</b> 562:12 <b>constructed</b> 572:4 <b>construction</b> 571:1,6 579:19 585:2 593:17 623:5 689:7 <b>consulting</b> 703:13 <b>consumer</b> 604:12 609:12 614:24 615:14 <b>consumers</b> 613:10 <b>consumption</b> 590:2 <b>contain</b> 617:7 <b>contained</b> 579:17 628:1 706:3 <b>contend</b> 636:12 <b>context</b> 585:1 617:16 622:7 690:5 696:18 <b>contingencies</b> 692:9 699:24 <b>continue</b> 574:25 <b>continued</b> 690:13 <b>continues</b> 575:1 <b>continuing</b> 585:25 <b>contradict</b> 645:20 <b>control</b> 562:13 647:5 <b>Convenience</b> 562:11 <b>conventional</b> 678:12 <b>conversation</b> 591:12 656:15	<b>conversations</b> 656:19 <b>convinced</b> 651:20 652:1 <b>cool</b> 626:15 <b>coordination</b> 605:19 <b>copies</b> 677:21 <b>copy</b> 630:7,13 649:19 <b>corporate</b> 681:14 <b>correct</b> 567:4 569:2 570:16 573:4,13,15 576:22,24 577:8,13 578:21 583:20 587:24 601:24 605:8 610:6 614:13,17 615:8 616:14 617:2 619:9,23 621:4,21 629:10,13,18 629:21,25 630:1,4,23,24 631:4,5,11,12 631:18,25 632:13,17,20 633:5,13,16,17 633:23 634:1 634:10,11,23 635:1,9 636:15 638:2,6,10,12 639:13 643:1,8 644:2,5,11,25 645:1,6 646:9 646:18,19,23 647:7,8,11,14 647:18 648:20 649:17 651:8 653:23 658:3 659:12,13,15	659:16,19,20 659:23 660:6,7 660:11 661:6,7 661:9,11,22,23 661:25 662:8 662:11 666:7 666:13,14 669:9 671:8 675:4 676:9 677:18 685:10 686:11,18,19 687:5 689:8,9 691:5 693:24 694:12 695:8,9 695:12,15,18 696:15,16 699:13,16 700:12,20,24 700:25 701:2 701:11,12 703:10 704:3 704:13 706:4 <b>corrected</b> 705:24 <b>correction</b> 566:20,24 587:20 640:9 640:14 <b>corrections</b> 566:18 567:6 567:10 627:20 627:23 640:12 674:25 706:1 <b>correctly</b> 579:13 580:1,10,21 581:4 582:11 584:20 586:7 597:12 599:6 610:18 642:22 645:18,19 650:15 651:4 676:11 <b>correlation</b> 594:1 645:14	651:6,18 652:6 659:19 660:14 <b>corresponding</b> 621:3 <b>corridors</b> 602:21 <b>cost</b> 581:2 585:7 588:18 589:2 589:25 590:6,8 594:16 606:18 616:13,16,17 616:20 617:20 618:12,13 677:4 <b>cost-free</b> 600:15 <b>cost/benefit</b> 579:4,7,11 580:6,8,18 584:23 589:12 680:21 681:1 683:5 693:22 694:2,5,15 699:12 700:4 <b>cost/share</b> 606:25 <b>costs</b> 584:17 585:15 588:20 588:20,21,25 590:18,20 592:16,17 594:15 607:15 616:18 617:19 618:15 621:9 621:11 622:2,9 676:21 677:2 <b>counsel</b> 564:4,5 564:5,6,6,10 564:11,11,14 565:18 577:20 587:15 595:6 618:21 628:16 636:5 651:5 668:5 669:23 672:7 677:24 680:14 682:20	683:20 684:2 693:16 699:3 703:7 705:1 707:7 710:3 714:8,11 <b>counsel's</b> 690:18 <b>county</b> 571:19 632:12 658:4,5 692:23 695:16 695:17 <b>couple</b> 589:20 599:6 606:7 609:24 636:18 651:5 <b>course</b> 693:1 <b>court</b> 562:24 577:19 578:7 624:4 634:19 640:20 714:3 <b>covered</b> 591:2 <b>CPP</b> 613:13,20 613:24 <b>create</b> 613:7 <b>created</b> 602:19 <b>credits</b> 613:4 <b>Creek</b> 625:7 <b>criteria</b> 695:8,12 <b>critical</b> 573:20 573:22 594:3,6 <b>cross</b> 568:1,3,5 572:9 577:17 578:1,2 615:19 667:24 671:18 675:13 685:21 693:12 704:15 704:17,23 <b>cross-examina...</b> 567:17,18 568:6 578:8 628:9,15 629:3 672:1 675:20 675:22 680:18 683:22 686:4,6 693:19 707:2
--	--	--	--	---

711:4,4,11,20 711:21,24,24 <b>cumulative</b> 652:9 <b>current</b> 601:7 602:11 606:22 618:9 623:4 624:10 633:10 666:21 <b>currently</b> 610:8 <b>curriculum</b> 629:15 <b>customers</b> 615:4 <b>cut</b> 565:14	636:15 673:23 703:10 <b>day-to-day</b> 693:4 <b>DC</b> 632:11 <b>deal</b> 598:8 <b>dealt</b> 622:6 <b>DEARMONT</b> 563:7 <b>decision</b> 694:16 <b>default</b> 618:9 <b>defer</b> 709:8 <b>deferment</b> 621:17,17 <b>deferred</b> 591:9 <b>defined</b> 591:14 <b>definitive</b> 638:25 639:8 639:10,11,12 645:2,4,4 <b>definitively</b> 655:22 <b>deflects</b> 660:10 <b>degree</b> 629:12 <b>delayed</b> 588:6,8 616:6 <b>deliver</b> 571:9 573:11,11 600:21 <b>deliverable</b> 570:12 573:1 <b>delivering</b> 678:9 <b>delivery</b> 594:7 597:7 <b>demand</b> 576:20 577:11 605:13 605:21 <b>Dennis</b> 627:10 711:10 <b>department</b> 609:6 627:13 631:23 <b>depend</b> 603:15 603:23	<b>depended</b> 700:23 <b>dependence</b> 582:7,13,18 <b>dependent</b> 572:18 582:15 697:24 <b>Depending</b> 610:13 <b>depends</b> 603:13 659:22 660:4,5 <b>deployed</b> 631:19 <b>deployment</b> 631:20 <b>deployments</b> 629:21 <b>deposition</b> 640:3 640:7,12,23 649:20 650:6 714:5,10 <b>Deputy</b> 564:4 <b>describe</b> 622:25 <b>described</b> 581:14 <b>description</b> 580:17 594:25 <b>designation</b> 642:4,6 <b>desirable</b> 698:20 <b>detailed</b> 581:15 <b>determination</b> 608:4 683:10 <b>determine</b> 676:19 <b>determined</b> 596:4,5 676:25 <b>determining</b> 683:6 699:18 708:3,6,19,20 <b>develop</b> 598:14 639:21 640:2 696:23 <b>developed</b> 569:4 592:12 596:7	598:24 599:11 696:15 <b>developer</b> 577:7 692:22 <b>developers</b> 577:7 598:19 599:2 614:25 <b>developing</b> 569:3 597:17 598:3 605:7 <b>development</b> 586:3 592:19 594:4,4 597:13 598:9 603:8 604:21 613:25 696:22 697:7 697:12,25 700:24 <b>Dietrich</b> 565:7 665:9,19 666:3 668:15 670:5 711:16 713:14 <b>differ</b> 648:24 <b>difference</b> 601:13 652:10 653:3 <b>differences</b> 624:14,16 <b>different</b> 588:14 600:25,25 619:4,8 622:15 630:19 640:7 644:24 657:1 661:3 691:16 691:16 693:8 <b>differs</b> 649:15 650:8 <b>difficulty</b> 708:3 <b>diligent</b> 664:1 <b>dioxide</b> 679:6,20 <b>direct</b> 566:2 572:7 588:16 590:22 602:11 627:7 646:12	646:15 648:1 665:16 670:20 674:9 679:7,11 684:21 694:23 705:9 711:3,10 711:16,18,20 711:23 712:2 <b>direction</b> 714:8 <b>directionally</b> 575:6 <b>directly</b> 598:13 700:15 <b>director</b> 627:12 631:23 665:25 <b>disagree</b> 574:7 574:10 604:10 <b>disagreeing</b> 663:11 <b>disagreement</b> 570:4 <b>disagrees</b> 580:9 <b>disbelieve</b> 638:8 <b>discount</b> 638:9 <b>discuss</b> 647:14 <b>discussed</b> 611:25 621:18 661:11 687:23 <b>discussing</b> 621:11 <b>discussion</b> 570:1 574:18 589:9 601:17,18 612:11 617:18 620:22 623:2 623:13 684:5 <b>disease</b> 641:25 651:13 <b>dish</b> 631:3 <b>dispatch</b> 590:17 616:25 617:2,4 <b>dispatches</b> 590:4 <b>displaced</b> 611:9 678:13 <b>displacement</b>
<b>D</b>				
<b>D</b> 562:17 565:1 <b>D-I-E-T-R-I...</b> 665:20 <b>daily</b> 636:14 <b>Dakota</b> 592:25 593:1 <b>damage</b> 649:7 652:2 653:12 657:10,14 <b>Dan</b> 709:8 <b>danger</b> 663:7,15 <b>dangerous</b> 644:23 <b>dangers</b> 664:5 <b>DANIEL</b> 562:18 <b>data</b> 578:16,23 580:4,18,23 581:11 596:6 596:10 <b>date</b> 666:3,6 <b>dated</b> 607:10 623:6 <b>David</b> 563:12 565:7 615:25 670:6,7,24 671:4 711:18 713:20 <b>day</b> 611:3				



611:16	<b>doubt</b> 613:23 614:1 679:16	<b>duties</b> 631:20 693:1,4	686:8	650:9
<b>displacing</b> 610:7	<b>downplay</b> 633:4		<b>effect</b> 588:16	<b>emergency</b>
<b>disproven</b>	<b>downtown</b>	<b>E</b>	617:24 621:7	627:12 631:23
654:12	596:21	<b>E</b> 563:1,1 565:1	652:9	657:17
<b>dispute</b> 638:11	<b>Dr</b> 565:7 626:7	565:1 684:25	<b>effectively</b>	<b>emerging</b> 643:25
<b>distance</b> 596:12	626:21 627:10	<b>e-mail</b> 636:21	610:11 611:13	644:9
596:17 597:3	627:15 629:5,7	704:6	612:18	<b>EMF</b> 630:3
636:23 646:8	630:20 631:13	<b>e.g</b> 579:24	<b>effects</b> 632:10	631:10,15
646:14 647:1,3	632:1 634:3,21	<b>EA-2015-0145</b>	634:9,10	632:4,6,10
<b>distances</b> 660:19	635:20 636:5	694:15 700:11	642:21 644:10	633:4 634:9
<b>distinguish</b>	637:18,20	<b>EA-2015-0146</b>	645:6 648:25	635:4,24
651:15	638:10,14	562:13	649:1,15 650:8	638:16,19,22
<b>distributed</b>	639:5 640:1,22	<b>earlier</b> 565:7	651:10	639:1,2,9,20
604:15	642:2 643:22	631:22 672:25	<b>efficiencies</b>	641:12 642:4,6
<b>distribution</b>	644:21 647:10	686:21 687:23	590:3 688:8	642:11 644:2
652:11,15	648:5,23 659:5	688:11 692:21	<b>efficiency</b>	644:10,23
<b>divide</b> 612:2	661:1 665:6	<b>easier</b> 600:12	603:18 613:11	645:5,10
616:4	673:8,12	601:10	687:18,22	646:13,17
<b>divided</b> 612:7	678:22,24	<b>easily</b> 600:15	688:15	648:8,18,25
<b>docket</b> 689:23	679:18 681:1	<b>east</b> 608:19	<b>efficient</b> 590:5	649:16 650:9
<b>Doctor</b> 626:23	687:10 703:14	<b>eastern</b> 596:9	678:11	660:10,16
<b>document</b>	707:22 710:13	602:9	<b>efforts</b> 605:19	664:20
578:13 594:17	711:10	<b>easy</b> 601:9	690:13	<b>EMFs</b> 633:12
595:5 643:4	<b>drive</b> 563:17,20	<b>economic</b>	<b>EIA</b> 566:16	635:4 653:22
662:25 671:14	582:24 591:18	583:24 584:6	<b>eight</b> 635:1,20	<b>emission</b> 678:14
688:20	599:3 607:16	594:13 603:18	<b>either</b> 585:22	<b>emissions</b>
<b>documentation</b>	613:24	604:24 607:8	610:9 684:12	678:10,25
581:3	<b>driven</b> 582:24	607:12,16	<b>elaborate</b> 589:21	679:4,6,20,23
<b>documents</b>	<b>drop</b> 692:6	616:12 617:6	<b>electric</b> 562:13	680:1,4 707:24
685:16	<b>DS-01</b> 627:17	683:6,12	610:18 633:3	708:2 709:3,15
<b>dogs</b> 641:24	<b>DS-02</b> 627:17	690:14,23	639:15,16	<b>employed</b>
<b>doing</b> 621:9	<b>DS-03</b> 627:17	698:22	691:3,15	627:11 665:23
650:12,25	642:24	<b>economical</b>	697:18 707:23	670:25 674:16
<b>dollars-per-mile</b>	<b>DS-04</b> 627:17	598:14	<b>electromagnetic</b>	685:1,3 705:15
585:6	661:8,22	<b>economically</b>	629:9 630:22	714:9,11
<b>door</b> 664:10	<b>DS-05</b> 627:17	583:18 592:12	637:7 644:5	<b>employee</b> 705:16
<b>dots</b> 600:1	<b>DS-06</b> 627:18	676:7,20 677:1	651:11 654:10	714:11
<b>double</b> 633:13	645:23	683:14 698:20	656:15,20,24	<b>employer</b> 665:21
642:12 649:12	<b>DS-07</b> 627:18	<b>economics</b>	661:16	<b>enable</b> 571:9
662:15,17,21	634:4,23 713:4	612:22	<b>element</b> 691:11	<b>enabled</b> 602:15
662:22 663:13	<b>due</b> 575:24	<b>economist</b>	691:11,20	<b>enables</b> 690:14
663:24 664:9	<b>duly</b> 714:5	674:17 705:17	692:5	<b>enabling</b> 592:20
<b>double-check</b>	<b>DUSTIN</b> 564:11	<b>Ed</b> 563:8 675:24	<b>elements</b> 602:19	603:19
634:17			<b>ELF</b> 649:16	<b>encompasses</b>

581:12	648:18,21	692:5	667:23 668:13	667:15,16,19
<b>Endanger</b> 644:5	663:24 664:1,6	<b>eventually</b>	670:20 674:9	667:20 671:6
<b>energy</b> 568:16	664:7	574:19	681:7 683:1	671:17,19,21
570:11 574:13	<b>EPA's</b> 663:19	<b>evidence</b> 567:19	684:21 696:8	671:22,24
574:22 575:11	<b>epidemiologic</b>	567:24 586:21	698:15 699:9	674:22 675:13
577:7 583:1,19	631:20 651:9	587:1 625:17	705:9 706:25	675:14,16,18
586:4,6 588:12	654:8	625:21 628:10	707:14 711:3,5	677:24 685:7,8
588:19,20,21	<b>epidemiological</b>	628:14 630:12	711:5,6,6,7,7,8	685:22 705:20
588:25 590:6	659:6	633:11 634:4,9	711:10,11,12	706:12,13,18
592:8 593:24	<b>epidemiologist</b>	634:10 635:13	711:12,13,13	713:1,4,5,7,9
594:4,16 596:2	631:18 661:25	635:14,18	711:14,16,17	713:11,13,15
596:7,19,19	<b>equal</b> 682:3	637:19 638:19	711:18,20,21	713:16,18,19
600:11 602:17	<b>equipment</b>	639:15 643:16	711:22,23	713:21,24
603:5,19	691:17,18	643:20 644:14	712:1,2,3	<b>Exhibits</b> 685:20
611:14 613:5	709:12	644:15,19	<b>EXAMINATI...</b>	686:2 706:22
613:11 647:17	<b>ERCs</b> 613:5,7	648:16 651:8,9	656:8	<b>exist</b> 596:25
648:1 678:9	613:11,12	651:16,21	<b>example</b> 608:11	607:14
688:13 697:25	<b>ERIC</b> 563:7	652:2,11 659:5	664:2	<b>existence</b> 601:22
<b>EnerNOC</b>	<b>error</b> 648:7,9	663:7,14 665:2	<b>excerpt</b> 566:16	633:11 651:16
577:10	<b>especially</b>	667:17,21	<b>excuse</b> 578:16	662:23 700:3
<b>engaged</b> 577:11	594:10,11	671:20,25	653:20 662:17	<b>existing</b> 571:11
<b>engineer</b> 612:6	656:24	675:15,19	676:16 691:4	588:24 595:3
692:12,25	<b>essence</b> 698:23	678:1,21	<b>excused</b> 701:21	612:25 613:1
<b>Engineering</b>	<b>essentially</b>	685:23 686:3	702:4 703:15	613:16 617:10
685:4	576:16 588:21	706:14,19,23	707:4	618:7
<b>ensure</b> 605:19	593:13 595:2	<b>EVIDENTIA...</b>	<b>exhibit</b> 567:19	<b>exists</b> 572:18
607:22	616:17 708:25	562:5	567:23 578:6	<b>exit</b> 597:20
<b>entire</b> 579:6,10	<b>estimates</b> 584:24	<b>EWITS</b> 596:8	578:12 586:19	<b>expanding</b> 602:8
579:19 589:12	584:25 585:3	<b>exact</b> 604:7	586:20,25	<b>expect</b> 569:16
619:11,12,14	684:2	608:24 647:6	595:11 623:24	<b>expectation</b>
619:20 621:1,3	<b>estimation</b> 653:2	654:6	623:24 624:3	583:4
621:20,20	<b>et</b> 565:8 576:12	<b>exactly</b> 575:7	625:15,17,19	<b>expected</b> 708:19
661:18	708:13	585:20 607:6	625:20 627:17	<b>experience</b>
<b>entirely</b> 579:22	<b>EU</b> 645:10,14	616:3 692:3	628:8,10,12,13	660:16 662:6
<b>entities</b> 577:11	<b>Europe</b> 635:7	708:4,4	628:14 634:14	<b>experiences</b>
<b>entitled</b> 644:4	673:13	<b>examination</b>	634:18,22	638:15
646:2	<b>European</b>	566:2 587:7	635:13,14,17	<b>expert</b> 569:18
<b>entity</b> 577:10	643:25	606:3 609:25	637:19 640:19	629:8
<b>environmental</b>	<b>evaluates</b> 580:7	614:8 615:21	641:3 643:15	<b>expertise</b> 603:14
582:6 604:15	<b>evaluating</b>	618:25 620:4	643:16,19,22	603:16,21
615:1 629:13	582:23	624:5 627:7	643:23 644:14	606:25
707:24 708:2	<b>evaluation</b> 573:8	650:22 652:24	644:15,18,22	<b>experts</b> 603:22
709:2	642:6	653:18 659:2	656:10 666:2,9	<b>explain</b> 574:9
<b>EPA</b> 582:24	<b>event</b> 691:10	660:24 665:16	666:22 667:12	579:12 580:5

580:24 599:16 616:15 645:17 654:4 662:20 691:7 692:2 697:10 707:25 <b>explained</b> 645:14 <b>explanation</b> 691:21 <b>export</b> 591:19 <b>exposed</b> 651:11 656:23 657:2,8 <b>exposure</b> 631:10 632:4,6 633:12 634:9 635:4,24 638:16,19 642:11 644:2,5 644:10,23 645:5 646:13 651:6 652:2 653:2,3,4,7,8 654:10,20 659:22 662:24 663:15 665:3 <b>exposures</b> 635:21 <b>Express</b> 601:14 601:16 632:10 658:6 <b>extensive</b> 629:16 655:5 662:2 664:15 <b>extent</b> 574:1 600:13 602:20 612:21 680:2 709:3 <b>external</b> 591:22 <b>extra</b> 618:15 648:25 661:15 662:24 <b>extreme</b> 602:8 <b>extremely</b> 630:20 642:25 661:20	<b>F</b>	<b>feasibility</b> 683:7 683:12 <b>feasible</b> 676:7,20 677:1 683:14 <b>features</b> 612:14 <b>feel</b> 664:7 <b>Fenton</b> 563:13 <b>FERC</b> 606:14,17 606:22 607:1 607:11 681:16 682:1 <b>FERC's</b> 681:23 <b>field</b> 576:20 577:3 631:21 644:5 651:12 692:18 <b>fields</b> 629:9 630:3,22 635:5 635:7 637:7 638:1,5 639:15 639:16 643:1 644:11 654:11 656:15,20,24 661:16,20 662:25 663:15 <b>figure</b> 568:2 569:23 570:3,6 621:13 678:13 <b>file</b> 562:12 623:14 <b>filed</b> 565:7 566:8 571:13 666:17 687:1 705:20 705:25 <b>filing</b> 686:23 700:2 <b>filled-in</b> 624:18 <b>final</b> 582:5 703:10 <b>financial</b> 671:3 <b>financially</b> 714:12 <b>find</b> 565:14 595:14 597:2,2	597:4 638:25 639:8,10,12,19 639:22 642:17 645:16 646:15 657:13 664:1 <b>finding</b> 583:17 583:23 584:5 596:23 602:21 686:21 <b>findings</b> 645:16 647:22 <b>fine</b> 679:14 708:18 <b>finished</b> 703:5 <b>fired</b> 583:6 586:6 <b>Firm</b> 563:16 <b>first</b> 578:19,24 581:23 589:24 595:15,18 598:16 603:7 606:8 607:18 620:6 632:9 637:23 641:2 654:8 656:22 688:25 692:23 <b>fit</b> 621:10 <b>Fitzhenry</b> 563:8 675:21,23,24 677:22,24 678:2 680:7,9 686:5,7,8 698:10,12 703:11 707:3 709:25 711:20 711:24 <b>five</b> 600:11 674:20,20 <b>five-minute</b> 590:16 <b>fixed</b> 612:1 <b>fleet</b> 572:18 583:1,7,10 591:17 600:7	600:23 678:12 <b>fleshed</b> 602:12 <b>flexible</b> 590:15 <b>Flint</b> 664:3 <b>flows</b> 700:1 <b>focus</b> 574:17 <b>focused</b> 573:4 574:13 594:6 624:16 629:24 629:25 <b>focuses</b> 604:14 <b>follow</b> 663:19 693:5 <b>follow-up</b> 698:17 <b>following</b> 565:6 581:16 653:1 <b>follows</b> 579:15 <b>Footnote</b> 584:10 584:12,17 691:6 <b>footprint</b> 571:10 574:14 576:13 579:23 581:13 582:25 583:19 584:7 588:20 592:13 596:23 597:8,17 598:5 600:7,18 602:9 621:4,24 624:20 708:23 <b>forecasted</b> 593:10 <b>foregoing</b> 714:5 <b>form</b> 641:14 647:22 661:13 <b>former</b> 599:9 <b>forth</b> 654:9 <b>forties</b> 615:12 <b>forward</b> 583:10 591:2 648:16 653:10 657:6 <b>found</b> 592:15,17 596:12 602:19
--	----------	---	--	---

623:1,17 654:5 664:24 <b>four</b> 602:15 615:2 <b>fraction</b> 573:2 <b>frequencies</b> 631:3 <b>frequency</b> 630:2 630:20,20,21 635:5,7,21 643:1 648:25 661:15,20 <b>Friday</b> 673:8,10 702:18,19 703:17 704:9 704:11 <b>front</b> 624:7 632:22 655:3 <b>fuel</b> 589:24 607:15 <b>full</b> 581:14 600:18 608:12 657:22 661:13 670:22 678:6 684:23 <b>full-time</b> 657:17 <b>fully</b> 570:12 586:10 <b>function</b> 606:19 <b>funded</b> 683:13 <b>further</b> 565:18 577:15 602:24 605:24 614:3 614:15 615:17 618:19 625:10 626:3,21 652:18 681:3 683:16 696:4 701:17 702:3 703:8,24 705:1 709:17 710:15 714:10 <b>future</b> 593:4 621:16 697:11	697:19 <hr/> <b>G</b> <b>G</b> 565:1 <b>G578</b> 696:20 <b>gamut</b> 604:11 <b>gas</b> 582:8,13,15 582:19 583:5 586:5,6,11 607:15 612:12 612:19,23,23 613:5,7,10,11 613:16,17,18 613:18,21,21 <b>gas-fired</b> 611:17 <b>gathering</b> 594:7 <b>GE744</b> 696:20 <b>general</b> 597:1 599:22 601:21 645:1 676:16 676:18 679:23 679:25 691:15 <b>generalities</b> 694:18 <b>generally</b> 583:7 596:20 597:14 611:16 624:16 644:22 681:19 687:2 688:11 689:16 693:6 <b>generate</b> 617:7 <b>generated</b> 610:8 610:9 613:11 657:1,4 <b>generating</b> 688:1,1 <b>generation</b> 570:10,25 571:5 572:3,17 572:24 574:2 574:12 575:1 576:21 582:24 586:4 590:1,11 592:3,16,19	594:13 595:24 597:18 598:17 598:18,21 602:1 605:14 605:22 610:9 610:10,20 611:1 616:18 678:12,12 688:2 <b>generator</b> 690:2 691:11,19 <b>generators</b> 604:13 617:6 <b>getting</b> 618:16 663:10 <b>gigahertz</b> 631:4 <b>GIS</b> 646:21 <b>give</b> 581:16 613:4 626:12 626:12 630:7 689:2,3 <b>given</b> 576:21 592:24 642:4 <b>giving</b> 664:7 <b>glad</b> 673:21 <b>glean</b> 653:6 <b>go</b> 575:13,23 576:6 580:12 593:12 596:22 601:13 604:16 604:17,21 607:7,12 612:22 617:24 617:25 618:1,2 618:7,9 625:25 626:3 632:15 632:24 636:9 642:9 650:3 659:10 670:8 670:10 684:7 688:18 701:6 703:7 710:15 <b>going</b> 568:1 571:19 574:17	574:19 580:4 582:15,24 583:10 585:14 588:10,12,14 591:2 594:14 597:24,24 599:1,2,3 600:6,23,24 601:1,5,9 603:12 605:9 605:20 608:23 610:23 611:7 611:12,16,21 612:5,6 613:13 613:15,17,24 615:2 616:22 616:23 617:22 617:22 618:1 626:11 661:1 670:7 673:4,13 673:23 677:3 678:4,17 683:23 695:23 699:20,22 702:14 708:15 <b>good</b> 565:2 568:8,9 578:10 578:11 587:4,6 603:16 606:5,6 615:23,24 625:22 626:6 629:5,6 650:20 650:21 668:16 674:12 675:25 676:1 686:9,10 692:16 696:10 696:11 702:16 703:1,4 707:16 707:17 708:6,7 708:18 710:14 <b>Goodman</b> 647:11,23 <b>governor</b> 597:22 <b>GPS</b> 647:2	652:14 <b>Grain</b> 601:14 632:10,19 658:5 669:2 <b>graphic</b> 592:6 595:14 621:13 <b>great</b> 598:8 652:13 685:19 <b>greater</b> 570:22 582:7,13,18 602:16 <b>grid</b> 602:8 <b>group</b> 638:22 642:4,6 653:24 654:17,17,18 654:23 655:14 655:15,16,16 655:16,21,23 655:24,25 657:5 659:9 <b>groups</b> 647:5 661:10 <b>guess</b> 582:12 589:2 598:10 598:16 608:4 610:23 618:10 650:14 651:15 687:13 692:10 696:19,24 <b>guidelines</b> 607:2 <hr/> <b>H</b> <b>half</b> 674:20 <b>halfway</b> 661:21 <b>Hall</b> 562:18 587:4,8 595:20 605:23 614:10 616:1 619:2,19 650:20,23 668:10 672:13 681:6,8 682:5 696:9 698:2 700:22 707:13 707:15 709:16
--	--	--	---	---

711:5,11,21,25 712:3 <b>Hampton</b> 564:6 705:10 712:2 <b>hand</b> 565:21 626:24 665:9 670:15 674:4 684:15 705:4 <b>handed</b> 578:12 643:23 656:11 <b>handing</b> 637:18 <b>handle</b> 617:8 <b>happen</b> 600:7 622:5 692:10 708:4,5,11,11 <b>happened</b> 587:19 701:4 <b>happens</b> 588:2 <b>hard</b> 630:7,13 <b>Harden</b> 564:1 565:24 <b>harmful</b> 634:9 657:14 <b>Harris</b> 710:13 <b>Haxton</b> 710:13 <b>HC</b> 705:19,25 <b>head</b> 585:17 701:6,7 <b>heads-up</b> 625:24 626:13 <b>health</b> 629:9,13 632:10 633:4 633:10,12,16 634:10 638:20 642:10,21,22 643:5 644:1,5 644:10,10,24 645:6 648:7,8 648:10 649:1 649:16 650:9,9 651:7,10,22 652:10,12 656:20 657:11 662:23 663:1	664:4,5 679:24 680:3 <b>hear</b> 619:13 <b>heard</b> 569:6 612:16 621:7 688:11 704:14 <b>hearing</b> 562:5 567:21 586:23 625:19 626:3 626:23 628:12 635:16 643:18 644:17 667:19 671:22 675:17 684:7 685:25 702:19 710:16 710:19 <b>heat</b> 663:11 <b>heavily</b> 575:1 <b>height</b> 569:20 <b>heights</b> 569:4,5 <b>Hello</b> 668:15 674:11 <b>help</b> 574:17 575:14 583:8 599:15,23 610:3 613:21 709:4 <b>helpful</b> 693:10 <b>helping</b> 600:12 <b>Hernandez</b> 563:15,16,16 577:23 578:5,9 584:12,14 586:18,22 618:24 619:1 620:1 627:2,3 627:4,5,8 628:7,11 660:23,25 665:4,5 668:8 670:1 672:10 680:17,19 681:3 682:23 684:3 693:18	693:20 696:4 699:2,6,11 702:14 703:19 703:22 707:10 710:6 711:4,7 711:10,14,21 711:24 <b>hertz</b> 630:25 635:5,6 <b>Hewings</b> 673:8 673:12 684:11 703:14 <b>Hickory</b> 625:7 <b>high</b> 602:10 603:7 646:2,22 652:7,9 654:10 656:19 663:3 665:3 <b>high-voltage</b> 602:8 638:19 646:7 651:7 <b>higher</b> 569:11 569:16,20,21 613:2 630:2 652:7 <b>Hill</b> 696:21 701:1 <b>hinder</b> 700:4 <b>historical</b> 585:1 <b>historically</b> 582:25 <b>history</b> 668:19 <b>HIV</b> 655:18,19 <b>hold</b> 629:12 703:23 <b>home</b> 660:1 <b>homes</b> 646:17 647:2 <b>Honor</b> 565:9 566:1 567:14 568:4 577:14 577:18 609:24 614:4 620:3 623:23 625:9	627:3 628:7,22 628:25 629:2 630:8,15 634:12 635:12 637:15 639:23 643:12,14 644:13 649:25 650:17 658:25 667:25 668:2 669:18,20 672:2,4 673:3 675:21 680:11 680:13,17 683:25 686:5 693:13,18 695:24 701:23 702:7,8 706:10 707:6 <b>hope</b> 594:2 626:20 <b>hopefully</b> 673:22 <b>hoping</b> 703:17 <b>hot</b> 611:2 <b>hour</b> 625:25 <b>hours</b> 610:7,9,11 610:20,25 611:9,9,18 612:4 636:15 657:19 662:12 <b>house</b> 660:8,15 <b>housekeeping</b> 673:4 <b>hub</b> 569:20 <b>huge</b> 709:15 <b>human</b> 629:9 649:1,16 650:9 650:9 <b>humans</b> 654:5,6 654:23 655:17 655:25 656:1 <b>hundreds</b> 657:19 662:12 <b>HVDC</b> 601:24 603:7	<b>hypothesis</b> 592:5 <b>hypothesizing</b> 576:5 <b>hypothetically</b> 709:11 <hr/> <b>I</b> <hr/> <b>IARC</b> 638:24 639:7,14 642:4 <b>IBEW</b> 577:20 <b>idea</b> 683:21 <b>identification</b> 578:7 596:16 624:4 634:19 640:20 666:2 <b>identified</b> 568:22 575:20 593:7 605:20 622:12 623:12 644:1,9,22 649:8 651:22 654:25 655:22 677:15 705:19 705:24 <b>identify</b> 594:19 608:14 627:9 691:6 <b>identifying</b> 603:12 <b>ignorant</b> 654:15 <b>III</b> 685:4 705:17 <b>Illinois</b> 562:10 563:6,11 676:13 681:11 681:13 686:20 700:12 713:3 <b>illness</b> 659:8,10 659:11 <b>impact</b> 589:5 594:15 616:8 683:9 708:2,19 708:23 709:15 <b>impacts</b> 582:7
--	--	---	---	--

582:23 583:11 <b>implement</b> 574:20 <b>implementation</b> 575:5 <b>implemented</b> 608:13 <b>implications</b> 707:21,21 <b>implied</b> 576:11 <b>import</b> 591:19 699:23 <b>important</b> 602:22 689:1 692:11 <b>imposition</b> 695:6 <b>inadequate</b> 639:16 <b>incentive</b> 681:16 682:1 <b>incidence</b> 660:17 <b>include</b> 577:6,10 581:3 584:25 591:5 627:17 633:7 687:24 <b>included</b> 580:25 584:18 602:4 634:23 646:18 655:18 663:6 713:4 <b>includes</b> 617:17 <b>including</b> 567:15 574:2 577:7 579:9 585:1,11 603:3 648:22 <b>incomplete</b> 661:12 <b>inconclusive</b> 643:7 <b>increase</b> 575:24 <b>increased</b> 646:6	660:17 665:2 <b>increasing</b> 591:21 <b>incur</b> 622:8 <b>independent</b> 563:22 564:3 644:8 683:11 711:2 713:8 <b>INDEX</b> 711:1 713:1 <b>Indiana</b> 563:21 <b>indicate</b> 572:2 664:13 666:20 666:21 676:6 <b>indicated</b> 567:11 588:1 <b>indicates</b> 569:10 570:8 695:5 <b>indicating</b> 647:21 <b>indication</b> 575:16 <b>individual</b> 608:3 <b>individually</b> 608:15 <b>induce</b> 653:11 <b>industrial</b> 615:3 <b>industry</b> 633:3 633:21,24 <b>industry-spon...</b> 648:5 <b>infallible</b> 648:13 <b>information</b> 569:19 590:7 608:12,13 623:17 624:11 628:5 636:19 636:21 646:21 649:5 650:13 657:20 658:9 664:8 666:24 667:12 671:14 685:16 689:1 692:25	<b>infrastructure</b> 572:19 <b>initial</b> 601:5 <b>initiative</b> 610:11 610:13 <b>inquire</b> 673:18 683:20 702:12 <b>inquiring</b> 702:8 702:9 703:19 <b>inquiry</b> 599:20 <b>insight</b> 583:9 <b>Install</b> 562:12 <b>instance</b> 595:15 660:1 <b>instances</b> 656:19 657:16 <b>institution</b> 657:24 <b>integrate</b> 602:3 <b>integrating</b> 596:24 <b>integrations</b> 617:15 <b>intend</b> 702:2 <b>intended</b> 640:8 659:17 <b>intensity</b> 653:8 653:13 <b>Intentional</b> 638:21 <b>inter-connecti...</b> 571:18 575:1 598:17,19,21 599:10 690:3 <b>interaction</b> 590:23 <b>interactions</b> 596:6 <b>interconnected</b> 573:2,6 <b>interconnection</b> 697:2 <b>interest</b> 651:13 657:1,4 680:3	<b>interested</b> 632:9 658:9 714:12 <b>interim</b> 600:5 <b>internal</b> 591:22 <b>International</b> 653:21 <b>Internet</b> 657:7 657:20,24 664:25 <b>interrupt</b> 643:14 <b>invalidate</b> 574:4 <b>investigated</b> 664:19 <b>investigators</b> 647:21 <b>investment</b> 591:25 592:1 592:16,16 593:2,4,13 599:3 602:15 621:16 681:10 681:10 <b>involved</b> 582:4 609:2 664:4 <b>Ionizing</b> 654:22 <b>Iowa</b> 562:14 588:12 592:25 697:12 <b>IPPs</b> 604:13 <b>Iraq</b> 629:21 <b>IRC</b> 654:3 <b>IRP</b> 611:22 <b>ISO</b> 608:16 <b>isolated</b> 683:4,9 <b>ISOs</b> 604:5,9 <b>issue</b> 571:21 576:15 694:16 <b>issues</b> 576:12,12 588:9 593:8,10 604:9 605:20 612:19 692:15 692:16 695:21 697:18,19 708:6	<b>J</b> <b>J</b> 562:20 <b>Jackson</b> 703:16 710:14 <b>JACOB</b> 564:5 <b>JAMES</b> 563:2 <b>Jameson</b> 565:4 566:6,7 567:15 711:3 713:10 <b>JAMIE</b> 564:5 <b>January</b> 562:6 667:1 705:23 710:20 <b>jdlington@rea...</b> 563:14 <b>Jefferson</b> 562:7 563:17 564:8 564:13 <b>JEFFREY</b> 563:7 563:20 <b>jelly</b> 690:19,22 <b>jellybean</b> 594:22 594:23 <b>JENNIFER</b> 563:15 <b>jennifer@her...</b> 563:18 <b>Johnson</b> 564:6 674:10 675:11 682:25 683:2 683:16,17 711:20,22 <b>JOSHUA</b> 564:1 <b>joshua.harden...</b> 564:3 <b>journals</b> 631:14 <b>josencrants...</b> 563:10 <b>jsmall@misoe...</b> 563:22 <b>JTS</b> 566:21 567:1 621:14 <b>JTS-1</b> 567:16 620:7,18
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<p><b>JTS-2</b> 567:16 622:20</p> <p><b>JTS-3</b> 567:17</p> <p><b>JTWs</b> 566:23</p> <p><b>Judge</b> 562:17 565:2,11,23 567:20,25 572:8,13 577:16,22,24 578:3 586:22 587:2 606:1 609:17,20,22 614:5 615:18 618:20,23 620:1 623:25 624:2 625:11 625:14,18,22 626:6 627:1,5 628:11,15,18 628:21,24 629:1 630:9,16 634:13,16 635:15 637:16 639:24 640:18 643:13,17 644:16 650:1 650:18 652:20 653:16 656:3 658:12,17,20 658:22,24 659:1 660:22 665:5,12 667:18,24 668:1,3,5,7,9 668:10,12 669:12,14,17 669:19,21,23 669:25 670:2,4 670:10,13,18 671:17,21 672:1,3,5,7,9 672:11,14,16 672:18,20,23 673:1,17,25</p>	<p>674:2,7 675:11 675:16,20 677:23 680:9 680:12,14,16 681:4 682:6,11 682:16,18,20 682:22,24,25 683:17 684:2,6 684:10,13,18 685:20,24 686:4 693:11 693:14,16 696:1,6 698:3 698:5,12,25 699:3,5,7 701:18,24 702:1,5,16,21 702:25 703:4 703:12,21 704:1,4,5,10 704:13,18,21 704:25 705:6 706:15,20 707:1,4,7,9,11 709:18,22 710:1,5,7,9</p> <p><b>July</b> 611:5,7</p> <p><b>jurisdiction</b> 605:5 606:14 606:23 681:23 681:23</p> <p><b>justification</b> 575:22</p> <hr/> <p><b>K</b></p> <p><b>K</b> 563:7</p> <p><b>K-L-I-E-T-H-...</b> 705:13</p> <p><b>Kansas</b> 564:2 601:16</p> <p><b>keep</b> 698:10 708:14</p> <p><b>keeping</b> 692:14</p> <p><b>keeps</b> 657:18</p>	<p><b>Kenney</b> 562:19 609:18,19 653:17,19 656:3 661:3 668:11,14 672:16,17 682:8 698:6 711:12,17</p> <p><b>kind</b> 598:25 692:2,25 693:5</p> <p><b>kinds</b> 610:25 659:17</p> <p><b>Kirksville</b> 562:15</p> <p><b>Kliethermes</b> 679:3 703:6,9 704:2 705:2,3 705:12,18 706:11 710:10 712:2 713:15</p> <p><b>know</b> 565:11,13 570:20,21 582:19 584:22 585:16,19 594:19 599:6 604:1,6 606:13 608:4,17,17 610:24 613:5 616:5 621:23 622:1 625:3,5 626:1,2,15 630:6 633:25 637:10 656:18 660:1,19 673:19,20,21 673:23 677:7 683:22,23 687:8 692:12 692:16 694:11 694:18,19,20 694:21,22 695:1 696:2 697:12,21 701:4 708:24</p>	<p><b>knowledge</b> 628:5 671:15 675:5 685:17 693:3 694:14 700:19 706:4</p> <p><b>known</b> 625:5 643:5</p> <p><b>knows</b> 696:2</p> <p><b>Korea</b> 664:23</p> <p><b>Kramer</b> 575:17 594:21 687:11</p> <p><b>Kramer's</b> 588:5 622:4 687:9,14</p> <p><b>kV</b> 571:2,6,14 571:23 588:13</p> <hr/> <p><b>L</b></p> <p><b>L</b> 674:15</p> <p><b>L-A-N-G-E</b> 684:25</p> <p><b>Lab</b> 596:7</p> <p><b>Labadie</b> 708:11</p> <p><b>labeled</b> 566:22 567:16</p> <p><b>labeling</b> 567:11</p> <p><b>lack</b> 592:17 683:9</p> <p><b>land</b> 584:19 585:13</p> <p><b>Lange</b> 683:21 684:8,9,15,23 684:25 685:5 685:21 686:8 693:21 695:24 696:10 699:11 701:16,20 703:6 711:23 713:17,18</p> <p><b>large</b> 615:3 652:14 657:5</p> <p><b>largely</b> 605:7</p> <p><b>larger</b> 569:7,15 569:16</p> <p><b>lastly</b> 692:20</p>	<p>700:22</p> <p><b>late</b> 636:18</p> <p><b>lateral</b> 663:5</p> <p><b>Law</b> 562:17 563:2,3,7,7,8 563:12,15,16 563:16,20 564:1</p> <p><b>lawyer</b> 695:24 704:7</p> <p><b>layman's</b> 692:2</p> <p><b>lays</b> 568:15,16</p> <p><b>lead</b> 664:2</p> <p><b>leads</b> 655:18</p> <p><b>leakage</b> 612:16 612:21,25</p> <p><b>learned</b> 632:15</p> <p><b>led</b> 592:3</p> <p><b>left</b> 624:21,25 630:23 703:5 703:16 710:14</p> <p><b>legal</b> 564:6 587:15 594:25 695:24</p> <p><b>length</b> 653:3,7</p> <p><b>lesser</b> 606:16</p> <p><b>let's</b> 591:4 592:8 592:10 649:13 701:22</p> <p><b>leukemia</b> 638:20 639:1,9,20,21 640:2,3,8,10 640:23 641:11 641:12,14,17 641:25 645:13 646:2,7,13 648:2 651:11 654:9 660:18 663:4 664:15 664:16,18 713:6</p> <p><b>leukemias</b> 641:6</p> <p><b>level</b> 603:8 638:16 659:5</p>
--	---	--	--	---

659:22 <b>levels</b> 613:22 637:6 646:17 647:17 648:1 660:16 661:3 692:9 <b>LEWIS</b> 563:3 <b>light</b> 593:16 <b>lights</b> 692:15 <b>limit</b> 612:18 <b>limitation</b> 618:6 <b>limited</b> 616:23 618:3 694:17 694:19 700:19 700:21 <b>limiting</b> 591:20 <b>line</b> 562:13 570:8,20 571:23 579:12 580:9 581:25 582:1,1 584:20 585:7 586:3 589:9 590:21 590:22 594:11 599:20 601:11 601:15,22,23 601:24 603:3 617:24 618:17 619:4 625:6 629:10 632:11 632:14,15,24 633:2 635:22 636:13,25 637:3,8 638:6 638:15 642:14 646:8,22 649:22 650:6 658:3,8 659:23 660:2,4,5 662:16 667:1,2 667:3,4,8,9,10 676:9 679:7 681:1,2 687:19 688:3,19	689:11,12,12 689:13,13 690:1,6,12 691:2,18,25,25 692:5 694:25 695:3 696:23 697:14,17 701:1 <b>lines</b> 579:3 583:17 585:2 585:25 593:9 593:12 594:10 594:12 597:11 616:2 630:22 633:19 636:10 636:14 638:19 642:12 646:3 647:13 651:7 652:4,12,15 654:10 656:25 657:9 662:16 663:16,20 665:3 668:20 676:3 677:9 687:14 688:23 691:15 692:7 695:17 696:13 697:3 707:20 <b>link</b> 638:19,25 639:8,10,11,12 639:22 641:11 645:5,11 646:12 648:2 660:13 <b>linked</b> 651:23 655:19 <b>linking</b> 654:24 <b>Linton</b> 563:12 577:25 578:2 615:20,22,25 618:19,20 628:19 658:18 658:19 668:4 669:22 672:6	680:13 682:19 693:15 707:6 710:2 711:7 <b>Lisa</b> 562:23 714:3,15 <b>list</b> 565:3,6 614:21 629:15 639:2 655:3,6 655:7 661:12 661:15,17,18 661:21 <b>listed</b> 655:14,20 661:10,17,20 663:4 <b>listen</b> 639:4,6 <b>lists</b> 638:22 653:22 655:5 655:17 666:4 <b>literature</b> 642:20 644:2 651:19 <b>little</b> 568:5 571:20 589:22 597:6 626:15 645:2 649:13 660:10 661:2 684:7 689:2,3 <b>live</b> 616:21 636:13 658:2,4 663:16 <b>lives</b> 636:14 <b>living</b> 636:22 646:7,8 656:16 <b>LLC</b> 562:24 <b>load</b> 572:4 573:1 590:2 596:12 596:17 597:3 700:1 <b>loading</b> 591:5 638:2 691:13 <b>loadings</b> 638:5 <b>loads</b> 597:8 <b>local</b> 579:22 581:10 591:14	591:14 592:13 592:18,20 597:7 603:13 603:15,23,25 605:16,17 621:8,9,9 622:5 <b>localized</b> 585:15 585:16 <b>locally</b> 592:9,10 594:10 <b>locate</b> 579:4 647:2 <b>located</b> 570:10 571:19 579:23 581:13 <b>location</b> 581:16 605:14 <b>locations</b> 597:1 599:4,9 <b>long</b> 590:24 664:24 674:19 <b>long-term</b> 603:5 634:10 <b>longer</b> 591:7 593:13 603:4 625:25 <b>longer-term</b> 603:1 <b>look</b> 565:12,15 581:23 590:7 592:10 593:6 598:16,25 604:25 607:9 608:4,10,14 610:14,14 617:3,16,18,20 621:13 626:9 643:10 657:7 677:19 688:17 689:10,14,25 693:7,7 701:7 <b>looked</b> 575:19 584:2 590:8,9	592:13 602:2,7 602:10 603:2 640:10 649:3,4 649:4 653:5 694:10 699:20 699:22,23,25 <b>looking</b> 565:3 575:18 590:1 593:5 595:1,5 595:9 602:16 620:16 651:4 651:24 653:7 657:13,19 658:9 659:10 677:9 697:3 <b>looks</b> 565:3 589:8,10 605:13,14 625:22 703:16 <b>lose</b> 657:12 <b>loss</b> 691:10 692:5 <b>losses</b> 590:21,22 590:25 591:5,6 687:25 <b>lost</b> 710:2 <b>lot</b> 596:24 598:18 600:6 657:4 663:10 699:23 <b>Louis</b> 563:9 596:21 597:9 611:4 <b>low</b> 630:20 643:1 647:18 648:1,25 661:15,20 662:24,24 <b>low-level</b> 633:12 <b>lower</b> 590:6 591:23 594:16 644:7 652:7,7 <b>Lowery</b> 563:2 565:9 568:4,7
--	--	--	--	--



572:8,9,22 577:14,16 595:7,10,16 598:7 599:15 599:18 609:24 610:1 614:3,5 673:3,18,22 674:1 702:7 703:19 704:3,5 704:11,16,20 711:4,6 <b>lowery@smit...</b> 563:5 <b>LRZ</b> 581:12 <b>LRZ-5</b> 608:11 <b>lunch</b> 625:24 626:1,12 684:8 698:11 701:22 703:1	<b>making</b> 612:22 652:10 <b>male</b> 665:2 <b>Manage</b> 562:13 <b>manager</b> 671:3 <b>managing</b> 618:16 <b>mandated</b> 607:11 <b>manner</b> 679:24 <b>map</b> 620:10,14 636:24 637:1 690:19 <b>March</b> 644:11 <b>margin</b> 591:11 <b>margins</b> 677:4 <b>Mark</b> 564:6 570:8,11,19 579:11 580:9 586:10 589:9 594:11 601:21 603:3,9 614:11 614:11 617:11 617:17 618:16 619:16,17,22 622:7 629:10 636:13 638:5 658:3 676:6 679:1,20 680:23,24 686:12 689:8 689:21 690:6 691:22 692:8 692:23 693:22 694:7,9 696:13 697:8,24 <b>marked</b> 578:6 578:12 623:24 624:3 634:14 634:18,21 640:19 641:3 643:23 666:1 671:6 674:22 675:12 685:7,8	705:19,25 706:11 713:2 <b>market</b> 588:18 590:3 598:25 604:13,13 611:14 614:25 615:15 616:4,9 687:18,22 688:4,5,8,15 <b>mass</b> 610:14 <b>matching</b> 602:21 <b>material</b> 572:3 623:6 <b>materials</b> 623:1 623:3 <b>math</b> 611:19 612:6 <b>mathematics</b> 612:1 <b>matter</b> 562:10 570:25 572:10 673:5 676:16 676:18 678:17 679:23 704:20 <b>matters</b> 622:6 709:8 <b>maturity</b> 600:18 <b>mean</b> 586:15 598:13 654:1 662:22 691:8 696:1,17,24,25 700:7,7 <b>means</b> 599:16 602:5 654:2 659:6 676:19 <b>meant</b> 599:23 662:21 687:21 688:14 <b>measure</b> 646:25 647:3 <b>mechanism</b> 645:17 651:25 654:6,25	655:22 <b>medical</b> 627:12 627:13 631:14 <b>medicine</b> 651:12 <b>meet</b> 574:18 575:2 582:15 583:18,24 584:6 591:16 591:22 592:9 593:14 596:21 597:24 598:4 602:11 603:17 603:18 613:14 613:15 <b>meeting</b> 574:13 592:10 <b>meetings</b> 574:16 704:7 <b>megawatt</b> 591:3 610:7,9,11,20 611:9 612:4 <b>megawatts</b> 569:23 570:10 571:5 573:11 591:1,1,4,6 <b>members</b> 597:21 <b>membership</b> 574:18 584:25 600:14 603:22 604:3 609:8 <b>memory</b> 614:22 <b>mentality</b> 663:23 <b>mention</b> 633:23 <b>mentioned</b> 608:25 624:20 653:9,21 657:3 662:14 668:17 <b>mercury</b> 583:2 679:6,20 <b>merit-order</b> 617:3 <b>met</b> 592:22 597:25 622:6	689:7 690:7 <b>meta-analysis</b> 664:23 <b>meter</b> 611:22 <b>meters</b> 646:7 <b>mice</b> 641:24 <b>Michael</b> 674:15 674:21 711:19 713:21 <b>Michigan</b> 585:11 664:3 <b>microwave</b> 631:3 <b>microwaves</b> 629:24,25 630:2 631:2 <b>mid-page</b> 661:17 <b>Midcontinent</b> 563:22 564:3 566:9 711:2 <b>middle</b> 611:4 667:8,9 <b>Midwest</b> 597:6 713:8 <b>mike</b> 563:3 683:23 <b>military</b> 629:17 631:10,19 632:2 <b>milligals</b> 638:16 647:18 653:11 <b>million</b> 571:22 572:3,20 573:10 622:11 678:14,15 <b>mind</b> 613:23 614:1 671:11 685:13 <b>miniature</b> 641:6 <b>minimal</b> 631:10 <b>minimize</b> 593:2 <b>Minnesota</b> 593:1
<b>M</b>				
<b>M</b> 562:18,23 714:3 <b>M-U-R-R-A-Y</b> 670:24 <b>M.Banks</b> 714:15 <b>ma'am</b> 579:14 584:16 614:14 656:12 658:4 658:11 665:12 <b>Madison</b> 564:7 564:12 <b>magnetic</b> 638:1 638:5 639:16 661:19 662:24 <b>magnitude</b> 668:23,24 <b>MAIDA</b> 562:20 <b>Main</b> 564:1 <b>maintain</b> 562:12 583:12 590:23 677:5 692:8 <b>major</b> 611:16 <b>majority</b> 583:19				

<b>minus</b> 691:13	<b>missed</b> 577:25	707:22,24	675:11 702:13	594:10,12
<b>minutes</b> 684:1	<b>mission</b> 607:24	708:2,4,9,10	706:10	595:17 599:19
<b>MISO</b> 565:4	<b>Missouri</b> 562:2	708:24 709:4	<b>moved</b> 625:16	601:5,11,21
567:19,23	562:7,14,15	710:1 713:12	<b>movement</b>	602:23,23,25
568:1,21,25	563:4,9,13,14	714:4	600:10	603:3 606:14
569:3 574:2,14	563:17 564:2,8	<b>Missouri's</b>	<b>moving</b> 583:7	607:1,5,18
574:25 576:13	564:9,13	582:20 584:6	702:20	616:2 619:3,11
576:14,19	568:21,22	594:11	<b>MPSE</b> 686:22	619:12,14
578:17 579:7	570:10 572:5	<b>Missouri-spec...</b>	<b>MTEP</b> 579:3,8,8	620:18 622:7
579:16,23	572:10 574:3	585:8	579:18 580:16	622:17 623:2
580:5,6,9,14	574:22 577:20	<b>misunderstood</b>	581:1,8,15	624:24 678:9
581:7,13 582:8	579:1,9,23,25	704:14	606:10 623:6	<b>MVPs</b> 571:11
582:14,19,25	580:24,25	<b>mix</b> 601:1	677:15,17,19	575:21 579:24
582:25 583:8	581:2,13	<b>mixed</b> 651:8	680:21,23	590:5 592:4,20
583:19 586:12	582:14 583:24	<b>mixture</b> 612:1	<b>MTEPs</b> 677:10	593:14 594:6
589:9,11,13,17	585:12 588:16	<b>Moberly</b> 627:13	680:25	597:18 599:8
591:15 595:3	589:1,3,17	627:13 631:23	<b>MTTE</b> 694:5	600:17 606:17
598:17 600:7	590:7,8,10,19	<b>model</b> 608:5,7	<b>MTTP</b> 694:2	616:11
600:14 603:10	590:19 591:14	616:13,16	<b>multi-value</b>	<b>Myers</b> 564:5
603:13,21,24	591:15,19,21	617:10	571:9 574:11	572:6 577:18
604:20 605:11	592:22,24	<b>modeling</b> 613:10	579:17 580:16	614:7,9 615:17
609:9 613:25	593:18 594:5,9	699:25 700:1	581:8 606:8	615:18 670:19
614:23 615:15	594:10 597:3,7	709:13	607:19 620:13	670:21 671:17
623:17,21	597:15 598:10	<b>models</b> 607:8,10	<b>multiple</b> 600:4	684:20,22
624:3 625:17	608:11,14	607:12	615:7 642:22	685:20,24
625:20 628:24	609:6 611:22	<b>moment</b> 670:9	647:21	695:23 699:8
658:22 668:1	615:19 616:1	689:14	<b>Murray</b> 565:7	699:10 701:17
669:19 672:3	619:3,8,18	<b>Monday</b> 575:17	670:6,6,7,11	701:18 711:6
676:9 677:15	620:25 621:4	<b>money</b> 598:20	670:14,15,22	711:18,23
678:10 680:10	621:24 622:3	<b>Montana</b> 585:11	670:24 671:4,5	712:1
680:25 682:16	623:12 624:21	<b>morning</b> 565:2	671:18 672:23	<b>myth</b> 656:18
683:13 686:16	627:14 628:18	568:8,9 578:10	672:24 711:18	
687:3 688:12	658:17 665:22	578:11 587:4,6	713:20	
688:19,23	665:24 668:3	606:5,6 615:23	<b>MVA</b> 570:22	<b>N</b>
689:7 690:12	669:21 671:2	615:24 626:6	<b>MVP</b> 566:15	<b>N</b> 563:1 565:1
690:24 693:12	672:5 674:17	629:5,6 650:20	570:9 573:20	691:13
694:10 698:13	680:12 681:11	650:21 668:16	575:10,15	<b>N-A-T-E-L-L-E</b>
702:2 707:4	681:13 682:18	674:12 675:25	579:3,8,9,10	665:19
708:23 713:9	685:3 690:23	676:1 686:9,10	579:18,19,24	<b>name</b> 566:4
713:11	693:14 694:12	696:10,11	580:7,8,14,16	615:25 627:10
<b>MISO's</b> 570:7	696:15,22	710:17	581:8,9,15	665:18 670:23
576:18 578:15	697:5,8,13,25	<b>move</b> 567:14	586:3 589:18	674:13 675:24
582:5 584:18	699:1 700:24	599:9 635:12	590:25 593:9	684:23 686:8
594:3	705:16 707:5	643:15 644:13	593:12,18	705:11
				<b>Natelle</b> 565:7

665:8,19 666:3 711:16 713:14 <b>Nathan</b> 564:4 711:16 <b>National</b> 596:7 <b>native</b> 602:4 603:7 <b>natural</b> 565:13 565:15 582:8 582:13,15,19 583:5 586:5,6 586:11 609:6 612:19 626:9 <b>near</b> 562:14 570:24 571:5 636:14,22 638:14 665:3 667:5 <b>nearest</b> 646:22 <b>necessarily</b> 596:18 602:22 698:1,21 <b>necessary</b> 696:14,17 697:18,20 698:18,21 <b>Necessity</b> 562:12 <b>need</b> 574:20 580:12 594:14 597:23 601:13 611:8,8 623:5 623:10 634:14 664:8 673:14 673:19 686:12 697:8,23 699:15,19 <b>needed</b> 590:23 591:16 596:24 696:23,25,25 <b>needs</b> 582:20 583:19 591:20 591:23 596:21 598:5 602:11 689:18 690:2	<b>neighboring</b> 678:10 <b>neighbors</b> 563:19 577:22 578:6,17 586:20,25 589:4 616:10 618:23 629:8 668:7 669:25 672:9 673:5 680:16 682:22 683:3 693:17 699:5 707:9 710:5 711:9 713:23 <b>neither</b> 645:14 714:8 <b>NERC</b> 691:3,9 692:1,9 699:24 700:8 <b>net</b> 613:10 <b>never</b> 632:2 636:25 639:22 660:18 661:24 <b>new</b> 571:1 586:6 596:13 599:6,7 599:11 602:6 605:14,22 613:2,12,13,16 645:11 664:21 664:22 666:22 <b>newly</b> 643:25 644:9 <b>nitrous</b> 679:5,19 <b>non-BES</b> 692:1 <b>non-discrimin...</b> 586:12 <b>non-ionizing</b> 629:17,24 <b>nonexistence</b> 700:3 <b>noon</b> 565:12 625:24 <b>normally</b> 611:15	611:18 <b>north</b> 568:21 592:25 594:4 597:14 598:10 635:6 690:22 697:7,25 <b>north-central</b> 690:23 <b>northeast</b> 568:21 593:8 <b>note</b> 599:5 624:24 641:18 <b>notice</b> 659:7 <b>noticed</b> 599:8 640:1 <b>notify</b> 664:5 <b>noting</b> 651:16 <b>NOx</b> 709:12 <b>NP</b> 706:21 <b>NREL</b> 596:7 <b>NU</b> 628:10,14 713:24 <b>number</b> 562:12 570:18 572:17 572:20 574:23 578:23 580:4 580:13,18,23 581:11 583:6 585:4,5,6,8,16 585:21 590:1 595:13 599:1 612:4 619:16 621:15 623:24 625:16 661:20 666:2,5 667:4 667:6,10 674:23 675:13 679:13 686:16 689:11 705:20 705:21 706:12 706:12 <b>numbers</b> 570:22 585:15 590:9 590:11 601:12	601:12 619:7 619:18 621:2,3 621:6,19 666:11,15,19 666:21,22,23 668:17,19 669:7 <hr/> <b>O</b> <hr/> <b>O</b> 565:1 <b>oath</b> 651:17 <b>OATT</b> 683:13 <b>object</b> 695:23 <b>objection</b> 572:6 671:22 702:6 <b>objections</b> 567:21 586:23 625:19 628:12 635:16 643:18 644:17 667:19 675:17 685:25 706:21 <b>objective</b> 690:1 <b>objectives</b> 600:4 603:18 688:23 689:7 690:7 <b>obligate</b> 605:15 <b>obligating</b> 605:12 <b>obligations</b> 574:18 591:17 <b>observed</b> 646:6 690:17 <b>occur</b> 618:8 651:25 652:2 <b>occurrence</b> 646:6 <b>occurs</b> 654:20 <b>October</b> 666:4,6 666:17 667:1 705:20 <b>odd</b> 646:6 <b>off-peak</b> 611:16 <b>offer</b> 586:19	588:14 604:22 604:23 628:8 667:15 706:16 <b>offered</b> 567:19 567:21 586:20 586:23 625:17 625:18 628:10 628:12 635:14 635:15 643:16 643:17 644:15 644:16 667:16 667:18 671:19 671:22 675:14 675:16 685:22 685:25 706:13 706:18 <b>offers</b> 671:17 685:20 <b>Office</b> 564:11,14 <b>offset</b> 610:21 613:7,18 <b>Oh</b> 627:24 <b>Ohio</b> 585:11 <b>okay</b> 572:13 579:15 582:3 582:12 583:13 583:13 594:25 595:19,25 605:23 606:12 606:21 607:4 607:18,25 608:9,25 609:15,17 612:9 616:7,11 618:18 619:12 619:15,25 621:6 623:16 624:23 631:9 633:15 637:22 638:13 639:4,7 641:5,19 643:22 649:12 649:19 650:5 652:18 653:14
---	--	---	--	--

<p>655:4 656:13 658:7,10 664:14 666:25 669:6,10 672:11 681:20 682:5 688:17 688:22,23,24 689:15 690:10 693:9 694:23 695:2 697:6,10 698:2 700:10 703:21 704:1 704:10,25 708:12,14,17 708:22 709:2,6 709:9 <b>old</b> 612:23 613:17 <b>OMS</b> 609:9 615:13 <b>Once</b> 626:9 <b>one-for-one</b> 613:19 <b>ones</b> 597:7 635:3 669:7 710:14 <b>ongoing</b> 624:19 642:20 <b>online</b> 611:15 <b>opening</b> 690:18 <b>operability</b> 677:5 <b>operate</b> 562:12 590:16 <b>operates</b> 582:8 582:14 <b>operating</b> 590:13,14,18 611:3,4 <b>operation</b> 676:8 692:13 <b>Operator</b> 563:22 564:3 566:9 711:2 713:8 <b>opinion</b> 570:23</p>	<p>571:4 574:3 575:4,8 603:4 644:8 649:15 650:8 652:5,8 663:22 683:12 691:23 701:14 703:15 709:6 <b>opinions</b> 598:18 648:24 <b>opportunity</b> 576:25 656:13 <b>opposing</b> 651:5 <b>opposition</b> 632:19 <b>optimization</b> 584:8 <b>optimized</b> 602:13 <b>optionality</b> 592:24 <b>options</b> 598:11 <b>OPTIZ</b> 564:10 <b>oral</b> 598:9 <b>order</b> 567:25 606:14,17,20 606:22 607:1 610:19 <b>ordinary</b> 693:1 <b>organization</b> 609:9 614:23 633:10,16 642:11 648:7 648:10,24 649:14 650:7 662:23 663:6 664:3 <b>organizations</b> 650:12 663:11 <b>original</b> 682:2 <b>originate</b> 603:9 603:10,10 <b>originated</b> 603:11 614:11 614:12</p>	<p><b>Ottumwa</b> 696:22 <b>outcome</b> 714:12 <b>outlet</b> 574:12 592:3 595:24 597:18 602:1 <b>outside</b> 606:24 612:24 616:10 622:6 <b>overall</b> 573:23 642:6 688:4,5 689:2 <b>overloading</b> 691:20 <b>overnight</b> 662:11 <b>overrule</b> 572:13 696:1 <b>overview</b> 620:13 <b>owner</b> 603:25 676:20 677:1 <b>owners</b> 603:14 603:15 604:13 604:19 614:25 <b>ownership</b> 605:17 <b>ox</b> 563:4 <b>oxide</b> 679:5,19</p> <hr/> <p style="text-align: center;"><b>P</b></p> <hr/> <p><b>P</b> 562:19 563:1,1 565:1 <b>P-a-l-l</b> 634:6 <b>P.O</b> 563:4,9 564:8,12 <b>page</b> 578:19,24 579:2,16 581:6 581:20,24 583:14 584:9 584:11,12 585:24 595:17 595:17 597:10 607:5 620:7,7 620:9,11,18,18</p>	<p>621:14,14 622:21,21 623:1,3 632:24 633:2,18 636:10 637:22 637:23,25 638:4 642:12 647:13 649:22 650:5 651:4 661:22 662:16 666:25 667:9 676:3 677:7 678:4 679:13 687:6,8,9,12 687:12,14 688:18,18,23 690:8,10 691:2 692:7 694:24 694:25 696:12 707:18 <b>Pages</b> 637:22 <b>paid</b> 574:21 <b>Pall</b> 634:6 <b>Palmer</b> 710:14 <b>Palmyra</b> 562:14 <b>paper</b> 634:4,6,8 641:15,18 663:8 <b>papers</b> 631:14 641:21 <b>paragraph</b> 678:6 <b>part</b> 580:7 593:8 606:10 622:3 630:12 690:25 695:17,19 700:1 <b>partake</b> 601:19 <b>partial</b> 661:15 <b>participants</b> 604:14 615:1,7 615:15 <b>participate</b> 609:11 700:14</p>	<p><b>particular</b> 572:16 578:16 578:21 584:1,8 599:22 601:15 601:21 604:24 645:6 648:15 655:6 659:8 681:1,2 691:9 691:23 694:7 708:8 <b>parties</b> 626:2 702:9,11,22 704:14 710:11 714:9,11 <b>party</b> 673:16 <b>path</b> 600:12 636:13 652:3 <b>pattern</b> 664:6 <b>payment</b> 651:2 <b>payments</b> 676:8 <b>peak</b> 611:2,7,18 <b>peer-related</b> 631:14 <b>peers</b> 608:19 <b>people</b> 636:12 636:22 652:3 657:2,5,7,8,24 659:7,9 663:16 692:18 698:10 <b>people's</b> 652:10 657:11 <b>percent</b> 568:25 569:12 573:5 591:8,8 611:23 612:3 647:4,5 <b>percentage</b> 622:11 <b>perception</b> 657:10,15 <b>Perfect</b> 595:19 <b>performance</b> 612:25 613:16 <b>performed</b> 572:14,15</p>
---	--	--	--	--

579:6 602:2 638:9 <b>periods</b> 600:5 <b>permitting</b> 587:18 <b>persistently</b> 659:9 <b>persons</b> 622:15 <b>perspective</b> 584:3,3 594:12 598:25 610:15 611:6,14 612:2 <b>perspectives</b> 603:24 604:11 <b>phone</b> 704:8,12 <b>phones</b> 645:8 <b>phrase</b> 656:18 708:1 <b>physical</b> 700:7 <b>physically</b> 586:16 618:8 696:14,17,23 697:1,17,20 698:18,21,21 <b>physician</b> 632:1 651:19 657:17 662:6 <b>picture</b> 621:10 689:2 <b>pipeline</b> 586:5 <b>pipelines</b> 668:20 <b>PJM</b> 608:23 <b>place</b> 570:9 589:7 607:6 632:11 <b>placement</b> 690:14,23 <b>places</b> 654:13 657:1 <b>plan</b> 575:5,8,13 576:2,7 582:5 582:16 583:3 583:10 598:4 599:14,19	600:4,9 601:3 610:3,7 611:6 611:8 612:11 612:15,20 613:4 626:2 701:11,14 <b>planned</b> 583:4 632:15 684:4 <b>planning</b> 582:21 584:24,25 585:3 591:11 608:20 609:11 688:20 690:14 <b>plans</b> 604:20 <b>plant</b> 612:23,23 708:7 <b>plants</b> 613:8 708:20 <b>playing</b> 576:20 577:3 <b>plays</b> 681:21 <b>pleading</b> 705:23 <b>please</b> 565:21 566:4 579:12 579:12 580:5,9 580:24 599:17 626:24 627:9 639:5 649:18 665:10,18 670:16,22 674:5,13 678:7 684:16,23 687:6 705:4,11 706:17 <b>plus</b> 592:16 596:12 616:18 <b>pocketbook</b> 588:16 <b>point</b> 572:16 575:15 582:1 582:17 588:17 588:22 589:6 592:6 598:2,22 615:5 632:15	635:23,25 654:12 662:15 <b>points</b> 631:3 688:22 689:16 <b>pool</b> 608:23 <b>pop</b> 597:4 599:12 <b>population</b> 585:10 <b>portfolio</b> 570:9 574:11,14 575:3,10,11 579:6,10,20 580:8,15 584:2 586:3 587:11 589:10,12,18 590:10,10,25 593:18 594:12 599:19,22 600:17 601:11 602:23,25 603:4 606:8 607:1,19,20,22 608:7,12 617:17,19,20 619:3,11,14,20 620:13 621:1,3 621:20,21 622:10,16,18 623:2 678:9 <b>portfolios</b> 571:9 <b>portion</b> 591:15 620:21 621:4 621:24 688:19 <b>position</b> 573:17 674:19 695:15 <b>possible</b> 586:9 593:17 604:8 632:10 645:16 651:25 659:18 <b>possibly</b> 654:5 655:17 661:14 664:19 701:15 <b>post-2025</b> 613:9	<b>posted</b> 568:12 <b>potential</b> 583:11 586:5 593:7 603:8,16 619:3 619:7 639:3 644:10 651:21 657:6,13 <b>potentially</b> 592:11 <b>power</b> 575:5,8 575:12 576:2,7 582:5,16 583:3 583:18 599:14 599:19 600:4,9 601:3 608:22 610:3,7 611:6 611:8 612:11 612:14,20 613:4 630:22 635:5,7,22 637:8 638:19 646:2,22 654:10 656:24 659:23 660:2,4 665:3 701:10 701:14 <b>Powers</b> 570:5 573:17 576:10 598:8 611:25 <b>Powers'</b> 604:4 <b>PPA</b> 697:13 <b>practice</b> 657:18 <b>pre-FERC</b> 606:19 <b>pre-filed</b> 595:11 674:22 <b>pre-filing</b> 704:24 <b>pre-marked</b> 627:16 <b>preceded</b> 574:13 <b>predetermine</b> 603:6 <b>predicated</b> 571:10 598:1	<b>prefer</b> 617:3 <b>premise</b> 570:4 573:25 574:4,7 <b>premised</b> 571:18 <b>premises</b> 592:3 <b>preparation</b> 666:4,6 <b>prepare</b> 666:1 705:18,19 <b>prepared</b> 565:5 627:16 643:24 643:24 671:5,5 674:22 685:6,6 706:11 <b>present</b> 661:18 <b>presented</b> 579:8 <b>presiding</b> 562:17 <b>pressure</b> 613:6 <b>pretty</b> 573:22 649:12 <b>prevalent</b> 583:4 <b>previous</b> 585:2 <b>price</b> 588:25 616:4,9 688:4 688:5 <b>prices</b> 594:1,1 607:15,15 617:22,22,23 618:1 688:13 <b>PRIDGIN</b> 562:17 565:2 565:11,23 567:20,25 572:8,13 577:16,22,24 578:3 586:22 587:2 606:1 609:17,20,22 614:5 615:18 618:20,23 620:1 623:25 624:2 625:11 625:14,18,22
---	--	---	---	--

626:6 627:1,5 628:11,15,18 628:21,24 629:1 630:9,16 634:13,16 635:15 637:16 639:24 640:18 643:13,17 644:16 650:1 650:18 652:20 653:16 656:3 658:12,17,20 658:22,24 659:1 660:22 665:5,12 667:18,24 668:1,3,5,7,9 668:12 669:12 669:14,17,19 669:21,23,25 670:2,4,10,13 670:18 671:21 672:1,3,5,7,9 672:11,14,16 672:18,20,23 673:1,17,25 674:2,7 675:16 675:20 677:23 680:9,12,14,16 681:4 682:6,11 682:16,18,20 682:22,24 683:17 684:2,6 684:13,18 685:24 686:4 693:11,14,16 696:1,6 698:3 698:5,12,25 699:3,5,7 701:18,24 702:1,5,16,25 703:4,12,21 704:1,4,10,13 704:18,21,25	705:6 706:15 706:20 707:1,4 707:7,9,11 709:18,22 710:1,5,7,9 <b>primarily</b> 585:10 596:18 629:20 <b>primary</b> 602:2 <b>prior</b> 597:17 606:17 656:10 696:19 <b>priority</b> 643:3 663:3 <b>prism</b> 695:13 <b>probably</b> 585:19 589:7,7 606:13 608:21 618:9 621:7 625:25 626:11 640:9 654:3,22 655:20,25 656:21 657:4 684:12 701:9 <b>problem</b> 578:2 597:16,23 613:9 651:14 <b>problems</b> 604:6 622:10 638:20 651:22 <b>proceeding</b> 702:4 <b>PROCEEDIN...</b> 562:4 <b>process</b> 580:7 604:21 606:11 608:16 609:1,3 609:11 614:13 625:6 689:4 693:5 <b>processes</b> 574:16 576:24 587:11 603:12 604:2 604:16 608:17	608:24 624:19 <b>produce</b> 569:11 569:21 613:11 619:17 662:25 <b>produces</b> 610:10 610:10 613:18 <b>producing</b> 616:21 <b>production</b> 569:18 576:8 583:1 588:20 589:25 590:8 594:15 610:12 610:16 613:7 613:18 616:13 616:16,17,18 616:19 617:19 <b>progress</b> 622:17 623:2 <b>project</b> 571:9 573:14 574:11 579:17 580:16 581:8 586:10 587:14,17 588:1,6 589:14 589:14,15,15 593:17 599:15 599:22 603:9 606:25 608:14 614:11 616:6 617:11 619:16 619:23 620:13 622:7 623:14 625:5,7 632:20 638:1 669:4,5 676:7,13,19,20 676:25 679:1 679:21 680:24 683:5,7,13 686:13,21 687:4 689:3,4 689:8,21 691:22 692:8 692:23 693:23	694:5,8,9,11 694:11,15 696:14,21 697:8,24 699:20,22 707:22,23,24 708:1 709:4 <b>projected</b> 596:8 <b>projects</b> 575:23 579:5,11,24 580:25 581:9 587:10,16 588:7 599:9 601:6,10,15,21 603:17 606:12 606:13 608:3,5 608:17 619:8 621:8,18 622:7 623:10,12 624:17,21,21 624:25 625:4 693:7 <b>promising</b> 599:5 <b>promulgated</b> 576:6 <b>property</b> 632:16 <b>proportionality</b> 621:25 <b>proposal</b> 701:4 <b>propose</b> 603:24 <b>proposed</b> 577:2 599:7 620:12 632:11 638:5 638:15 660:16 <b>proposes</b> 576:23 <b>proposition</b> 690:13 <b>protecting</b> 664:5 <b>protection</b> 582:7 <b>prove</b> 648:17 <b>proven</b> 654:11 654:19 <b>provide</b> 576:25 590:5 594:13	597:6 689:1 <b>provided</b> 584:24 585:21 598:8 607:23 632:18 636:19,21 667:13 675:3 <b>provides</b> 588:24 <b>providing</b> 650:24,25 651:2 <b>proving</b> 601:7 <b>provision</b> 678:4 <b>proximity</b> 586:4 <b>PSC</b> 579:1 <b>public</b> 562:1,11 564:7,9,11,11 564:14,14 577:20 598:3 618:21 623:17 623:21 628:15 665:22,24 666:18 667:2 668:5 669:3,23 671:2 672:7 674:18 679:24 680:3,3,14 682:20 685:3 693:16 699:3 705:17 707:7 710:3 711:15 713:12 <b>published</b> 631:13 <b>pull</b> 608:10 654:2 657:25 662:4 691:4 <b>pulled</b> 657:19 <b>pulls</b> 608:11,13 <b>purchase</b> 697:13 <b>purchases</b> 616:19,22,23 <b>purchasing</b> 585:2 <b>purpose</b> 571:8
---	---	--	---	---

<p>576:13 603:25 649:6 686:11 <b>push</b> 600:12 613:20 <b>put</b> 611:19 613:6 617:11 684:7 <b>Putnam</b> 571:19</p> <hr/> <p style="text-align: center;"><b>Q</b></p> <p><b>Qualitative</b> 678:18 <b>quantification</b> 589:8 <b>quantify</b> 589:5 <b>question</b> 571:3 579:1,13 580:5 580:10,21,24 581:4,23,24 582:11,17 583:16 584:2,4 586:2,14 599:15 622:16 622:17 636:2 639:4 649:7,9 649:18 650:6 653:1 654:9 668:11 676:24 679:22 681:21 682:2,25 692:11,24 693:25 695:3 697:22 698:14 698:18 <b>questioned</b> 653:10 <b>questioning</b> 619:5 663:19 702:3 <b>questions</b> 566:3 567:9 568:7 570:5 572:11 577:15,18,21 578:9,21</p>	<p>586:18 587:2,8 598:6 605:24 606:4,7 609:16 609:23 610:1 614:3,9 615:17 615:22 616:1 618:19,22 619:1,2 620:5 620:23 622:14 624:6 625:10 627:8,25 628:17,19,22 628:25 629:4 636:6,7 640:24 648:4 650:17 650:19,23 651:5 652:18 652:25 653:19 656:9 658:14 658:19,21,23 659:3 660:25 661:2 665:17 667:25 668:2,4 668:6,8,9,14 669:13,15 670:21 671:12 672:4,6,8,10 672:12,13,15 672:17 673:7,7 673:9,11,16 674:10 675:4,8 675:23 676:2 680:7,10,11,13 680:15,19 681:3,5,8 682:7,10,14,17 683:2,16 684:4 684:11,22 685:14 686:7 688:12 693:9 693:15,20 696:5,7,9 698:4,9,16,24 699:2,4,6,10</p>	<p>701:17 702:10 702:17,23 703:14 705:10 706:7 707:6,8 707:11,15 709:17,20,24 711:25 <b>queue</b> 575:1 597:19,20 598:17,19,22 <b>quick</b> 702:8 <b>quickly</b> 683:23 <b>quite</b> 593:11 656:15 701:15 <b>quote</b> 687:13</p> <hr/> <p style="text-align: center;"><b>R</b></p> <p><b>R</b> 563:1 565:1 711:23 <b>radiation</b> 629:17 629:24 654:21 654:22 <b>raise</b> 565:20 626:24 649:7 665:9 670:15 674:4 684:15 705:3 <b>raised</b> 694:15 <b>raises</b> 657:8 <b>ramp</b> 613:22 <b>ran</b> 575:16 <b>Randolph</b> 632:11 658:4 <b>range</b> 631:4 678:15 <b>rate</b> 593:22 613:3,12 <b>ratepayers</b> 588:16 589:1,2 593:19 708:25 <b>rates</b> 593:21 681:22 707:23 708:19,23 <b>rating</b> 570:19</p>	<p><b>ratio</b> 579:5,8,11 580:6,8 598:23 <b>ratios</b> 579:16,21 580:14,15,18 581:1,2,7,12 646:6 <b>RC</b> 613:6 <b>RCV'D</b> 713:2 <b>re-dispatch</b> 617:12 <b>re-run</b> 575:6 607:9 <b>reaching</b> 588:9 <b>read</b> 579:13 580:1,10,20 581:4 582:8 584:20 586:7 597:12 642:22 645:17,19 650:14 678:4 678:17 686:15 <b>reading</b> 707:20 <b>ready</b> 578:5 626:8 627:2,6 665:14 684:20 705:8 <b>real-time</b> 590:17 <b>really</b> 573:9 610:7 611:7 613:20 641:11 660:14 663:15 664:3 665:1 691:8 <b>realm</b> 606:24 657:22 <b>reason</b> 600:19 638:8 642:3 663:13 679:16 <b>reasonable</b> 569:15 <b>reasons</b> 597:13 652:1 <b>rebuttal</b> 579:2 627:16 636:17</p>	<p>645:24 666:3 671:5 674:22 675:4,12 685:6 687:7 690:11 694:24 696:12 705:19 706:11 707:18 713:14 713:15,17,20 713:21 <b>recall</b> 569:14 571:15 622:16 640:4 663:20 664:16 679:9 679:14,15 690:19 <b>receive</b> 676:8 681:25 682:1 <b>received</b> 567:23 586:25 587:22 588:7 625:20 628:14 629:21 631:9,17 635:17 643:19 644:18 667:20 671:24 675:18 706:22 <b>receives</b> 681:9 <b>recess</b> 701:22,25 710:17 <b>recognize</b> 578:13 <b>recommend</b> 695:4 707:19 <b>recommendati...</b> 687:1 695:11 <b>recommended</b> 678:8 <b>record</b> 565:3 566:5 594:20 595:4 625:16 626:3,4,5,7 627:9 661:19 670:9,10,12,14 670:23 674:14</p>
--	--	---	---	--

675:12 680:22 684:24 703:2,3 703:5 710:15 710:18 <b>recover</b> 676:21 677:1,4 <b>recovering</b> 612:5 <b>recross</b> 609:22 609:25 614:8 615:21 618:25 658:14 659:2 669:15 682:14 698:9,15 709:23 711:6,6 711:7,7,13 <b>redirect</b> 573:16 573:18 620:2,4 624:5 660:22 660:24 670:2 682:24 683:1 699:7,9 710:7 711:8,14,22 712:1 <b>reduce</b> 591:5 610:19,19 622:10 643:5 663:16 707:22 707:23 <b>reduced</b> 591:4 678:11 688:13 714:7 <b>reduces</b> 590:25 <b>reducing</b> 680:1 709:12 <b>reduction</b> 593:19,23 618:11,13 677:16 678:8 678:25 679:19 679:23 680:4 688:7 <b>reductions</b> 678:14	<b>refer</b> 587:15 588:4 593:6 633:3 677:10 687:9 688:22 694:24 <b>reference</b> 585:19 609:9 619:14 619:20 648:1 677:11 688:19 <b>referenced</b> 575:17 701:1 <b>references</b> 570:22 <b>referencing</b> 584:23 <b>referred</b> 566:21 594:21 616:5 620:15 624:12 <b>referring</b> 569:22 590:12 612:15 619:19 624:24 <b>refers</b> 687:18 690:2 <b>refined</b> 602:25 <b>reflect</b> 585:15 623:3,9 <b>reflection</b> 590:19 <b>reflects</b> 615:12 615:13 690:13 <b>regard</b> 588:5 598:7 613:19 630:21 631:10 632:14 634:25 641:25 642:2 643:22 645:9 645:13 648:7 648:14,25 649:15 650:8 659:21 676:12 <b>regarding</b> 580:14 636:22 642:11 644:2 648:18 668:19	692:21 <b>regardless</b> 683:14 <b>regards</b> 598:23 599:13 600:11 602:16 623:13 661:3 662:15 663:19 664:19 695:10 <b>regime</b> 613:13 <b>region</b> 571:1 576:13 613:25 690:15 708:5 <b>region-wide</b> 708:6 <b>regional</b> 574:12 592:3,14,19,21 594:13 595:24 597:5,17 602:1 603:21 627:13 631:24 690:13 694:11 <b>regionally</b> 592:10 <b>regions</b> 596:12 678:10 690:24 <b>registered</b> 615:15 <b>regular</b> 623:19 <b>regulators</b> 609:1 <b>regulatory</b> 562:17 587:11 597:22 604:12 605:17 609:4,5 609:13 623:4 623:11,11 624:17 671:3 674:17 705:17 <b>relate</b> 644:23 <b>related</b> 629:9 631:15,20 647:2 656:24 714:8 <b>relates</b> 648:8	<b>relation</b> 655:20 <b>relationship</b> 599:19 623:1 <b>relative</b> 714:10 <b>relevant</b> 572:10 572:15,21 <b>reliability</b> 576:12 583:12 588:9 591:17 593:10,14 604:17,24 605:20 618:15 621:8,10,18 622:2,6,9 689:18,21 692:14 <b>relied</b> 648:19 686:16 687:2 <b>Relief</b> 562:11 <b>rely</b> 707:19,20 <b>remain</b> 618:1 <b>remainder</b> 702:4 <b>remaining</b> 624:21,22 <b>remains</b> 587:13 <b>remarks</b> 690:18 <b>remember</b> 604:1 610:6 616:4 619:4 661:2 662:17 <b>remote</b> 596:22 597:1 697:21 <b>remove</b> 639:2 <b>remuneration</b> 651:1 <b>renewable</b> 574:2 574:13,14,19 574:22 575:2 575:10,11 577:7 583:19 586:4 592:8 593:3 594:7 596:7,19,19,25 597:1 600:11	600:17 602:3 602:17 603:5 603:19,19 613:10 <b>renewables</b> 613:20 <b>repeat</b> 571:3 649:18 693:25 <b>replace</b> 612:23 613:1 <b>replicate</b> 647:22 <b>report</b> 566:15,16 575:15 579:17 579:18 580:16 580:17 581:8,9 595:17 620:8,9 620:18,19 621:14,20 622:21 639:14 643:24 644:25 645:21 656:20 659:7 <b>REPORTED</b> 562:23 <b>reporter</b> 578:7 624:4 634:19 640:20 714:1,3 <b>REPORTING</b> 562:24 <b>reports</b> 645:11 645:14 <b>represent</b> 579:10 615:25 <b>representation</b> 595:3 609:12 <b>representations</b> 595:14 <b>represented</b> 570:6 <b>represents</b> 570:3 570:12 615:10 621:15 <b>reproducible</b> 654:19
---	---	--	---	---



<b>Request</b> 578:16 578:23 580:4 580:18,23 581:11 <b>requested</b> 587:18 <b>require</b> 587:21 587:23 613:13 613:17 <b>required</b> 576:19 612:20 677:5 702:22 <b>requirement</b> 592:22 <b>requirements</b> 583:24 600:12 <b>RES</b> 592:21 594:9 <b>research</b> 633:21 634:1 638:21 641:7,19 642:22,25 643:4 645:16 648:5 653:22 657:7,23 662:2 662:8,10 663:1 663:3,8,12 664:11,14,22 <b>researchers</b> 646:20 <b>researching</b> 632:9 <b>reserve</b> 591:11 <b>reserves</b> 590:13 590:14,18 <b>residence</b> 637:3 637:7 638:6 <b>residents</b> 638:14 <b>resolved</b> 571:22 <b>resource</b> 579:22 581:10 582:21 583:10 591:2,7 591:14,15,17 591:23 596:2	598:3 599:7 601:1 611:20 <b>resources</b> 574:19 575:2 583:4,6,6 590:23,23 592:9,12,14,21 592:21,23,25 593:3 594:7 596:13,25 597:1,5,19,20 597:25 598:20 599:12 600:20 602:3 604:15 609:6 610:22 611:15,17,18 613:12,14 618:6 678:12 690:14,24 <b>respect</b> 621:6 <b>respond</b> 598:13 604:4 <b>responded</b> 614:12 620:23 <b>response</b> 576:20 577:11 578:15 578:20 579:15 580:1,12,13,18 580:20 581:7 581:11,18 582:11,12 583:13 586:2,7 588:5 599:14 605:13,21 651:4 682:19 687:1 695:3,10 695:18 703:23 <b>responses</b> 578:20 713:24 <b>responsibilities</b> 583:10 <b>responsibility</b> 582:22 605:16 <b>rest</b> 570:9	588:10,19 598:2 669:4 <b>restricting</b> 576:8 <b>restrictions</b> 600:8 691:17 <b>result</b> 593:17 607:20 <b>resulted</b> 602:14 <b>resulting</b> 585:1 691:10 692:5 <b>results</b> 601:4 656:16 683:11 <b>resume</b> 565:17 625:23 626:4 <b>retail</b> 594:1 681:22 707:22 <b>retire</b> 613:1 <b>retrospective</b> 659:14 <b>return</b> 681:10 681:10 <b>review</b> 566:16 568:11 579:3,4 579:9,18 580:17 581:2,9 581:15 582:5 607:5,6,11,17 607:20,22 609:14 622:22 624:12 640:11 644:1 647:20 651:19 656:14 657:25 659:15 679:9 <b>reviewed</b> 607:25 <b>revised</b> 624:7 713:11 <b>RGOS</b> 595:21 602:24 <b>right</b> 565:2,20 565:21 568:24 569:1 573:3,12 577:4,12 582:1 590:15 592:18	594:17 598:21 611:13 612:4,7 612:12 615:2 616:3 617:25 618:4 625:11 626:6,23,24 633:2 634:8 636:7,9 637:25 641:23 642:2 645:9 646:1 647:4 648:11 650:4,12 654:16 655:3 655:11 656:2 658:12 660:2 663:7 665:8,9 670:4,13,15 673:17 674:2,4 674:4 677:6 678:20 679:15 681:20 683:17 684:3,6,13,15 687:13,17 692:6 693:11 701:18 702:5 702:16,25,25 704:4,16,21 705:1,3,4 706:20,21 707:1,11 710:9 710:15,16 <b>right-hand</b> 644:7 <b>rights</b> 584:19 <b>risk</b> 629:8 633:4 638:22 652:6,7 652:7 <b>risks</b> 644:1,10 651:7 652:12 657:6 <b>Rivers</b> 686:21 700:12 <b>Rivers'</b> 676:13 <b>road</b> 593:11	<b>roads</b> 695:17 <b>robust</b> 604:21 <b>role</b> 582:22 583:8 <b>Romaine</b> 563:12 <b>RONALD</b> 562:17 <b>room</b> 626:14 631:23 648:9 <b>ROSENCRA...</b> 563:7 <b>roughly</b> 622:13 <b>route</b> 575:24 636:19,25 660:16,18 <b>routes</b> 584:20 <b>RPS</b> 583:24 <b>RPS's</b> 597:24 <b>RTO</b> 608:16 <b>rule</b> 582:5 <b>rules</b> 582:23 583:2,3 600:23 <b>run</b> 590:24 604:11 608:5,7 708:20 709:14 <b>running</b> 570:14 <b>Rupp</b> 562:19 656:5 672:18 672:19 682:12 698:7 709:22 <hr/> <b>S</b> <hr/> <b>S</b> 563:1 565:1 <b>S-1</b> 566:22 <b>S-A-R-A-H</b> 705:12 <b>S-H-A-W-N</b> 684:25 <b>S-T-A-H-L-M...</b> 674:15 <b>sales</b> 616:19,22 616:23 <b>Sarah</b> 679:3 705:12 712:2
---	--	---	--	---

713:15	<b>scheduled</b> 673:8	703:6	<b>seven</b> 668:25	<b>singling</b> 633:4,6
<b>sarcoma</b> 655:18	673:10	<b>seeing</b> 583:5	<b>Sharon</b> 713:17	<b>sir</b> 565:23
655:20	<b>schedules</b>	597:18 600:22	713:18	566:25 567:5
<b>satellite</b> 631:2	566:15,21,22	636:24 654:8	<b>shaving</b> 611:7	577:9 594:18
<b>satisfied</b> 605:21	566:24,25	654:12	<b>Shawn</b> 684:25	596:2 607:21
<b>satisfy</b> 603:17	567:3,11 595:8	<b>seek</b> 651:14	685:5 711:23	615:20 623:25
<b>savings</b> 589:24	<b>Schuyler</b> 692:22	<b>seeking</b> 651:13	<b>sheet</b> 644:8	627:1,6 636:9
590:11,19	<b>scientific</b> 631:14	<b>seen</b> 569:19	<b>shields</b> 660:10	640:18 656:10
591:9	643:25 644:2,9	597:13 636:25	<b>short</b> 636:23	659:1 660:23
<b>saw</b> 570:22	660:9 680:1	637:1 641:21	649:9 650:14	668:12 670:18
575:24 590:11	<b>sclerosis</b> 663:5	651:20 652:8	<b>shortly</b> 626:8	674:7 678:16
691:6	<b>scope</b> 572:6	656:10,25	<b>should've</b> 640:9	679:9,22 680:6
<b>saying</b> 597:12	694:17	660:18 690:18	<b>show</b> 642:20	682:15 684:18
597:23 651:6,8	<b>SCOTT</b> 562:19	<b>segments</b> 638:1	651:10 655:12	686:20 692:24
651:17 663:13	<b>searching</b>	<b>select</b> 608:17	659:18,18	707:3 709:25
708:7,14,25	662:13 664:25	<b>Senate</b> 576:6	<b>showing</b> 600:14	710:8
<b>says</b> 595:21	<b>seat</b> 565:24	<b>Senior</b> 562:17	630:11 633:22	<b>site-specific</b>
624:24 641:20	665:13 670:19	564:5,10	665:2 696:21	596:20
644:7 656:21	674:8 684:19	<b>sense</b> 601:20	<b>shown</b> 641:2	<b>sitting</b> 585:19
662:23 667:2,5	705:7	689:6	<b>shows</b> 569:19	<b>situation</b> 593:5
695:4	<b>second</b> 661:22	<b>separate</b> 588:19	641:16 666:3	618:10
<b>scenario</b> 602:7	<b>section</b> 620:12	<b>separation</b>	<b>shut</b> 664:10	<b>sizes</b> 633:22
613:3 622:8	678:17	588:25 616:10	<b>sic</b> 692:20	<b>sleep</b> 657:12
678:14 697:17	<b>sector</b> 604:14	617:23 618:8	<b>side</b> 644:7	<b>slight</b> 566:20
<b>scenarios</b> 575:16	615:1,10,11	<b>sequence</b> 616:3	<b>side-by-side</b>	<b>slowly</b> 705:11
575:18,18	<b>sectors</b> 609:10	617:25	709:11	<b>small</b> 563:20
602:3,4,12,14	609:13 614:18	<b>sequencing</b>	<b>sides</b> 651:16	566:1,3 567:14
602:18	614:19,21	616:2,6	<b>significant</b> 596:5	567:20 573:2
<b>Schatzki</b> 678:22	615:7	<b>serve</b> 587:23	597:5,19,20	584:11,13
678:24 681:1	<b>see</b> 567:25	<b>serves</b> 679:24	605:18 613:24	595:9,11 620:3
687:10 707:22	577:19 578:24	680:2	678:9	620:5 622:11
709:13 710:13	580:18 581:11	<b>service</b> 562:1	<b>significantly</b>	623:23 624:1,6
<b>Schatzki's</b> 589:6	588:18,20,24	564:7,9 608:7	573:20 601:2	625:9,15
679:18	593:19,23	617:25 665:22	<b>Silva's</b> 630:12	628:25 633:23
<b>schedule</b> 565:10	595:1 597:3	665:24 671:2	<b>similar</b> 608:16	658:23 668:2
595:13,18	599:8,9,11	674:18 685:3	608:21 635:21	669:20 672:4
620:7,7,9,17	600:23,24	690:3 705:17	669:8	680:11 682:17
620:18 621:14	605:1 616:9	711:15 713:12	<b>similarities</b>	693:13 698:14
622:20,21	617:1 624:18	<b>set</b> 565:12	608:21	698:16 701:23
634:4,23	624:20 630:6	596:12 601:6	<b>simply</b> 633:24	701:25 702:2
642:24 645:23	661:14 677:11	601:15 610:13	664:24 691:2	711:3,8
690:18 702:13	687:19 690:3,7	622:9 703:8	<b>sincerely</b> 626:18	<b>Smith</b> 563:3
703:25 705:24	690:15 691:8	<b>sets</b> 585:18	<b>single</b> 691:11,11	565:4,7,19,20
705:24 713:4	702:15,17	<b>setting</b> 626:16	692:5	566:6,7 567:15

568:10,10 578:10 587:5 595:7 614:10 615:23 620:6 625:12 626:7 626:21 627:10 627:15 629:5,7 630:20 631:13 632:1 634:3,21 635:20 636:5 637:18 639:5 640:1,22 642:2 643:22 644:21 647:10 648:5 648:23 659:5 661:1 665:6 677:25 688:12 711:3,10 713:10 <b>Smith's</b> 595:8 <b>social</b> 677:11 678:18 <b>society</b> 656:14 656:23 <b>solar</b> 574:1,22 574:24 577:7 611:2,3,13,25 612:3 <b>sold</b> 572:4 573:1 <b>solution</b> 602:3 604:6 605:13 605:14 <b>solutions</b> 577:1 604:24,24 605:7 622:2 <b>solve</b> 593:12 597:23 604:8 612:19 622:9 <b>someone's</b> 660:1 <b>somewhat</b> 686:23 <b>sorry</b> 565:24 577:25 578:3 584:11 585:17	586:13 605:10 627:24 631:18 634:5 642:17 643:24 650:3 657:16 687:10 693:25 694:22 704:16 <b>sort</b> 573:17 701:8 708:5 709:13 <b>sound</b> 569:14 <b>sounds</b> 684:6 <b>source</b> 583:18 592:8 612:25 613:1,2,16 659:11 <b>sources</b> 657:20 <b>sourcing</b> 592:14 <b>South</b> 593:1 <b>southwest</b> 608:22 <b>speak</b> 633:13 642:12 662:15 662:17,21,22 663:13,24 664:10 688:9 <b>speaking</b> 644:22 690:11,24 693:6 <b>specialist</b> 593:22 685:4 <b>specific</b> 579:5,11 579:21,24 589:17 599:3 608:12 619:15 619:18 631:21 635:23,25 654:25 662:15 679:13 680:21 680:25 693:21 694:1,4,14 <b>specifically</b> 570:21 590:7,8 593:6 595:2	597:14 604:1 608:13 612:15 622:2 642:5 694:12 709:10 <b>spell</b> 705:11 <b>spend</b> 573:10 <b>spending</b> 572:2 <b>spent</b> 657:18 662:12 <b>sponsored</b> 634:1 677:25 678:21 <b>spot</b> 592:18 <b>spreadsheets</b> 568:12,15 569:22 <b>Spring</b> 563:12 <b>sprinklers</b> 626:17 <b>spurred</b> 684:4 <b>St</b> 563:9 596:21 597:9 611:4 <b>staff</b> 564:4,5,5,6 564:9 577:17 614:6 628:21 658:20 665:25 667:16,20 671:17,19,24 675:14,18 676:12 679:3 684:11 685:20 685:22 686:2 686:25 687:2 692:24 695:4 702:22,23 704:22 705:16 706:13,18,22 713:12,13,15 713:16,18,19 713:21 <b>Staff's</b> 579:3 695:5,11,15 <b>Stahlman</b> 579:2 673:1,2,3 674:3,11,15,21	675:24 678:3 680:20 683:15 683:19 692:20 711:19 713:21 <b>Stahlman's</b> 675:12 <b>stakeholder</b> 574:15 576:23 576:24 596:6 598:2 603:11 604:2,21 608:25 609:2 609:10 614:12 614:18 <b>stakeholders</b> 574:17 576:25 577:6 603:22 604:11 614:16 614:17 <b>stand</b> 565:5,19 566:12 567:11 595:23 626:8 670:14 674:3 703:7 710:16 <b>standard</b> 574:23 583:3 604:17 612:25 613:16 <b>standards</b> 574:13,14 575:3,11,11 583:25 584:6 592:9,9,10 600:17 602:17 <b>stands</b> 613:6 666:13 <b>start</b> 576:7 583:5 587:9 588:9,10,19,24 589:7 599:8 600:22 616:9 618:14 659:10 694:25 702:20 <b>started</b> 597:23 <b>starting</b> 601:11	666:25 687:14 <b>starts</b> 617:4,5,6 667:3 <b>state</b> 562:2 566:4 579:12 580:9 582:4 584:8,17 586:2 587:11 592:22 592:23,24 593:8 597:22 597:22 604:12 605:4 609:1,2 609:11,13 614:23,24 615:14 617:10 619:18 633:18 663:14 665:18 670:22 674:13 684:23 705:11 708:9,10 714:4 <b>stated</b> 567:9 580:15 638:18 638:23 642:5 643:3 <b>statement</b> 632:7 633:5,10,15,16 642:9,10,19 645:1 654:3,4 697:16 <b>statements</b> 648:18 663:17 664:2 <b>states</b> 574:23 575:12 579:2 582:6 585:10 585:10 587:21 587:23 596:9 600:10 609:9 614:23 615:13 681:18 690:12 <b>static</b> 639:16 <b>statistical</b> 596:10 659:15 <b>status</b> 587:9,13
--	---	---	---	---

<p>623:4,5 624:17 625:3 <b>step</b> 603:8 625:14 665:6 670:5 683:19 710:10 <b>STEPHEN</b> 562:18 <b>stimulate</b> 651:13 <b>stipulate</b> 704:23 <b>stipulated</b> 673:14 <b>Stoll</b> 562:18 606:2,4 609:15 609:17 614:15 652:21,22,25 653:16 669:12 669:13 672:14 672:15 682:10 698:4,5 709:19 709:20 711:5 711:12 <b>stopping</b> 588:12 588:21 <b>story</b> 636:3 <b>strategic</b> 603:5 <b>strategies</b> 603:2 <b>Street</b> 564:1,7 564:12 <b>stretching</b> 606:24 <b>strike</b> 676:17 <b>strongly</b> 654:24 <b>structure</b> 660:9 <b>structures</b> 585:12 <b>studied</b> 569:7 647:5,7 <b>studies</b> 572:17 584:18 635:1,3 635:20,23 639:19 641:9 641:24 643:6,9 645:11,15</p>	<p>647:9 649:3,4 649:6 651:10 651:12,24 653:5,6,9 654:8,19,24 657:25 659:6 659:17 662:4 686:17 687:3 693:8 694:10 696:18,20,20 697:2,2 <b>study</b> 571:18,21 571:25 572:2 572:14,18,20 572:24 573:4 573:12 574:12 574:12 576:4 579:5,8 583:23 584:23 592:3 595:24 596:8 597:18 602:1 602:24 633:22 634:7,22,25 635:4,8,25 638:24 639:7 641:2,5,11 642:4 646:1,5 646:12,16,18 647:10,14,16 647:21 648:24 649:14 650:7 652:13,14 654:9 664:22 665:1,1 683:10 683:11,14 708:5 713:4,6 713:7 <b>studying</b> 692:12 <b>subject</b> 567:10 567:17 673:6 679:17 <b>submit</b> 700:16 706:10 <b>submitted</b></p>	<p>578:17 595:13 676:14 <b>substantially</b> 675:8 <b>Substation</b> 562:14 <b>suffering</b> 632:4 <b>sufficient</b> 695:7 <b>suggest</b> 648:6 <b>suggested</b> 571:21 617:22 <b>suggesting</b> 571:13 <b>sulfur</b> 679:6,19 <b>summarize</b> 648:4 664:9 <b>summarized</b> 573:17 <b>summarizes</b> 678:13 <b>summary</b> 643:23 644:4 <b>Sun</b> 563:17 <b>sunny</b> 611:3 <b>supplemental</b> 580:13 <b>supply</b> 688:2 <b>support</b> 575:12 668:18 669:4 687:4 <b>supported</b> 645:15 <b>supporters</b> 633:3 <b>supporting</b> 581:3 <b>supports</b> 586:3 <b>sure</b> 570:2 571:4 587:22,24 589:23 590:14 591:24 595:4 597:11 598:7 602:20 606:21 607:14 608:21</p>	<p>612:22 613:1 659:4 660:9 676:23 <b>surprise</b> 641:23 642:1 <b>surrebuttal</b> 566:8,11,14,21 567:10,15 581:21 584:10 585:24 597:10 607:4 685:7 713:10,18 <b>suspect</b> 673:10 702:10 <b>sweet</b> 592:18 <b>swine</b> 641:6,24 <b>switch</b> 582:24 583:5 <b>sworn</b> 565:21,22 626:21,24,25 665:9,11 670:16,17 674:4,6 684:16 684:17 705:2,4 705:5 714:6 <b>system</b> 563:22 564:3 571:14 583:12 584:3 588:11,13,24 590:6,15,16,25 591:3,4,6,11 594:8,15 595:3 598:4 600:20 601:4 603:20 607:9,17 610:16,18 616:22,24,25 617:1,5,7,11 617:13,18,20 618:7 635:7 687:25 691:3 691:15 692:10 692:12,14 697:18 699:21</p>	<p>711:2 713:8 <b>systemic</b> 597:16 <b>systems</b> 566:9 635:6</p> <hr/> <p style="text-align: center;"><b>T</b></p> <hr/> <p><b>T</b> 562:19 566:6,7 567:15 711:3 <b>table</b> 634:22 635:1 637:25 638:4 <b>take</b> 565:5 575:7 592:11,25 593:1 599:2,10 611:19 612:2,5 612:6 615:10 616:20 625:23 626:11 657:7 673:4 683:6,24 687:11 <b>taken</b> 596:16,17 642:19 670:14 714:6,10 <b>takes</b> 565:19 605:17 607:6 674:3 <b>talk</b> 583:17 607:5 630:19 659:6 664:15 692:1 <b>talked</b> 568:20 700:6 <b>talking</b> 571:20 582:13,18 617:21 629:23 630:3,21 659:5 659:22,25 660:1 662:17 681:12 <b>talks</b> 641:6 <b>target</b> 591:7 600:6 610:13 <b>targeted</b> 584:7 <b>targets</b> 591:23</p>
--	---	--	--	---

<b>tariff</b> 576:18	698:19,19	692:21 694:24	680:6,9 681:4	609:1,15
<b>tariffs</b> 676:9	704:8	696:13,19	682:5,6,8,11	611:23 615:11
683:13	<b>testimonies</b>	698:18 700:16	682:13,24	626:17 636:4
<b>Tartan</b> 695:8,11	685:11	705:19,24	683:15,18	642:12,13
<b>technical</b> 596:6	<b>testimony</b> 566:8	706:1,4,11	684:13,18	645:2 647:13
596:11	566:11,14,19	707:19,21	685:5,24 687:6	650:12,13
<b>technology</b>	566:21 567:7	713:10,14,15	688:17 691:21	652:22 656:17
569:19 602:6	567:10,15	713:17,18,20	693:9,11 696:4	656:17,22
602:22	569:6 571:12	713:21 714:5,6	696:6 698:2,3	657:4,10,15
<b>tell</b> 593:22 618:8	571:17 576:11	<b>text</b> 566:15	698:12,24,25	659:8 676:15
641:13 660:14	579:2 581:21	567:16	700:10 701:16	676:22 679:2
669:1 702:21	585:22,23,25	<b>texts</b> 567:3	701:18,20	679:25 681:25
<b>telling</b> 640:4	597:11 598:9	<b>thank</b> 565:23	702:5,17 703:1	688:25 698:23
641:10	598:22 604:5	566:1 567:20	703:2 704:25	702:14,18
<b>temperature</b>	607:4 610:24	577:14,16	705:6,14	703:5
626:14	620:8 621:7	578:4 584:13	706:20 707:1	<b>thinking</b> 588:10
<b>ten</b> 600:11	622:23 627:16	586:17,22	707:10 709:16	<b>Thomas</b> 696:21
609:10,13	627:21 628:1,4	587:25 605:23	709:18,21,23	701:1
614:17,18	629:16 630:13	605:25 606:1,5	710:6,9,10,17	<b>thought</b> 570:6
667:5 684:1	632:18,22	609:16,18,21	<b>Thanks</b> 665:5	611:1 704:14
<b>tend</b> 591:18	633:18 634:3	609:22 614:2,5	672:22 694:23	<b>threatened</b>
<b>tender</b> 628:8	636:10,12,18	615:6,16,18	<b>thereto</b> 714:12	658:5
667:22 675:13	637:3,20 640:3	618:18,20	<b>thermal</b> 691:3,9	<b>three</b> 566:15
706:24	640:6 641:15	619:25 620:1,3	691:13,14,17	602:2,12,14,15
<b>tendered</b> 567:18	642:25 645:24	620:17 625:11	<b>thermostat</b>	602:18 603:1
<b>tenders</b> 671:18	647:10 648:6	625:12,13	626:19	607:11
685:21	650:25 651:1,3	626:4 627:1	<b>they'd</b> 606:22	<b>Thursday</b>
<b>term</b> 592:18	653:21 661:6	628:11,19,23	<b>thing</b> 587:19	702:14,15
612:15	662:14,18	630:17 636:9	598:16,24	703:9,17
<b>terminology</b>	663:18 664:13	647:4 650:18	612:10 615:13	<b>tie</b> 666:23
662:7	666:3,9,12,13	652:18,20	659:8 702:8	<b>TIGER</b> 562:24
<b>terms</b> 587:12	666:17,25	653:14,16,20	<b>things</b> 585:1	<b>tightening</b>
611:8 636:24	667:13 671:6,9	656:2,3,5,7	607:14,16	600:22
688:14 692:2	673:15 674:22	658:10,10,13	645:7 648:21	<b>TIM</b> 564:10
703:24 704:5	675:1,4,12	660:21,22	652:9 655:19	<b>time</b> 572:16,18
<b>terrain</b> 585:11	676:3,24 677:7	665:6,6,12,15	688:7	572:19,25
<b>Tesla</b> 653:11	677:12 678:21	667:24 668:10	<b>think</b> 568:20,25	574:25 576:4
<b>test</b> 596:13	679:8,10,11,18	668:24 669:10	570:4 572:11	587:2 588:17
676:12	680:20 681:2	670:4,5,18	575:16 576:10	599:17 602:13
<b>testified</b> 631:22	682:9 685:6,8	671:21 672:3	584:4 586:13	625:22 626:1
658:2	686:12,15	672:11,23,25	587:22 590:12	626:12 632:3,5
<b>testify</b> 626:8	687:7,7,9,14	673:17 674:1,2	594:21 595:16	636:17 651:20
690:12 692:8	687:18 688:18	674:7 677:6	598:22 599:5	653:13 673:19
<b>testifying</b> 629:7	690:8,11,25	678:16,20	599:18 600:19	675:1 684:11

696:21 697:3 708:8,21 <b>timeframe</b> 588:3 623:7 701:8 <b>times</b> 585:13 591:7,8 602:15 611:16 <b>titled</b> 621:16 666:2 678:18 688:20 <b>today</b> 565:10 566:12 567:12 572:20 574:25 625:24 628:1 640:1,7 641:10 666:10 667:13 671:12 675:8 685:14 687:23 688:11 703:9 704:2 706:8 710:12 <b>today's</b> 656:14 <b>told</b> 640:22 <b>tomorrow</b> 704:8 710:12,17 <b>tons</b> 678:14,15 <b>top</b> 585:17 687:8 687:14 701:6,7 <b>top-down</b> 604:19 <b>topic</b> 576:9 631:15 <b>TOs</b> 603:14,14 <b>total</b> 573:5 585:6 621:10 622:12,15 669:1 <b>touch</b> 698:22 <b>tower</b> 569:4,5 <b>towers</b> 569:7,8 569:15 611:22 <b>Toxic</b> 583:2 <b>tracking</b> 612:1 <b>training</b> 629:17	629:20,23 631:9,17 <b>TRANSCRIPT</b> 562:4 <b>transfer</b> 616:24 <b>transfers</b> 591:21 <b>transformer</b> 691:12,19 <b>transformers</b> 691:14 <b>transmission</b> 562:10,13 563:6,11 570:14,17 571:2,7 572:19 576:15 577:1 584:19 585:7 585:12 586:10 590:2,21,22,24 592:17 593:4 595:3 596:15 596:18,24 597:15 598:4 600:20,25,25 601:15,23 602:2,11 603:14,15,25 604:5,8,9,12 604:19 605:3 605:12,21 607:3 614:24 614:25 617:5,7 619:16,23 621:16 629:10 632:11,19 634:1 635:22 636:13 638:6 651:7 668:20 680:24 681:11 681:17 688:7 688:20 689:17 690:2,6 691:12 691:18 692:12 693:22 695:17	713:3 <b>transmission-...</b> 615:3,10,11 <b>TranSource</b> 668:25 <b>travel</b> 673:24 <b>traverse</b> 585:13 <b>treated</b> 632:2 <b>treatment</b> 632:3 651:14 <b>trend</b> 654:13 659:7 <b>trends</b> 654:7 <b>trick</b> 626:16 <b>tried</b> 597:2 <b>triennial</b> 566:16 568:10 579:4,9 579:18,18 580:17 581:2,9 581:15 607:5 607:11,17,20 622:22 624:11 <b>tries</b> 616:20 <b>trigger</b> 655:1 <b>triggered</b> 642:21 <b>Tripp</b> 563:3 629:2,4 630:8 630:10,14,17 630:18 634:12 634:14,20 635:12,19 637:14,17 639:23,25 640:17,21 642:15,17,18 643:12,14,21 644:13,20 649:25 650:2 650:17,18 658:25 659:3 667:25 669:18 672:2 682:15 683:25 711:11 711:13	<b>true</b> 576:18 601:7 605:3 628:4 629:13 631:15 632:4,7 632:8,12,16 635:22 636:20 637:8 638:16 638:17,22,24 639:7,17,20 640:12,15,24 642:7 643:7 645:11,12 646:3,11,14 647:1,23 648:2 648:3,8 649:2 660:19,20 671:14 675:4 685:16 706:4 <b>truly</b> 663:6 664:4 <b>try</b> 565:15 583:8 614:22 673:4 <b>trying</b> 588:13 595:14 597:4 603:18 617:8 651:15 664:12 697:16 <b>tumors</b> 645:7 <b>tune</b> 587:16 <b>turbine</b> 591:25 592:1 <b>turn</b> 581:20 583:14 584:9 585:13,24 597:10 620:6 620:17 622:20 637:22 649:22 663:7 676:3 677:6 687:6 691:2 <b>turned</b> 626:16 626:19 <b>turning</b> 581:6 696:12 707:18	<b>Twain</b> 570:8,11 570:19 579:11 580:9 586:10 589:9 594:11 601:21 603:3,9 614:11,11 617:11,17 618:16 619:16 619:17,22 622:7 629:10 636:13 638:6 658:3 676:6 679:1,20 680:23,24 686:12 689:8 689:21 690:6 691:22 692:8 692:23 693:22 694:7,9 696:13 697:8,24 <b>tweaked</b> 602:20 602:24 <b>two</b> 575:18 592:7 615:4 617:12 622:10 623:12 624:14 624:21,25 625:3 651:18 668:21 669:6 673:15 684:4 707:23 709:11 <b>type</b> 602:6 608:20 651:11 653:22 664:18 <b>types</b> 652:4 688:3 <b>typewriting</b> 714:7
<hr/> <b>U</b> <hr/>				
<b>Uh-huh</b> 571:24 581:17 610:5 612:13,17 614:14 653:25				

669:11 <b>unable</b> 579:4 638:25 639:8 647:22 <b>unacceptable</b> 629:8 <b>uncertainty</b> 643:6 <b>unclear</b> 649:13 <b>understand</b> 570:2,7 571:17 572:23 573:25 576:16 583:9 583:11 589:11 589:16 597:11 598:8 599:6 610:17,18 619:24 626:7 636:4,5 637:2 651:3 659:4 662:7 663:10 676:11,23 691:8 696:24 701:8 703:20 710:11 <b>understanding</b> 582:23 587:10 599:21 603:16 619:21 625:1 631:7 659:24 680:1 687:21 688:14 691:13 703:11 709:13 <b>understands</b> 570:3 <b>understood</b> 573:24 574:5 <b>unfortunately</b> 703:24 <b>unimpactful</b> 601:9 <b>Union</b> 643:25 <b>unit</b> 573:5,7 596:21 617:24	671:3 709:14 <b>United</b> 563:14 563:19 577:20 577:22 578:6 578:17 582:6 586:20,25 596:9 615:19 616:1 618:23 628:18 629:8 658:17 668:3,7 669:21,25 672:5,9 673:5 680:12,16 682:18,22 683:3 693:14 693:17 698:25 699:5 707:4,9 710:1,5 711:9 713:23 <b>units</b> 586:7 613:10 688:1,1 709:11 <b>university</b> 657:23 <b>unlimited</b> 572:10 <b>update</b> 607:7,8 607:12,14 666:15,16 <b>updated</b> 607:17 623:8,9,18,20 624:10,18 666:11,22 <b>updating</b> 666:24 667:4,6,8 <b>upgrades</b> 571:22 <b>upper</b> 597:6 <b>urban</b> 656:18 <b>usage</b> 678:11 <b>use</b> 569:7 575:22 602:10 611:21 633:9 651:12 <b>usually</b> 693:2 <b>utilities</b> 582:22	582:22 615:3 615:11 <b>utility</b> 614:23 615:10 671:3 685:4 697:13 <b>utilization</b> 586:6 601:1 612:12 <b>utilized</b> 611:18 <b>utilizing</b> 596:6 <hr/> <b>V</b> <hr/> <b>vacuum</b> 616:21 <b>vain</b> 684:10 <b>Valley</b> 563:17 <b>valuable</b> 611:2 <b>value</b> 588:23 597:5 605:1,1 607:16 608:10 610:25 690:12 <b>variations</b> 608:20 <b>variety</b> 598:11 <b>various</b> 568:16 610:25,25,25 624:17 655:19 663:1 686:17 <b>vary</b> 585:10,14 <b>Veatch</b> 611:21 <b>verbal</b> 682:19 <b>verify</b> 677:17 703:7 <b>version</b> 623:20 624:18 <b>versus</b> 589:1 681:13,23 <b>view</b> 563:12 604:5 <b>viewed</b> 690:9 695:13 <b>views</b> 603:24 <b>virus</b> 655:18 <b>vitae</b> 629:15 <b>voltage</b> 593:7 602:5,11 603:7	646:2,22 652:6 652:7,7,9 692:8,15,17 697:18 <b>Volume</b> 562:8 <hr/> <b>W</b> <hr/> <b>wait</b> 634:5 <b>waiting</b> 670:11 <b>waive</b> 704:23 <b>Walter</b> 703:15 <b>Walters</b> 702:10 702:24 704:6 <b>want</b> 570:2 587:21 589:1 592:6,11 597:11 598:7 600:15,24 601:8 610:13 612:10 642:9 659:4 670:8 673:20 679:17 706:15 <b>wanted</b> 575:23 576:9 626:1,12 <b>warfare</b> 629:17 629:24 <b>warm</b> 626:15,18 <b>wasn't</b> 573:14 601:11 649:10 696:25 <b>water</b> 664:3 <b>Waxman-Mar...</b> 576:5 <b>way</b> 570:24,24 573:24 575:13 583:24 584:6 589:5 606:24 610:18 638:11 643:3 645:20 676:25 690:9 697:1 708:1 <b>ways</b> 604:8 <b>we'll</b> 565:16	670:10 673:21 <b>we're</b> 565:6,9 571:20 574:19 588:9 596:15 597:24,24 615:12 626:7 629:23 630:3 630:21 634:15 656:22 659:5 659:22 670:11 670:13 673:13 702:13 703:2 710:17 <b>we've</b> 592:23,24 649:12 673:14 <b>website</b> 568:12 581:16 <b>week</b> 692:21 <b>weeks</b> 599:7 636:18 <b>weighted</b> 575:2 <b>well-being</b> 652:3 <b>went</b> 604:1 694:18 <b>west</b> 571:20 602:9 608:19 <b>WESTEN</b> 564:5 628:22 <b>western</b> 601:16 <b>whichever</b> 673:21 <b>wholesale</b> 588:21 589:2 593:23 594:1 594:16 688:13 708:19,23 <b>widely</b> 657:6 <b>WILLIAM</b> 562:19 <b>Williams</b> 564:4 564:6 642:14 658:21 665:14 665:15,17 667:15,22
--	---	---	---	--

670:3,8,19 672:22 684:10 684:14 702:21 704:22 705:8 705:10 706:10 706:17,24 710:8 711:16 712:2 <b>willing</b> 704:23 <b>wind</b> 568:17,25 569:18 570:10 570:25 571:10 571:13,18 572:3 575:2 583:17 586:11 588:12 591:25 592:1,12 594:4 595:25 596:3,8 596:20 597:5 597:13,19,20 598:9,14 599:9 602:15 611:3 611:12,15,20 612:4 613:24 678:9,13 690:6 690:14,24 692:22,22 696:15,22 697:4,7,12,25 700:24 <b>wind-to-solar</b> 598:23 <b>wing</b> 568:1 <b>wires</b> 576:14 <b>Wisconsin</b> 587:13,14 623:13 624:22 624:23 <b>wish</b> 671:8 685:10 <b>with-or-without</b> 617:18 <b>witness</b> 565:3,4 565:22 567:17	572:14 579:2 587:6 595:12 595:19 605:25 625:13 626:25 628:8 630:14 637:14 642:16 650:21 665:8 665:11 667:22 670:17 673:2 674:6 675:13 677:22 678:22 679:3 683:21 684:17 687:9 688:12 696:3 702:19 703:10 703:16 705:5 706:24 714:4,6 <b>witnesses</b> 565:6 568:1 673:15 683:23 684:11 689:22 702:3 702:15,18,20 703:8 710:12 710:13 <b>wondering</b> 589:21 <b>word</b> 660:9 <b>words</b> 601:9 604:7 <b>work</b> 603:17 610:19 631:21 661:1 <b>worked</b> 631:18 674:19 <b>working</b> 574:15 598:2 <b>world</b> 575:19,25 576:1,2 590:17 590:17 601:2 603:6 633:10 633:16 642:10 648:7,10 <b>Worst</b> 622:8 <b>worth</b> 602:14	<b>would've</b> 573:7 <b>wouldn't</b> 637:10 641:23 698:20 698:21 704:20 <b>written</b> 566:15 598:9 <b>wrong</b> 648:14,17 648:19,21 <b>wrote</b> 598:22 636:17 <hr/> <b>X</b> <hr/> <b>Y</b> <hr/> <b>Y</b> 562:18 <b>yards</b> 637:4 <b>Yeah</b> 587:24 595:10,12 620:10 642:17 681:6 703:22 <b>year</b> 576:7 588:2 606:8 610:25 611:9 623:7 686:22 <b>years</b> 600:5,11 607:11 656:14 674:20 <b>yesterday</b> 568:20 569:6 570:2,5 573:16 604:5 611:25 666:19 <hr/> <b>Z</b> <hr/> <b>zone</b> 568:21,22 570:11 590:20 591:13,14,15 595:21 <b>zones</b> 568:16,17 579:22 581:10 586:5,6 590:18 596:1,2,3,13 596:16,19 597:4 598:3	<hr/> <b>0</b> <hr/> <b>000632-99-5</b> 661:21 <hr/> <b>1</b> <hr/> <b>1</b> 566:23 567:1 595:13 621:14 654:18 655:13 655:14 666:4 687:15 690:12 691:13 <b>1-A</b> 655:13 <b>1-B</b> 654:17 655:13 <b>1,000</b> 591:3 <b>1,100</b> 591:8 <b>1,200</b> 591:4,7 <b>1,266</b> 667:3 <b>1,347</b> 569:23 570:10,16 571:5,10 <b>1,445</b> 667:4 <b>1,700</b> 570:22 <b>1:15</b> 701:22 703:1 <b>10</b> 597:10 620:12 647:18 676:3 689:12 <b>10:05</b> 625:23 626:4 <b>100</b> 591:6 611:22 669:3 <b>100-meter</b> 569:8 <b>1000</b> 606:14,18 606:20,23 607:1 <b>1081</b> 562:23 <b>11</b> 571:22 572:3 572:20 573:10 579:8 583:17 676:4 677:10 677:15,19,21 696:12 <b>11:15</b> 565:13	<b>11:30</b> 626:10 <b>111-D</b> 599:23 612:24 709:4,8 <b>113</b> 655:14 <b>12</b> 677:9 691:6 <b>13</b> 689:13 <b>14</b> 579:3,8,18 580:16 581:8 581:15 623:6 647:14 677:10 677:15,17,21 692:7 <b>15</b> 583:17 584:9 584:12,12 587:11,12,22 591:7,8 600:4 615:11 622:12 622:12 667:4,6 667:7 668:18 677:10 689:14 <b>16</b> 571:22 632:24 633:2 667:8 692:7 <b>161</b> 571:14,23 588:13 <b>17</b> 583:14 587:10 633:19 <b>17.8</b> 678:15 <b>17:1</b> 598:23 <b>18</b> 633:19 636:10 <b>1802</b> 563:17 <b>19</b> 585:24 636:10 667:10 <b>1901</b> 563:8 <hr/> <b>2</b> <hr/> <b>2</b> 566:22,23 567:1 655:16 676:3 687:8,12 689:25 690:1 690:12 <b>2--</b> 705:20 <b>2-10</b> 578:17
---	---	--	--	--



580:23	<b>2016</b> 562:6	655:24 662:16	<hr/> <b>4</b> <hr/>	564:9
<b>2-8</b> 578:23	667:1 705:23	662:16 666:25	<b>4</b> 579:3 581:25	<b>576</b> 711:4
580:19 581:11	710:20	687:6,9,12,14	582:1 642:12	713:24
<b>2-9</b> 578:16 580:4	<b>2018</b> 588:2	687:19 688:23	655:25 677:7	<b>586</b> 713:24
<b>2-A</b> 654:17,23	<b>2022</b> 576:8	689:11 694:24	688:18 707:20	<b>587</b> 711:5
655:9,10,15,16	<b>2025</b> 600:17,22	694:25 707:18	<b>40</b> 627:17 628:8	<b>59</b> 649:22 650:5
655:21	613:12	<b>3,000</b> 667:2,3,10	628:10,12,13	
<b>2-B</b> 638:22	<b>2028</b> 569:23	<b>3,100</b> 667:9	628:14	<hr/> <b>6</b> <hr/>
639:3 642:4,7	570:9	<b>3,200</b> 667:3,11	<b>400-megawatt</b>	<b>6</b> 581:20 621:15
653:22,24	<b>2030</b> 600:6	668:17	692:22	651:4 667:1
655:16	<b>21</b> 622:21 666:6	<b>3.3</b> 581:1	<b>450-plus</b> 615:15	689:11 691:25
<b>2-C</b> 655:23	705:20	<b>30</b> 602:14	<b>4520</b> 564:1	705:25 707:20
<b>2,900</b> 667:8	<b>22</b> 597:11	637:23 638:4	<b>46032</b> 563:21	<b>60</b> 573:11
<b>2.0</b> 581:1	688:19,23	647:4 685:8,21	<b>49</b> 620:18	630:25 635:5,8
<b>2.3</b> 581:1	<b>2230</b> 564:12	685:22,25	621:14	<b>60-megawatt</b>
<b>2.8</b> 578:16	<b>226</b> 622:11	686:1,2 713:18		573:7
<b>2.9</b> 578:16 581:1	<b>23</b> 585:25 586:3	<b>300-megawatt</b>	<hr/> <b>5</b> <hr/>	<b>606</b> 711:5
<b>20</b> 573:5 585:25	647:5	573:7	<b>5</b> 581:12 591:15	<b>610</b> 711:6
612:2,7 622:21	<b>24</b> 585:25	<b>31</b> 671:6,17,19	624:24 633:19	<b>614</b> 711:6
667:1	597:12 636:15	671:21,22,24	637:19 647:13	<b>615</b> 711:7
<b>20-percent</b>	<b>25</b> 602:14	713:19	647:18 649:22	<b>618</b> 711:7
611:24	<b>25th</b> 705:23	<b>314</b> 563:12	650:6 653:11	<b>624</b> 711:8
<b>200</b> 564:7,12	<b>26</b> 667:1	<b>314.341.5769</b>	653:11 688:19	713:11
<b>200-plus</b> 574:16	<b>27</b> 562:6 666:2	563:13	688:23 689:13	<b>625</b> 713:11
<b>2007</b> 571:18	667:12,15,16	<b>314.554.3955</b>	690:1 691:2	<b>627</b> 711:10
572:15,16,23	667:18,19,20	563:10	<b>50</b> 615:13	<b>629</b> 711:11
642:25 644:25	713:13	<b>319.249.5248</b>	622:12 635:6,8	<b>63026</b> 563:13
645:21 646:1	<b>28</b> 710:20	563:21	646:7 669:3	<b>63166</b> 563:9
701:9	<b>285</b> 655:17	<b>32</b> 674:23	<b>50-meter</b> 646:14	<b>634</b> 713:4
<b>2008</b> 596:8	661:13	675:13,14,16	<b>52</b> 620:18	<b>635</b> 713:4
601:12	<b>28HC</b> 705:20	675:17,18	621:14	<b>640</b> 713:5
<b>2008-ish</b> 701:9	706:12,13,21	713:21	<b>536</b> 711:3	<b>64111</b> 564:2
<b>2009</b> 647:10	706:22 713:15	<b>33</b> 568:25	<b>550</b> 637:4	<b>643</b> 713:5,7
<b>2011</b> 573:21	<b>28NP</b> 706:16,18	<b>345</b> 571:2	<b>567</b> 713:9	<b>644</b> 713:7
575:15 579:17	706:22 713:15	<b>345,000-volt</b>	<b>568</b> 711:4	<b>650</b> 711:11
580:15 581:1,7	<b>29</b> 637:23,23,25	562:13	<b>573.443.3141</b>	<b>65102</b> 564:8,13
606:9,10	685:7,20,22,24	<b>347</b> 571:6	563:5	<b>65109</b> 563:17
607:10,19	685:25 686:2	<b>35</b> 567:19,20,21	<b>573.616.1486</b>	<b>652</b> 711:12
<b>2013</b> 664:22	713:16	567:23 713:9	563:18	<b>65205</b> 563:4
<b>2014</b> 573:21		<b>360</b> 564:8	<b>573.639.7615</b>	<b>653</b> 711:12
607:5	<hr/> <b>3</b> <hr/>	<b>37</b> 612:2,7	564:2	<b>656</b> 711:13
<b>2015</b> 601:12	<b>3</b> 566:22,23	<b>37.5</b> 569:12	<b>573.751.5558</b>	<b>659</b> 711:13
644:1,11 666:4	567:1 632:24	611:23	564:13	<b>66</b> 655:6,15,16
667:1 705:20	633:2 636:10		<b>573.751.6514</b>	<b>660</b> 711:14

<b>66149</b> 563:9	<b>80</b> 595:17 620:9			
<b>665</b> 711:16	<b>80-meter</b> 569:5			
<b>667</b> 713:13	<b>81</b> 578:6,13			
<b>668</b> 711:17	586:19,20,23			
<b>670</b> 711:18	586:23,25			
<b>671</b> 713:19	713:24			
<b>674</b> 711:20	<b>82</b> 623:24 624:3			
<b>675</b> 711:20	625:16,17,18			
713:21	625:19,20			
<b>680</b> 711:21	713:11			
<b>681</b> 711:21	<b>83</b> 595:17 620:7			
<b>683</b> 711:22	620:9 634:15			
<b>684</b> 711:23	634:18,22			
<b>686</b> 711:24	635:13,14,15			
713:16,18	635:16,17			
<b>693</b> 711:24	713:4			
<b>694</b> 711:25	<b>84</b> 640:17,18,19			
<b>699</b> 712:1	641:3 643:15			
	643:16,17,18			
<hr/> <b>7</b> <hr/>	643:19 713:5			
<b>7</b> 579:3,24	<b>85</b> 612:3,7			
642:12,15	643:23 644:14			
662:16 690:10	644:15,16,17			
695:3 696:13	644:18,23			
<b>7,000</b> 669:2	713:7			
<b>70-percent</b>				
582:25	<hr/> <b>9</b> <hr/>			
<b>705</b> 712:2	<b>9</b> 562:8 579:3			
<b>706</b> 713:15	580:13 584:10			
<b>707</b> 712:3	584:12,17			
<b>720</b> 563:20	642:12,15			
<b>765</b> 602:8	662:17			
<b>78</b> 678:4	<b>9.6</b> 678:8			
<b>794</b> 622:11	<b>9.8</b> 678:13			
	<b>90</b> 638:15			
<hr/> <b>8</b> <hr/>	<b>90-minute</b>			
<b>8</b> 579:24 582:2	626:11			
607:5 620:7	<b>918</b> 563:4			
647:13 667:3				
691:2 694:25				
696:13				
<b>8.1</b> 621:13				
<b>8.3</b> 678:15				
<b>8:30</b> 710:17,20				