

In the Matter of:

**Spire Missouri, Inc. d/b/a Spire's Request to Increase Its WNAR**

---

**GO-2019-0058 AND GO-2019-0059, VOL. II**

*January 15, 2019*

---



[www.tigercr.com](http://www.tigercr.com) 573.999.2662

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25

STATE OF MISSOURI  
PUBLIC SERVICE COMMISSION

\_\_\_\_\_

TRANSCRIPT OF PROCEEDINGS  
Evidentiary Hearing  
January 15, 2019  
Jefferson City, Missouri  
Volume 2

\_\_\_\_\_

In The Matter Of Spire Missouri, )  
Inc. d/b/a Spire's Request to ) File No. GO-2019-0058  
Decrease WNAR )  
In The Matter Of Spire Missouri, )  
Inc. d/b/a Spire's Request to ) File No. GO-2019-0059  
Increase Its WNAR )

PAUL T. GRAHAM, Presiding  
REGULATORY LAW JUDGE  
RYAN A. SILVEY, Chairman  
DANIEL Y. HALL  
MAIDA J. COLEMAN  
COMMISSIONERS

REPORTED BY:  
Beverly Jean Bentch, CCR No. 640  
TIGER COURT REPORTING, LLC

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25

A P P E A R A N C E S

LERA SHEMWELL, Senior Counsel  
PO Box 2230  
Jefferson City, Missouri 65102  
573.751.5558  
FOR: Office of the Public Counsel

JEFFREY A. KEEVIL, Senior Staff Counsel  
200 Madison Street, Suite 800  
PO Box 360  
Jefferson City, Missouri 65102-0360  
573.526.4887  
FOR: Staff of the Missouri Public Service Commission

MICHAEL C. PENDERGAST, Attorney at Law  
423 South Main Street  
St. Charles, Missouri 63301  
314.288.8723  
FOR: Spire Missouri, Inc.

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25

INDEX

Opening Statement by Mr. Pendergast	14
Opening Statement by Mr. Keevil	27
Opening Statement by Ms. Shemwell	44

SPIRE MISSOURI INC. EVIDENCE

SCOTT A. WEITZEL	
Direct Examination by Mr. Pendergast	49
Cross-Examination by Ms. Shemwell	51
Cross-Examination by Mr. Keevil	54
Questions by Commissioner Silvey	67
Questions by Commissioner Hall	68
Questions by Judge Graham	74
Recross-Examination by Ms. Shemwell	75
Recross-Examination by Mr. Keevil	76
Further Redirect Examination by Mr. Pendergast	80
Spire Rests	86

STAFF OF THE MISSOURI PUBLIC SERVICE COMMISSION EVIDENCE

SEOUNG JOUN WON	
Direct Examination by Mr. Keevil	86
Cross-Examination by Ms. Shemwell	88
Cross-Examination by Mr. Pendergast	93
Questions by Commissioner Hall	97
Questions by Judge Graham	103
Redirect Examination by Mr. Keevil	107
Questions by Judge Graham	111
Further Redirect Examination by Mr. Keevil	111
Recross-Examination by Mr. Pendergast	114
MICHAEL L. STAHLMAN	
Direct Examination by Mr. Keevil	116
Cross-Examination by Ms. Shemwell	117
Cross-Examination by Mr. Pendergast	123
Questions by Commissioner Hall	143
Questions by Judge Graham	153
Recross-Examination by Ms. Shemwell	155
Recross-Examination by Mr. Pendergast	157
Redirect Examination by Mr. Keevil	159

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25

INDEX  
(Continued)

ROBIN KLIETHERMES	
Direct Examination by Mr. Keevil	165
Cross-Examination by Ms. Shemwell	166
Cross-Examination by Mr. Pendergast	174
Questions by Judge Graham	176
Redirect Examination by Mr. Keevil	179
Staff Rests	180
OFFICE OF PUBLIC COUNSEL EVIDENCE	
LENA M. MANTLE	
Direct Examination by Ms. Shemwell	180
OPC Rests	184

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25

EXHIBIT INDEX

REC'D

SPIRE MISSOURI, INC.:

Company Exhibit 100  
Direct Testimony of Scott Weitzel  
(GO-2019-0058/59) 50

Company Exhibit 101  
Rebuttal Testimony of Scott Weitzel  
(GO-2019-0058/59) 50

STAFF:

Staff Exhibit 200  
Direct Testimony of Seoung Joun Won, PhD 88

Staff Exhibit 201  
Rebuttal Testimony of Seoung Joun Won, PhD 88

Staff Exhibit 202  
Direct Testimony of Michael L. Stahlman 117

Staff Exhibit 203  
Rebuttal Testimony of Michael L. Stahlman 117

Staff Exhibit 204  
Rebuttal Testimony of Robin Kliethermes 166

Staff Exhibit 205  
WNAR Tariff for Spire Missouri East 27

Staff Exhibit 206  
WNAR Tariff for Spire Missouri West 27

Staff Exhibit 207  
Definition of as 55

Staff Exhibit 208  
Rate case transcript (Stahlman) 57

Staff Exhibit 209  
Sample WNAR for April through September 2018 161

Page

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25

EXHIBIT INDEX  
(Continued)

OPC:	REC'D
OPC Exhibit 300 Direct Testimony of Lena M. Mantle	184
OPC Exhibit 301 Rebuttal Testimony of Lena M. Mantle	184
OPC Exhibit 302 Rate Case Weather Adjustment	93

Page

P R O C E E D I N G S

1  
2 JUDGE GRAHAM: We're going to go on the  
3 record. Today is January 15, 2019. The Commission has  
4 set this time for an evidentiary hearing In the Matter  
5 of Spire Missouri, Inc. d/b/a Spire's Request to  
6 Decrease WNAR, File No. GO-2019-0058 and In the Matter  
7 of Spire Missouri, Inc. d/b/a Spire's Request to  
8 Increase its WNAR, File No. GO-2019-0059. And lest  
9 anyone misunderstand on that, we are trying both cases,  
10 both files today on a common record. Although the cases  
11 have not been consolidated and are separate, they're  
12 going to be done on a common record today.

13 With that, I'm Paul Graham. I'm the  
14 Regulatory Law Judge presiding over this matter and will  
15 ask for the entry of appearances at this point. For  
16 Spire?

17 MR. PENDERGAST: Thank you, Your Honor.  
18 Michael C. Pendergast appearing on behalf of Spire  
19 Missouri, Inc. My business address is 423 South Main  
20 Street, St. Charles, Missouri 63301.

21 JUDGE GRAHAM: Thank you, sir. And is there  
22 another counsel at the desk that I cannot see from here?

23 MR. PENDERGAST: No, there is not. Just me.

24 JUDGE GRAHAM: Okay. That's your witness.  
25 All right. For Commission Staff, do you want to enter  
Page



1 your appearance?

2 MR. KEEVIL: Yes, Judge. Appearing on behalf  
3 of the Staff of the Missouri Public Service Commission,  
4 Jeff Keevil, 200 Madison Street, PO Box 360, Jefferson  
5 City, Missouri 65102.

6 JUDGE GRAHAM: All right. Thank you. The  
7 person sitting with you is not counsel, right?

8 MR. KEEVIL: No, that's one of my witnesses.

9 JUDGE GRAHAM: All right. And the Office of  
10 Public Counsel?

11 MS. SHEMWELL: Good morning and thank you,  
12 Judge. Lera Shemwell representing the Office of the  
13 Public Counsel, the court reporter has my information,  
14 and sitting beside me is our witness, Lena Mantle.

15 JUDGE GRAHAM: All right. Thank you very  
16 much. I guess I need to remind all of something that we  
17 all remember to do now and that's to silence your cell  
18 phones, and so forth.

19 Prior to going on the record today, we did  
20 mark some exhibits. We have reserved, I believe,  
21 Exhibit Nos. 100 through 110 for Spire. Counsel for  
22 Spire advises that he would like to reserve on which of  
23 those exhibits, or what exhibits he wants to mark, but  
24 he's reserved 100 through 110. Staff has provided the  
25 bench with a list of Exhibits 200 through 204 which I

Page

1 think have been marked now. And OPC, the Office of the  
2 Public Counsel, has provided the bench with an exhibit  
3 list with Exhibits 300 through 302 identified.

4 As far as concerns the witness list, we're  
5 going to follow the sequence that was suggested by staff  
6 in its listing of witnesses in which I believe it was  
7 one of the few things that was agreed to by the parties,  
8 the order of witnesses in that respect.

9 Are there any other preliminary matters before  
10 we start? Are we going to have some opening statements?  
11 Mr. Pendergast, do you want to proceed with your opening  
12 statement?

13 MR. PENDERGAST: Thank you, Your Honor. Good  
14 morning. If it please the Commission. I stood here a  
15 little bit more than a year ago when this issue of  
16 having a Weather Normalization Adjustment Rider or  
17 Revenue Stabilization Mechanism was first raised in our  
18 prior rate cases. At that point in time, I recall  
19 commending the Commission, the Staff and the Office of  
20 the Public Counsel for a long history of working  
21 proactively and creatively to address the impact of  
22 weather and other factors on customer usage.

23 And since that time, the Commission has  
24 approved a Weather Normalization Adjustment Rider for  
25 the Company. It's also approved one for Liberty. And  
Page

1 before the forest gets lost because of the trees, I just  
2 wanted to express our appreciation for the Commission's  
3 actions in moving this issue forward in a constructive  
4 and proactive way.

5           With that said, the issue we have today is a  
6 relatively simple one and it has to do with tariff  
7 interpretation. As you can see from the screen up  
8 there, the main issue is what do we -- how do we  
9 interpret the phrase that in calculating a WNAR you will  
10 use the total normal heating degree days based upon  
11 staff's daily normal weather as determined in the rate  
12 case. That's pretty much what staff is relying on, OPC  
13 is relying on and we're relying on for our respective  
14 positions.

15           I wouldn't think that a sentence with so few  
16 words could lead to such widely different  
17 interpretations but it has. Effectively what the  
18 Company's position is that in the rate case we  
19 determined, or we accepted, or you approved daily  
20 heating degree days based on staff's method, and that  
21 method not only uses a normal 30 years I believe but it  
22 also goes through something called a ranking process  
23 where it associates the actual normals degree days in a  
24 way that matches them the coldest to the coldest  
25 historical day, the second coldest to the second coldest

Page

1 historical day, so forth and so on.

2 I think it's absolutely clear that that's how  
3 the daily degree days were established in the rate case  
4 and we were fine with that and we believe that that  
5 should be used as the benchmark for making WNAR  
6 adjustments.

7 And I think the dispute settles on whether you  
8 go through this re-ranking process each time you make a  
9 WNAR adjustment. And our view is that you don't and  
10 that that's not something that's reflected in the  
11 tariff. The tariff says as determined. If you just  
12 look at the plain and ordinary meaning of the word  
13 determined, it means to fix. It means to go ahead and  
14 finalize. It means to go ahead and resolve.

15 Mr. Weitzel, who will be our witness today,  
16 provides a number of examples from authoritative  
17 dictionaries on what that word means. So we think that  
18 if you look at that there's nothing in that particular  
19 language that suggests we're supposed to go through the  
20 re-ranking method everytime that a WNAR adjustment is  
21 made. And you know, the staff obviously takes a certain  
22 amount of pride in that ranking method and I understand  
23 that. You know, it I think is primarily a creation of  
24 its own invention.

25 I think Dr. Won has gone ahead and published  
Page

1 in a journal the method, and I think we can all be proud  
2 when somebody from the regulatory staffs here manages to  
3 create something of that nature. The only problem is we  
4 look at it, we've seen some results that we're not quite  
5 comfortable with. We might be able to get comfortable  
6 with it over time, but we aren't at the present and we  
7 don't think it was something that was at all agreed upon  
8 by the parties nor fairly something that you can say is  
9 inherent in those words that are in the tariff.

10 There's a couple of other reasons that we  
11 think an interpretation that these degree days were to  
12 be fixed and not massaged and moved around based on the  
13 ranking method, and first of all the ranking method is  
14 nowhere mentioned in the tariff. As you can see, that's  
15 a pretty robust tariff. I mean, it gives you a formula.  
16 It describes the various terms in that formula. And it  
17 goes into pretty significant detail on how this  
18 mechanism is supposed to work. But nowhere in the  
19 tariff will you find the word ranking, the word ranking  
20 method.

21 In fact, I think in his testimony Mr. Stahlman  
22 on behalf of the staff said well, you know, we could  
23 have gone ahead and said based on staff's method and  
24 that might have clarified it a little bit, but he didn't  
25 want to go ahead and mislead people into thinking that

Page

1 if the method was supposed to be used that you be doing  
2 things like updating the 30-year normal heating degree  
3 days. And that's kind of our point.

4 You know, by not having method in there, by  
5 not having it more clear that this is something we're  
6 going to go ahead and use, I think since staff wrote the  
7 tariff they weren't very explicit about that while they  
8 were explicit about all these other things. The better  
9 interpretation is it doesn't authorize that re-ranking  
10 method.

11 And you know, another reason we think our  
12 interpretation is correct is that it's more consistent  
13 with how rate case outputs are used in other adjustment  
14 mechanisms. For example, we have the infrastructure,  
15 the ISRS mechanism, and that relies on outputs that are  
16 established in a rate case.

17 One of the things it relies on is the ROE and  
18 capital costs that are established in a rate case. Now,  
19 everybody understands that once you make an ISRS filing  
20 you use the specific ROE that was established in the  
21 rate case. You don't apply a methodology to go ahead  
22 and say let's update that ROE. It's the ROE period  
23 fixed output is used until there's another rate case and  
24 you change that fixed output. And I think that's  
25 generally true of other things that are established in a

Page

1 rate case. PGA volumes that are used to go ahead and  
2 calculate PGA rates usually established in a rate case.  
3 They remain fixed. They don't change. They don't get  
4 massaged. In between rate cases that's what you use  
5 until you have another rate case.

6 Also, I think it's worthwhile pointing out  
7 that staff has gone to considerable lengths in its  
8 testimony to explain why its re-ranking approach results  
9 in at least on a monthly basis a more accurate  
10 correlation between weather and degree days. And of  
11 course, you know, if you're doing a weather  
12 normalization or have a weather normalization everytime  
13 you make a WNAR adjustment, that's probably going to be  
14 true. But I think when staff sits there and says well,  
15 look how this is varying, you know, based on degree  
16 days, of course, you're going to have variation. If you  
17 had degree days established in a case, they're not going  
18 to be replicated exactly, you know, in the future.  
19 Things change.

20 The point of the matter is, though, it's a  
21 fixed baseline and in the end you have to go ahead and  
22 recognize the financial impact of what the total heating  
23 degree days were in the rate case versus the actual  
24 total degree days that you're experiencing for an annual  
25 period. And as long as you do that, the fact that it

Page

1 may be variations and you might be over in one day or  
2 over in one month and under in the other, you know, is  
3 kind of irrelevant from our perspective.

4 I think this sort of fixation, and I'm not  
5 saying that it's a bad fixation, on accuracy that staff  
6 has relied on and public counsel to a degree in its  
7 testimony, is a little at odds with the position that  
8 staff took in the rate case. And I say that because  
9 when the staff proposed a specimen tariff sheet, and  
10 this was proposed very late in the process, it was on  
11 the last day of the evidentiary hearing. It wasn't in  
12 testimony. So there was never an opportunity to really  
13 conduct discovery on it.

14 It also proposed in that same specimen tariff  
15 sheet a \$0.01 hard cap. And that \$0.01 hard cap as we  
16 had the opportunity to respond to in an affidavit would  
17 have actually created a rate design that protected us  
18 less when it came to weather and protected the customer  
19 less when it came to weather than what the existing rate  
20 design that Laclede had at the time. You may recall it  
21 had a weather mitigation rate design where all of its  
22 distribution costs were recovered in the first 30  
23 therms. So, you know, if you are really concerned about  
24 accuracy, what you don't do, and having a good full  
25 reconciliation of weather and its impact on usage, you

Page



1 don't put a hard cap on that basically leaves a  
2 significant amount of that usage variation due to  
3 weather completely uncovered, you know. It's not really  
4 the approach you take if accuracy is your main goal.

5           So for all of those reasons, and as I said,  
6 Mr. Weitzel will be here to explain the Company's  
7 position in more detail. We believe that our  
8 interpretation of the tariff is the correct one and once  
9 again I'm glad that, you know, we've gotten to a point  
10 in Missouri that, you know, we're arguing about these  
11 kind of issues but we've at least in our perspective  
12 made the important policy decisions to move us forward.  
13 Thank you.

14           JUDGE GRAHAM: Thank you very much. Do you  
15 have questions for counsel in the opening statement? Go  
16 ahead, Mr. Chairman.

17           CHAIRMAN SILVEY: Thank you. Just to be  
18 clear, do you oppose staff's methodology or is your  
19 position simply that tariff construction in this case  
20 does not allow for it to be applied?

21           MR. PENDERGAST: Chairman, we did oppose it in  
22 the rate case. We do not feel comfortable having it  
23 implemented now, and all I was trying to suggest is that  
24 we might get comfortable with it after we see, you know,  
25 some additional examples of how this works. I mean, we

Page

1 were the first utility with a weather clause in Missouri  
2 and this is the first time that the re-ranking method  
3 has really been raised in the context of an adjustment  
4 clause.

5 So we would prefer to go ahead and live with  
6 the fixed outputs that were determined in the rate case  
7 until we either have another rate case or we can go to  
8 the staff and say, you know, we've digested this more  
9 and we're comfortable with taking this approach.

10 CHAIRMAN SILVEY: Okay. And how were  
11 adjustments for a WNAR handled in the past?

12 MR. PENDERGAST: Well, you know, since this  
13 was really the first WNAR, you know, there's really not  
14 a history of how these things were done and this issue  
15 really didn't surface at least from the Company's  
16 perspective until we tried to file our first WNAR  
17 adjustment and at that point people started looking at  
18 each other's work papers and we kind of said what's this  
19 ranking method being done in here and the staff took the  
20 position we think that's what's required and that's  
21 where the issue was joined for the first time.

22 CHAIRMAN SILVEY: You stated that you opposed  
23 the methodology in the rate case; that you might be  
24 comfortable with it at some point in the future, you  
25 might have an opportunity to become comfortable with it.

Page

1 What would you say is the most likely harm that would  
2 come out of using staff's interpretation in this case?

3 MR. PENDERGAST: Yeah, I think from our  
4 perspective, you know, since you have to reconcile back  
5 I think to the total degree days versus the total actual  
6 degree days, you know, hopefully there would not be a  
7 significant difference regardless of which method you  
8 used. But because the staff goes ahead and does this,  
9 you know, allocation of degree days to, you know, based  
10 on warmest, coldest, going down the gradation, we have  
11 seasonal rates and you could have an effect if you were  
12 reallocating these degree days to different days based  
13 on this ranking method and they traversed one of these  
14 seasonal rate changes because, you know, when you have  
15 the degree days, whether you're over or under, you've  
16 got to price them out. If you're pricing them out at  
17 different levels and we disagree on what level it should  
18 have been for a given point in time, that could cause a  
19 problem. Is it a huge problem? It's not a huge  
20 problem, but it could be a problem.

21 CHAIRMAN SILVEY: Thank you, Judge.

22 COMMISSIONER HALL: Good morning.

23 MR. PENDERGAST: Good morning.

24 COMMISSIONER HALL: If the Commission were to  
25 determine that the tariff language was unclear on this  
Page

1 point, that it was ambiguous, is the appropriate course  
2 for the Commission to select the methodology that makes  
3 the most sense, that makes the most policy sense, that  
4 is the most consistent with our intent when we crafted  
5 the order that established it?

6 MR. PENDERGAST: Well, you know, obviously if  
7 you feel like there's not a way based on the wording  
8 itself, based on the history of how the tariff came into  
9 being and its comparison to other adjustment mechanisms  
10 and how they've been treated.

11 COMMISSIONER HALL: Those are all things that  
12 we would take into account in determining what's the  
13 most reasonable.

14 MR. PENDERGAST: I think that those are all  
15 elements that you need to take into account in making  
16 that determination, and I'm not going to suggest that  
17 you leave this thing unresolved forever if you truly  
18 have some concerns about. I'm just not sure what this  
19 required, but I would certainly hope you'd take those  
20 factors into consideration if you thought it was  
21 necessary to go there.

22 COMMISSIONER HALL: Okay. So I guess what I'm  
23 really trying to understand and I think you've answered  
24 this is I think there's an argument that if it's  
25 ambiguous we should go with the Company's

Page

1 interpretation. You're not suggesting that. You're  
2 saying that if it's ambiguous, we should go with what is  
3 the most reasonable, what is the best policy, what is  
4 the most consistent with our intent.

5 MR. PENDERGAST: Yeah. I guess to accurately  
6 state what our position is we don't believe it's  
7 ambiguous.

8 COMMISSIONER HALL: I understand that.

9 MR. PENDERGAST: Right. And because we don't  
10 believe it's ambiguous, we don't think there's a need  
11 for the Commission to go down that road.

12 COMMISSIONER HALL: But if it is ambiguous.

13 MR. PENDERGAST: But if the Commission  
14 determines that it is ambiguous, then I think you would  
15 need to take all those factors into consideration in  
16 determining what the right thing to do is.

17 COMMISSIONER HALL: Thank you.

18 COMMISSIONER COLEMAN: No questions.

19 JUDGE GRAHAM: Thank you very much.

20 MR. PENDERGAST: Thank you.

21 JUDGE GRAHAM: Opening statement for staff?

22 MR. KEEVIL: Yes, Judge. I'm going to have to  
23 ask Mr. Hanauer, is there any way we can zoom that thing  
24 in a little more on the formula itself? Thank you,  
25 John.

Page

1 JUDGE GRAHAM: For the Commissioners, the  
2 exhibit they're looking at is attached to EFIS Item No.  
3 28 if you want to look at it there you can see it more  
4 clearly, I think. It's the last EFIS item.

5 MR. KEEVIL: In fact, what that is is a copy  
6 of the tariff. I don't know if you all have copies with  
7 you or not. You've got one? You have a copy of the  
8 tariff? You have both of them, Judge?

9 JUDGE GRAHAM: I think I have them both, sir.

10 COMMISSIONER HALL: I think I do too.

11 MR. KEEVIL: Judge, can I have exhibit numbers  
12 for these? The first one is the PSC Mo. No. 7 for Spire  
13 Missouri East and the second one is PSC Mo. No. 8 for  
14 Spire Missouri West.

15 JUDGE GRAHAM: I'm sorry. Say again. These  
16 are not the exhibit numbers you've given me.

17 MR. KEEVIL: Right, these are new exhibits I'm  
18 asking to be marked.

19 JUDGE GRAHAM: They're going to be numbers  
20 what, sir?

21 MR. KEEVIL: I can tell you that.

22 JUDGE GRAHAM: The number will be 205, I  
23 think.

24 MR. KEEVIL: 205, right, and 206.

25 JUDGE GRAHAM: All right. Do you want to give  
Page

1 those names for the record right now so we know what  
2 they are?

3 MR. KEEVIL: 205 is the WNAR Tariff for Spire  
4 Missouri East, and 206 is the WNAR Tariff for Spire  
5 Missouri West.

6 I would ask that those -- you can take  
7 official notice of those and just receive them into the  
8 record as exhibits if you would.

9 JUDGE GRAHAM: I'm assuming there's no  
10 objection from anybody since this is what the case is  
11 about. No objection noted. Staff's Exhibits 205 and  
12 206 will be admitted per official notice rules.

13 MR. KEEVIL: Thank you, Judge.

14 (STAFF'S EXHIBITS 205 AND 206 WERE RECEIVED  
15 INTO EVIDENCE AND MADE A PART OF THIS RECORD.)

16 MR. KEEVIL: May it please the Commission.  
17 I'm Jeff Keevil representing the Commission staff. I'm  
18 going to begin with a little bit of background to give  
19 you some idea of how we got to where we are today.

20 Most of this background information comes from  
21 pages 78 through 85 of the Commission's amended report  
22 and order in Spire's most recent rate cases, Case No.  
23 GR-2017-0215 for Spire Missouri East and GR-2017-0216  
24 for Spire Missouri West. I would encourage you to read  
25 those pages of that order for more background detail on  
Page

1 the WNAR.

2 In Spire's most recent rate cases, Spire  
3 sought what was referred to as a Revenue Stabilization  
4 Mechanism, or RSM, under Section 386.266.3 RSMo. This  
5 statute, as the Commission found in those cases,  
6 authorizes an RSM which allows rate adjustments for  
7 variations due to weather, conservation or both.  
8 However, the Commission rejected Spire's proposed RSM  
9 because it would have made rate adjustments for all  
10 variations in average usage per customer such as fuel  
11 switching, rate class switching, new customers with non  
12 average use and economic factors and not just those  
13 limited to weather or conservation. Therefore, the  
14 Commission found that Spire's proposed RSM was not  
15 consistent with the statute.

16 The Commission also found that Spire's  
17 proposed RSM would not provide rate stability, that it  
18 was not necessary for the Company because Spire was not  
19 having difficulty meeting its revenue requirement, and  
20 it was not shown to be a good mechanism to incentivize  
21 conservation. However, in the rate case staff presented  
22 a sample tariff sheet with a Weather Normalization  
23 Adjustment Rider, or WNAR, for Commission consideration.

24 That sample tariff sheet, which was admitted  
25 into the record as Exhibit No. 281, included a method of  
Page



1 adjusting rates based only on weather variation. No  
2 objection to the document was made with the exception of  
3 three proposed modifications submitted by Spire none of  
4 which had anything to do with the definition or  
5 calculation of normal heating degree days.

6 The Commission found that because annual  
7 natural gas usage is 95 percent correlated with annual  
8 heating degree days, using staff's climatic normal and  
9 weather normalization in the form of the WNAR tariff  
10 would more accurately resolve the revenue stabilization  
11 issue because it is specifically linked to weather  
12 fluctuations.

13 The Commission rejected Spire's proposed RSM  
14 but determined that a WNAR tariff is in the public  
15 interest and is just and reasonable as set out by  
16 staff's example tariff with one of the three proposed  
17 modifications submitted by Spire of an upward adjustment  
18 limit and the elimination of a downward adjustment  
19 limit.

20 So that brings us to the current cases, which  
21 as Mr. Pendergast stated, are Spire's first filings  
22 under the WNAR tariffs which were approved in the last  
23 rate cases. The issue in these cases is basically what  
24 daily normal weather should be used or how should daily  
25 normal weather be calculated for purposes of calculating

Page

1 WNAR adjustments.

2 Staff's position on the first issue on the  
3 issue list is that according to the tariff, daily normal  
4 weather ranked on current accumulation period actual  
5 daily temperature data and compared to current  
6 accumulation period actual daily weather should be used  
7 for purposes of calculating the WNAR adjustments. The  
8 accumulation period of the current cases was part of  
9 2018. Therefore, daily normal weather ranked on 2018  
10 actual daily temperature data should be used for the  
11 WNAR adjustments. However, Spire used daily normal  
12 weather ranked on 2016 actual daily temperature data  
13 from the rate case to compare to 2018 actual daily  
14 weather.

15 Now, if you look at the tariff, which I passed  
16 out and which is up here on the screen, you will see a  
17 formula set forth in the tariff there. Right now,  
18 although this looks very complex and difficult, let me  
19 try to simplify this, what I would like you to focus on  
20 is the subscript  $i$  following NDD, ADD and C. You will  
21 see that part of the formula, in fact, the majority of  
22 the formula, is  $(NDD_{ij} - ADD_{ij})$  times  $C_{ij}$ .

23 Now, if you look at the definitions right  
24 below the formula, you will see that  $i$  equals the  
25 applicable billing cycle month and  $j$  equals the billing

Page

1 cycle. Now, in the formula, going back to the formula  
2 itself, ij does not change whether you're looking at NDD  
3 for normal degree days, ADD for actual degree days or C  
4 for the number of customer charges.

5 In other words, you use the same applicable  
6 billing cycle month and billing cycle whether you're  
7 talking about NDD, ADD or C. Stated another way, you  
8 compare apples to apples. However, Spire is using 2016  
9 data for NDD from the rate case test year and 2018 data  
10 for ADD and C. Now, you can see from the formula that  
11 Spire is not following the tariff just on its face.

12 In addition, billing cycle data -- excuse me,  
13 billing cycle dates change from year to year. So using  
14 2016 NDD and 2018 ADD results in a further mismatch. It  
15 should also be noted that Spire is taking normals  
16 calculated by staff from the 2016 rate case test year as  
17 though those normals were calendar day specific.  
18 However, staff does not produce calendar day normals.  
19 Instead, staff calculates daily normals based on the  
20 coldest to warmest day of each month. Therefore,  
21 Spire's method is not even using staff's daily normal  
22 weather.

23 And this, in fact, gets to the heart of  
24 Spire's misinterpretation and misapplication of the  
25 tariff, which you heard Mr. Pendergast speak about a  
Page

1 moment ago. Spire claims that the definition of NDDij,  
2 which is defined as the total normal heating degree days  
3 based upon staff's daily normal weather as determined in  
4 the most recent rate case, means that daily normal  
5 heating degree days for purposes of WNAR calculations  
6 were fixed and finalized in the rate case. However,  
7 Spire's interpretation does not give meaning to each  
8 word of the definition it relies upon.

9 Spire's interpretation would result in a  
10 definition more like the daily normal heating degree  
11 days used by staff in the most recent rate case.  
12 Remember, however, that staff does not produce calendar  
13 day normals in the rate case. Instead, staff calculates  
14 daily normals based on the coldest to warmest day of  
15 each month.

16 Staff's ranking method requires the normal  
17 weather to be ranked consistently with the actual  
18 weather of the period or in this case 2018. Ranking  
19 based on actual temperature is an essential element of  
20 staff's normal weather. Therefore, staff's normal  
21 weather without proper rankings of the associated actual  
22 temperature is no longer staff's normal weather.

23 Spire's interpretation of the NDDij term gives  
24 no meaning to the words based upon or as determined from  
25 the definition. If you look at the definition -- As you  
Page

1 heard Mr. Pendergast speak earlier, he was talking about  
2 the word determine. But if you look at the definition  
3 of the word as, which precedes the word determined in  
4 the NDDij definition, you will see that one of the  
5 definitions of as is in the way or manner that. Another  
6 definition is the way in which. Therefore, the  
7 definition of NDDij would be the total normal heating  
8 degree days based upon staff's daily normal weather the  
9 way in which it was determined in the rate case.

10 So why does any of this matter? If improper  
11 normal daily heating degree days is used for the WNAR  
12 adjustments, then the relationship between gas usage and  
13 heating degree days that was determined during the most  
14 recent rate case is not valid any more. The calculation  
15 of the WNAR adjustment is performed under the assumption  
16 that the relationship between gas usage and associated  
17 heating degree days that was determined in the most  
18 recent rate case is correct and is not changed during  
19 the accumulation period. There is no validity for the  
20 WNAR adjustments if that assumption does not hold  
21 because improper daily heating -- normal daily heating  
22 degree days are used.

23 Therefore, to be used in Spire's WNAR  
24 adjustments, proper normal daily heating degree days  
25 must be ranked on actual daily temperature data of the  
Page

1 accumulation period which again is 2018, not 2016. It  
2 should also be noted, as Mr. Pendergast mentioned, that  
3 after the Spire rate case is concluded Liberty Utilities  
4 Gas Corporation had a rate case and got a WNAR tariff  
5 approved with a formula identical to that of Spire's.  
6 In its first filing under its WNAR tariff, Liberty  
7 followed staff's method unlike Spire. Therefore, for  
8 purposes of consistency if nothing else, the Commission  
9 should order Spire to follow the same method.

10 Now, the second issue listed on the list of  
11 issues addresses what to do if the Commission determines  
12 that the WNAR tariff sheets are vague. You will notice,  
13 and you heard Mr. Pendergast confirm a moment ago, but  
14 you'll notice in its position statement Spire states  
15 that it does not believe there's any ambiguity.  
16 However, in his rebuttal testimony page 7, line 5,  
17 Spire's witness Mr. Weitzel refers to the tariff  
18 language as oblique. Apparently they've now changed  
19 their position. In any event, however, if the  
20 Commission determines that the WNAR tariff sheets are  
21 vague, staff submits that its interpretation of this  
22 tariff and calculation method is most consistent with  
23 the Commission's intent when it ordered adoption of the  
24 WNAR tariff as shown in the Commission's amended report  
25 and order in the most recent rate case.

Page

1           In conclusion, staff requests the Commission  
2 issue an order finding in its favor rejecting the WNAR  
3 rates filed by Spire and ordering Spire to file  
4 appropriate WNAR rates as calculated by staff. Staff  
5 further requests the Commission order Spire to use  
6 staff's ranked method for calculating WNAR rate  
7 adjustments in future WNAR filings consistent with the  
8 tariff sheets.

9           Staff will be presenting the testimony of  
10 three witnesses: Dr. Seoung Joun Won, Mr. Michael  
11 Stahlman and Ms. Robin Kliethermes. I would encourage  
12 you to ask them questions when they take the witness  
13 stand because they're far more knowledgeable about  
14 weather normalization than I am. And as Mr. Pendergast  
15 mentioned, Dr. Won has even been published on this very  
16 topic. In the meantime, I will do my best to try to  
17 answer any questions if you have some for me. Thank  
18 you.

19           JUDGE GRAHAM: Questions?

20           CHAIRMAN SILVEY: Yes. Good morning.

21           MR. KEEVIL: Good morning.

22           CHAIRMAN SILVEY: Do the other adjustments  
23 that were allowed in the last rate case that Spire  
24 referenced, and I think this was in Mr. Weitzel's direct  
25 pages 8 and 9, ROE, cost of debt, capital structure,  
Page

1 ISRS, do those include the qualifying language as  
2 determined in the last rate case?

3 MR. KEEVIL: I honestly don't know,  
4 Mr. Chairman. I would say that to the extent that  
5 you're referring, or Spire, not you, is referring to  
6 other adjustments like ISRS and PGA, in all honesty I  
7 don't see the relevance because those are completely  
8 different adjustments designed for different purposes.  
9 Some of them have authorizing statutory language. Some  
10 of them do not. Each of them depends on how they are  
11 specifically worded in the company's tariffs. And Spire  
12 hasn't provided an example of how those are defined or  
13 anything in the tariffs. I don't think that it's really  
14 a fair comparison to compare other adjustments to this  
15 WNAR.

16 CHAIRMAN SILVEY: So then is it your position  
17 that that specific language as determined in the last  
18 general rate case is only appropriate on this  
19 adjustment?

20 MR. KEEVIL: I guess what I'm saying is the  
21 use or the meaning of that language in this tariff could  
22 be completely different than those other usages assuming  
23 they're quoted correct based on the context and the  
24 purposes behind the adjustments.

25 CHAIRMAN SILVEY: Staff drafted this tariff?  
Page



1 MR. KEEVIL: Staff drafted most of the tariff.  
2 What happened was, like I said, Spire had a completely  
3 separate tariff it was proposing which was rejected.  
4 Staff drafted this tariff based partly on some other  
5 similar tariffs in other states. And then Spire came  
6 back and proposed three -- after having time to read it  
7 and evaluate it, came back and filed three proposed  
8 modifications to what staff had drafted.

9 The Commission in its report and order adopted  
10 one of Spire's three proposed modifications and rejected  
11 the other two. So I would agree staff wrote most of the  
12 tariff with the exception of that modification that was  
13 proposed by Spire.

14 CHAIRMAN SILVEY: So do you know if there were  
15 discussions with staff and the parties about that  
16 specific language and why it was included on this  
17 adjustment but no other adjustment?

18 MR. KEEVIL: Mr. Stahlman would be a great  
19 person for you to ask that. He was involved in the  
20 drafting and discussions on that. I do not personally  
21 know the answer to that, but I would encourage you to  
22 ask him that.

23 CHAIRMAN SILVEY: Okay. And I guess finally  
24 for now how would this formula look to match Spire's  
25 interpretation? How would the formula itself be

Page

1 different to match what Spire has interpreted it to be?

2 MR. KEEVIL: There's several things you'd have  
3 to change, I think. What I was focusing on there was  
4 the NDDij would no longer be NDDij.

5 CHAIRMAN SILVEY: What would it be?

6 MR. KEEVIL: It would be -- Well, you'd have  
7 to add additional definition terms there because as  
8 defined i is, I can't remember what the specific was, i  
9 is the applicable billing cycle month and j is the  
10 billing cycle. What they're using are billing cycle  
11 months and billing cycles from 2016. So you'd have to  
12 redefine some additional terms to pick up billing cycle  
13 months and billing cycles from 2016 and then put those  
14 in where NDDij is rather than --

15 CHAIRMAN SILVEY: But don't they reach that  
16 conclusion by applying the language as determined in the  
17 last general rate case? Doesn't that seem to be the  
18 language that this all hinges on?

19 MR. KEEVIL: Well, if you're looking just at  
20 the definition, that's what Spire would have you focus  
21 on. I think you can look at the formula itself and see  
22 in addition to the definition that because of what i and  
23 j represent, and i and j are consistent whether you're  
24 talking about NDD, ADD or C, but you have to use the  
25 same time period. Now, it doesn't tell you that you

Page

1 have to use 2018, but logic tells you if you're trying  
2 to calculate a current adjustment based on the actual  
3 weather you've got to be using the 2018 for the ADD and  
4 for C because you want the current customer number. So  
5 therefore if you're using 2018 for ADD and C, you have  
6 to use -- or excuse me, 2018 for NDD.

7 CHAIRMAN SILVEY: Because the i and j are  
8 consistent in the formula?

9 MR. KEEVIL: Exactly.

10 CHAIRMAN SILVEY: Thank you, Judge.

11 JUDGE GRAHAM: Thank you. Commissioner Hall?

12 COMMISSIONER HALL: I'm going to continue with  
13 that same inquiry but from a somewhat different  
14 perspective. What would you change on the NDDij  
15 definition if you wanted it to be from your perspective  
16 even more crystal clear that staff's methodology is the  
17 appropriate one?

18 MR. KEEVIL: I'm not sure frankly how you can  
19 make the formula itself. I think you'd have to drop  
20 down into the definitions below the formula and it could  
21 be done if you rewrote those definitions but it could  
22 not be done easily or in a summary fashion. You're  
23 talking about probably several pages of definitions if  
24 you were truly trying to tie this thing down as tightly  
25 as I think you're asking.

Page

1 Staff thought about that during the rate case  
2 when the thing was originally being drafted, and this  
3 was the best staff could come up with and still result  
4 in a reasonable length for a tariff or definition I  
5 should say.

6 Again, I would suggest Mr. Stahlman would be a  
7 good person to ask that since he was the one that was  
8 personally involved with it.

9 COMMISSIONER HALL: I understand that staff's  
10 position is that if the Commission were to go with  
11 Spire's position or were to deviate from staff's  
12 position the result would be a disruption of the linkage  
13 between the temperature essentially, weather and  
14 consumption, that the rate case the Commission made a  
15 determination as to that linkage and if we don't follow  
16 your approach we're going to disrupt that linkage?

17 MR. KEEVIL: That was essentially what I was  
18 saying when I was speaking about the relationship  
19 between usage and heating degree days.

20 COMMISSIONER HALL: Right. Okay. So what I  
21 want to understand is, I understand that your position  
22 is that we disrupt that linkage or we disrupt that  
23 relationship if we go with Spire's position but there's  
24 still a link, right, it's just not as strong. There's  
25 still a link between weather and consumption even under

Page

1 Spire's methodology; isn't that correct?

2 MR. KEEVIL: Would there be a link? Very  
3 remote, very remote. If you look at the tariffs, and  
4 this is one of the few places where the Spire East  
5 tariff and the Spire West tariff actually have a slight  
6 difference. When I'm talking about relationship between  
7 usage and heating degree days, staff in the rate case,  
8 in your order in the rate case reflected or mentioned  
9 that staff's regression models that were used to develop  
10 the correlation between usage and heating degree days.  
11 Part of that, and part of it is also tied to the rates  
12 of the two different companies East and West, but if you  
13 look at the tariffs in that last paragraph on the first  
14 page you notice different coefficients. So the -- and  
15 for example, the beta in the formula, the coefficient is  
16 different for Spire East and Spire West. So seven  
17 digits to the right of the decimal point there on the  
18 beta for the coefficient for Spire East and Spire West.  
19 If you don't stick with the same method, you basically  
20 throw that thing out I mean for all practical purposes I  
21 think. You disrupt that linkage based on that  
22 regression.

23 COMMISSIONER HALL: All right. Thank you.

24 JUDGE GRAHAM: Commissioner Coleman?

25 COMMISSIONER COLEMAN: No questions.

Page

1 JUDGE GRAHAM: Counsel, I've got a couple of  
2 questions.

3 MR. KEEVIL: Sure.

4 JUDGE GRAHAM: Ultimately is this case about  
5 whether the staff's methodology squares with the  
6 tariff's language?

7 MR. KEEVIL: Is it about whether the staff's  
8 methodology squares with the tariff's language? I'm not  
9 sure I understand quite because I think possibly is the  
10 answer to your question. Whether it squares with the --  
11 it is basically, I think, whether -- it's not just  
12 whether staff's method squares with it. It's whether  
13 Spire's method squares with it. Which method squares  
14 with the tariff language I guess is what I would say.

15 JUDGE GRAHAM: That's fair. Directing your  
16 attention now to the tariff and the definition of NDD,  
17 is it fair to say that the dispute between staff and  
18 Spire turns on the definition of the word as?

19 MR. KEEVIL: I think that's one of the things,  
20 yes, it turns on. It also I think can be seen -- As I  
21 mentioned to one of the commissioners, you don't even  
22 have to get into the written definitions themselves.  
23 You can just see it from the formula. But yeah.

24 JUDGE GRAHAM: I understand that's the  
25 approach that you've taken.

Page

1 MR. KEEVIL: As determined, does that mean  
2 determined in the sense that Spire would have you  
3 believe it means, because their testimony only addresses  
4 determined, not as determined.

5 JUDGE GRAHAM: Have you thought about what  
6 part of speech as is? Is it an adverb?

7 MR. KEEVIL: In this sense, it's a  
8 conjunction, I believe.

9 JUDGE GRAHAM: Does it refer to how, how, when  
10 and where, how determined, when determined?

11 MR. KEEVIL: As I said --

12 JUDGE GRAHAM: I didn't mean to stump you with  
13 those questions. We're just trying to formulate the  
14 issues up here. My understanding is that we are, we're  
15 concerned with the meaning of the tariff.

16 MR. KEEVIL: Depending on its usage, Judge, as  
17 can be adverb, a conjunction, a pronoun and a  
18 preposition.

19 JUDGE GRAHAM: Somebody thought through that  
20 one, didn't they. As determined, looking at your  
21 definition here NDD, what phrase or word does that  
22 modify?

23 MR. KEEVIL: I believe it's being used as a  
24 conjunction in the tariff, Judge, to conjoin the first  
25 phrase and the second phrase. The total normal heating

Page

1 degree days based upon staff's daily normal weather.  
2 That phrase conjoined with as determined in the most  
3 recent rate case.

4 JUDGE GRAHAM: All right. We'll sort that out  
5 in the hearing. Thank you. Any further questions from  
6 the Commissioners? All right. I think we're ready for  
7 the next opening statement from OPC.

8 MS. SHEMWELL: Thank you. Good morning. May  
9 it please the Commission. I'm Lera Shemwell. I  
10 represent the Office of the Public Counsel, and we're  
11 here today to look at what the tariff requires. It is  
12 Public Counsel's position that the tariff requires the  
13 approach used by staff and staff's resolution of the  
14 issues.

15 Staff's approach is logical. It determines  
16 how the actual weather from a particular period of time  
17 compares with normal weather for the same particular  
18 period of time. It's accurate in that it conforms to  
19 the Commission order in which the Commission said, and  
20 Mr. Keevil referred to this, GR-2017-0015 and 0016, page  
21 80 through 81 of the Commission's order says that with a  
22 volumetric rate the goal of the company is to increase  
23 revenue by selling more gas is misaligned with the goal  
24 of conservation, and this misalignment is best resolved  
25 by using staff's climatic normal and weather

Page



1 normalization because, and I'm adding this word,  
2 residential annual natural gas usage is 95 percent  
3 correlated with heating degree days. In other words,  
4 usage is almost completely correlated with temperature  
5 for residential. That's not true for industrial.

6 Weather variations cause the greatest  
7 variations in revenues for the Company because of that  
8 correlation. And the Commission also found that based  
9 on staff's normal -- weather normalization regressions,  
10 a mechanism based solely on weather could account for  
11 over 97 percent of residential usage variation within a  
12 given year. Thus, weather normalization rider would  
13 account for most of the variations due to weather.  
14 That's why the Commission accepted the weatherization  
15 rider in this case and the Commission ordered  
16 implementation as follows.

17 Because annual natural gas usage is 95 percent  
18 correlated with the annual heating degree days using  
19 staff's climatic normal and weather normalization in the  
20 form of the WNAR tariff, so they're referring to staff's  
21 weather normalization, would more accurately resolve the  
22 revenue stabilization issue because it is specifically  
23 linked to weather fluctuations. And I would add in the  
24 period being considered -- in the weather being  
25 considered in a specific period.

Page

1 Staff's recommendation uses a methodology  
2 developed as Ms. Mantle can testify by experts with PhD  
3 level education in economics. First it started with  
4 Dr. Mike Proctor that probably you don't remember. He  
5 worked here for 30 years and then he went to SPP. He  
6 taught economics as well. This was continued by  
7 Dr. Henry Warren, also a PhD in economics, and now by  
8 Dr. Seoung Joun Won who is not only a PhD in economics  
9 but also in mathematics. Dr. Warren and Dr. Won have a  
10 peer-reviewed publication that is attached to Dr. Won's  
11 testimony, and let me say it is surprisingly readable in  
12 part.

13 Spire's witness in contrast does not have the  
14 same experience, equivalent education and certainly no  
15 peer-reviewed publication. If you look at the rate case  
16 experience of staff's witnesses and OPC's witness Ms.  
17 Mantle, they have a long history of experience with rate  
18 cases. We've had I think a pretty adequate discussion  
19 of the tariff language, but it is OPC's position that  
20 the term as is a conjunctive and according to Merriam  
21 Webster as means the method used or how something was  
22 done.

23 And the method that staff used in the past  
24 case is what should be used in this case and that is  
25 comparing the same period of time the weather with the  
Page

1 normal weather for that same period. Notably, the  
2 Liberty case, their first WNAR the company accepted  
3 staff's methodology without question. It's Case No.  
4 GO-2019-0060 filed September 1, 2018 effective October  
5 1, 2018.

6 I have an exhibit that I have marked that I  
7 will have Dr. Won verify, but I'd like to hand it out.  
8 This is from Dr. Won's testimony and I think it helps  
9 understand the adjustment. The top graph, this is the  
10 rate case weather adjustment, compares the normal test  
11 year and the -- it's for the normal test year and the  
12 actual test year. The orange line is therms, the blue  
13 is actual and the purple is normalized or normal heating  
14 degree days. And you can see that they're highly  
15 correlated. The purple and blue lines are highly  
16 correlated.

17 Using staff's methodology is the middle chart.  
18 Commissioner Hall, I believe that this answers your  
19 question to some extent. This is the normal WNA period  
20 and the actual WNA period where staff has the normal  
21 heating degree days, the normalized heating degree days  
22 which is done over a 30-year period and the actual, and  
23 there is a very strong correlation.

24 The bottom graph is using the company's  
25 proposed methodology which shows a limited correlation

Page

1 between the actual and the normalized suggesting that  
2 staff's methodology is the more accurate methodology by  
3 which to calculate. Ms. Mantle has filed both direct  
4 and rebuttal in this case and will be happy to answer  
5 your questions.

6 COMMISSIONER HALL: No questions. Thank you.

7 CHAIRMAN SILVEY: Do you think that the  
8 language of the tariff is at all ambiguous?

9 MS. SHEMWELL: I don't think if you use as as  
10 the conjunctive it is not ambiguous --

11 CHAIRMAN SILVEY: Okay. Thank you.

12 MS. SHEMWELL: -- which I believe the Company  
13 agrees it is not ambiguous. But again, we had the  
14 discussion of as. I do believe it is a conjunctive. It  
15 means using the same method as or the same process as  
16 staff used in the test case, but it doesn't mean the  
17 same numbers.

18 CHAIRMAN SILVEY: Okay. Thank you.

19 JUDGE GRAHAM: Commissioner Coleman?

20 COMMISSIONER COLEMAN: No questions.

21 MS. SHEMWELL: Thank you.

22 JUDGE GRAHAM: All right. We are at a little  
23 bit more than an hour. It's early to take a break up  
24 here. How is the court reporter doing?

25 Mr. Pendergast, are you ready to proceed with  
Page

1 your first witness?

2 MR. PENDERGAST: Yes, Your Honor, whenever you  
3 are.

4 JUDGE GRAHAM: We may run past lunch with that  
5 witness, but go ahead and proceed.

6 MR. PENDERGAST: Thank you. At this time the  
7 Company would call Scott A. Weitzel to the stand.

8 JUDGE GRAHAM: Yes, Mr. Weitzel, if you want  
9 to put your hand up and be sworn.

10 (Witness sworn.)

11 JUDGE GRAHAM: Thank you. Go ahead. You may  
12 proceed, counsel.

13 MR. PENDERGAST: Thank you, Your Honor.

14 SCOTT A. WEITZEL,  
15 called as a witness, being sworn, testified as follows:

16 DIRECT EXAMINATION BY MR. PENDERGAST:

17 Q. Mr. Weitzel, would you please state your name  
18 and business address for the record?

19 A. Scott Weitzel, 700 Market Street, St. Louis.

20 Q. And are you the same Scott Weitzel who filed  
21 direct testimony in these cases consisting of 12 pages  
22 which direct testimony has been marked as Exhibit 100?

23 A. Yes.

24 Q. And are you also the same Scott Weitzel who  
25 filed rebuttal testimony in this proceeding which

Page

1 rebuttal testimony has been marked as Exhibit 101?

2 A. Yes.

3 Q. Do you have any corrections to make to either  
4 your direct or rebuttal testimony?

5 A. Not at this time.

6 Q. Okay. If I were to ask you the same questions  
7 today that appear in your prefiled testimony Exhibits  
8 100 and 101, would your answers be the same?

9 A. Yes.

10 Q. Are those answers true and correct, to the  
11 best of your knowledge and belief?

12 A. To the best of my knowledge.

13 MR. PENDERGAST: At this time, Your Honor, I  
14 would ask for admission of Exhibits 100 and 101 and  
15 tender Mr. Weitzel for cross-examination.

16 JUDGE GRAHAM: So Exhibits 100 and 101 are  
17 being tendered?

18 MR. PENDERGAST: 100 and 101.

19 JUDGE GRAHAM: Any objections from anyone?  
20 They are admitted.

21 (COMPANY'S EXHIBITS 100 AND 101 WERE RECEIVED  
22 INTO EVIDENCE AND MADE A PART OF THIS RECORD.)

23 JUDGE GRAHAM: And we'll pass the witness I  
24 guess to OPC.

25 MS. SHEMWELL: Thank you.  
Page

1 CROSS-EXAMINATION BY MS. SHEMWELL:

2 Q. Good morning, Mr. Weitzel.

3 A. Good morning.

4 Q. How are you?

5 A. Doing fine.

6 Q. Mr. Weitzel, I mean no disrespect, but you  
7 don't have a PhD in economics?

8 A. I do not have a PhD.

9 Q. And your answer then is period?

10 A. Period.

11 Q. Is weather normalization a data-based process?

12 A. A data-based process in what respect? So  
13 where the data is pulled from, how it's computed?

14 Q. Let's start with how it's computed.

15 A. Okay. It's pulled from the NOAA and, you  
16 know, that's --

17 Q. You're referring to the National Oceanic and  
18 Atmospheric --

19 A. -- Administration.

20 Q. But weather normalization is calculated  
21 specifically for Spire East and Spire West because  
22 they're in different parts of the state. So you will  
23 have different weather in either part of the state?

24 A. That is correct.

25 Q. Accuracy is important in the calculation of  
Page

1 weather normalization adjustments because it results in  
2 -- its results help form the revenue requirement of the  
3 company?

4 A. Can you repeat that question?

5 Q. Calculation of weather normalization  
6 adjustments is important because it's used in the rate  
7 case ultimately to calculate the revenue requirement of  
8 the company?

9 A. Okay. I was confused on when you said weather  
10 normalization adjustment the rider versus the  
11 normalization done in the rate case.

12 Q. I apologize.

13 JUDGE GRAHAM: Could I interrupt for a moment.  
14 Is your microphone on?

15 MS. SHEMWELL: Mine is on.

16 JUDGE GRAHAM: The witness's? We have a  
17 problem overall with our sound system today. I'm  
18 getting a couple signals. I think a lot of people who  
19 are outside of the room here will be happier now.

20 Thanks.

21 THE WITNESS: So yes, normalization is done as  
22 part of the rate case to determine revenue requirements.

23 BY MS. SHEMWELL:

24 Q. And also billing determinants?

25 A. Correct.

Page



1 Q. Which eventually results in the rates set, the  
2 customer rates that is set?

3 A. That is correct.

4 Q. You agree that accuracy is also important in  
5 the calculation of the WNA adjustment which calculation  
6 is shown on the screen?

7 A. How do you mean accuracy as a part of the  
8 calculation? If the formula is being followed?

9 Q. Yes.

10 A. Yes, the formula should be followed in the  
11 tariff.

12 Q. Will you turn to page 3, line 4 of your  
13 rebuttal, please. Are you there, sir?

14 A. Yes.

15 Q. And you state that Spire wants to ensure that  
16 the WNAR operates in an appropriate manner for both the  
17 company and its customers. By "appropriate manner," do  
18 you mean that it's fair for both?

19 A. I mean that the tariff needs to be followed to  
20 what the tariff means and if the tariff is being  
21 followed that both customer and company will be fair and  
22 whether there's a credit to the customer or a charge for  
23 this rider.

24 Q. In this case we have one adjustment going up  
25 and west going down?

Page

1 A. Yes.

2 MS. SHEMWELL: I think that's all I have.

3 Thank you, sir.

4 JUDGE GRAHAM: Cross from staff?

5 MR. KEEVIL: Very briefly, Judge.

6 CROSS-EXAMINATION BY MR. KEEVIL:

7 Q. Mr. Weitzel, on page 4, bottom of page 4, of  
8 your rebuttal testimony you have a definition there of  
9 the word determined taken from the, according to your  
10 testimony, taken from the Merriam Webster Dictionary; is  
11 that correct, sir?

12 A. Yes.

13 JUDGE GRAHAM: Is this a new exhibit?

14 MR. KEEVIL: Yeah.

15 JUDGE GRAHAM: I think your next exhibit  
16 number is going to be be 206 --

17 MS. KLIETHERMES: 207.

18 MR. KEEVIL: 207.

19 JUDGE GRAHAM: This is going to be 207?

20 MR. KEEVIL: Yes.

21 BY MR. KEEVIL:

22 Q. Mr. Weitzel, I've handed you what's been  
23 marked as Exhibit 207. Can you identify that document,  
24 sir?

25 A. Yes. It looks like a printout of definitions  
Page

1 for as.

2 Q. Printout from the Merriam Webster Dictionary?

3 A. It seems to be so, correct.

4 MR. KEEVIL: Judge, I'd offer Exhibit 207.

5 JUDGE GRAHAM: Any objections? Hearing none,  
6 207 is admitted. What are we going to name that for the  
7 record?

8 MR. KEEVIL: Definition of as.

9 JUDGE GRAHAM: Fair enough. Thanks.

10 (STAFF'S EXHIBIT 207 WAS RECEIVED INTO  
11 EVIDENCE AND MADE A PART OF THIS RECORD.)

12 BY MR. KEEVIL:

13 Q. Mr. Weitzel, if I could have you turn to the  
14 second page under where it says Definition of as (Entry  
15 2 of 9) under the word conjunction. Could you read me  
16 the definitions 3 and 4?

17 A. In the way or manner that Do as I do. In  
18 accordance with what or the way in which quite good as  
19 boys go.

20 Q. So would you agree that based on this  
21 dictionary that in the way or manner that and the way in  
22 which are each accepted definitions of the word as?

23 A. Yeah, whatever is on this sheet.

24 Q. Okay. Mr. Weitzel, do you agree that Spire is  
25 using 2016 test year data from the rate case in its

Page

1 calculation of normal for purposes of the WNAR  
2 adjustment?

3 A. I believe predominantly it is. I know the  
4 leap year has come into consideration or talked about.  
5 Again, the Company is not worried about one day in the  
6 data set of the rate case information. I mean, as in we  
7 would be willing to or use staff's excluding a leap  
8 year. I know that was an issue. But for all intents  
9 and purposes, we're using normal out of staff work  
10 papers that were in the rate case.

11 Q. You're using normal as understood by Spire  
12 under staff's work papers, correct?

13 A. Can you repeat the question?

14 Q. You said you're using normal out of staff's  
15 work papers, and I think staff would probably disagree  
16 that you're using normal out of staff's work papers but  
17 you're using Spire's understanding of normal out of  
18 staff's work papers from the rate case, correct?

19 A. Correct.

20 MR. KEEVIL: Okay. Judge, I'd like to mark  
21 this Exhibit 208.

22 JUDGE GRAHAM: All right. What do you want to  
23 name it?

24 MR. KEEVIL: Transcript -- rate case  
25 transcript.

Page

1 JUDGE GRAHAM: Is it somebody's particular?

2 MR. KEEVIL: Yes, it's the testimony of

3 Mr. Stahlman from the Spire rate case.

4 JUDGE GRAHAM: Thank you. Proceed.

5 MR. KEEVIL: Judge, since it is a rate case

6 transcript, I would ask you just receive it into the

7 record as evidence based on official notice.

8 JUDGE GRAHAM: Now, in your request to have

9 this admitted, is your request limited to this exhibit?

10 You're not asking us at this point, I think we're

11 probably not going to have to take official notice of

12 the entire case that you referred to, but your request

13 now is to take official notice of this Exhibit 208?

14 MR. KEEVIL: True.

15 JUDGE GRAHAM: Any objections?

16 MR. PENDERGAST: No objection.

17 JUDGE GRAHAM: Exhibit No. 208 is received per

18 official notice rules.

19 (STAFF'S EXHIBIT 208 WAS RECEIVED INTO

20 EVIDENCE AND MADE A PART OF THIS RECORD.)

21 BY MR. KEEVIL:

22 Q. Mr. Weitzel, do you have a copy of Exhibit

23 208?

24 A. Yes, sir.

25 Q. Would you agree with me that Exhibit 208

Page

1 consists of the transcript of the testimony of  
2 Mr. Michael Stahlman of staff in Spire's last rate  
3 cases?

4 A. Yes.

5 Q. If I could have you turn to page 2433. At the  
6 bottom -- toward the bottom there of page 2433 beginning  
7 on line 23 there's a question that asks -- or the  
8 question is "And could you explain how it would work --  
9 let me back up, actually line 20. Would you agree --  
10 Before I ask that, Mr. Weitzel, would you agree that  
11 this portion of Mr. Stahlman's testimony in the rate  
12 case is in regard to the WNAR tariff? If you look at  
13 lines 14 through 19 at page 2433, I think you can see  
14 that.

15 A. It primarily adjusts the RSM that's been  
16 talked about but morphed into the WNAR conversation.

17 Q. Yeah. And if you look at page 2433 of Exhibit  
18 208 beginning on line 9, there's Mr. Thompson, who was  
19 the attorney for staff, says to Mr. Stahlman "I'm  
20 showing a document that's been marked as Staff Exhibit  
21 281." Do you see that, sir?

22 A. Is 281 the WNAR tariff?

23 Q. Yes. Okay. So this testimony of Mr. Stahlman  
24 here is in regard to the WNAR tariff. Are we in  
25 agreement on that?

Page

1 A. Sure.

2 Q. Okay. Now, if you go down there to line 23,  
3 the question is "And could you explain how it would  
4 work," it being the WNAR tariff, "or is that something  
5 that's not possible here?" Could you read  
6 Mr. Stahlman's answer there beginning on line 25?

7 A. "I can try to give a brief rundown.  
8 Essentially, what we would use is -- this would be very  
9 similar to the weather normalization adjustment we make  
10 in a rate case. So, we use -- we've done this  
11 calculation already. We used staff's weather method.  
12 And the concept is, you would take the -- using Staff  
13 weather method, you would compute the normal heating  
14 degree days and subtract the actual heating degree days  
15 of the applicable weather station."

16 Q. Okay. You see that word Mr. Stahlman says you  
17 would compute the normal heating degree days and  
18 subtract the actual heating degree days. Focusing on  
19 the word compute, you would compute, does that mean to  
20 you that a computation has already been made or that a  
21 computation needs to be made in the future?

22 A. Well, since this was a specimen tariff and not  
23 an actual tariff or rider --

24 Q. We're talking about Exhibit 281 which became  
25 the WNAR tariff.

Page

1           A.    But this is a hypothetical tariff discussion  
2 on how it would be approached.  So how you compute,  
3 computed your -- will you repeat your question, see if I  
4 can answer it?  Sorry.

5           Q.    Okay.  Now, in reference to the Exhibit 281,  
6 Mr. Stahlman said you would compute the normal heating  
7 degree days and subtract the total -- excuse me,  
8 subtract the actual heating degree days.  Does the word  
9 compute as used there indicate that the computation has  
10 already been done or that a computation will need to be  
11 made?

12          A.    I think we'd have to bring out the old Webster  
13 Dictionary again like we've done in so many cases  
14 unfortunately.  Compute, calculate, whether it's pre or  
15 post, I'd have to actually look at that word definition.

16          Q.    So the would doesn't -- that doesn't mean  
17 anything to you?  You would compute?

18          A.    Yes, you would do something.

19          Q.    You think that could be something that's  
20 already occurred?

21          A.    I think --

22          Q.    Yes or no.  You think that refers to something  
23 that has already occurred?

24          A.    Once an actual live tariff goes in place --  
25 it's all in context.

Page



1 Q. It's a yes or no question, Mr. Weitzel. The  
2 phrase you would compute, does that refer to something  
3 that has already occurred or something that is yet to  
4 occur?

5 A. You would compute. If you're doing this, you  
6 would compute it.

7 Q. In the future? I haven't already computed it.  
8 If I would compute, I haven't already computed it, have  
9 I?

10 MR. PENDERGAST: I'm going to object, asked  
11 and answered.

12 MR. KEEVIL: He hasn't answered. That's the  
13 point. It's a yes or no question. He refuses to give a  
14 yes or no answer.

15 THE WITNESS: Give me one second.

16 JUDGE GRAHAM: Just a minute. I'm going to  
17 overrule the objection at this point, but you're getting  
18 to the end of that line.

19 THE WITNESS: And your question is would  
20 compute in the future, in the past?

21 BY MR. KEEVIL:

22 Q. Does that refer to something to occur in the  
23 future or to something that has already occurred, the  
24 computation, if the answer was future.

25 A. You see, I wish you would take the dot, dot,  
Page

1 dot, but I mean, whether it's computing, it's  
2 calculating.

3 Q. You don't know?

4 A. Once the determinants were known, you would  
5 compute.

6 Q. Okay. I'm going to go on. Speaking of  
7 determinants, page 9 of your rebuttal testimony  
8 beginning on line 2, about in the middle of line 2, you  
9 begin a sentence that says or should the Commission  
10 leave the HDDs, billing determinants and revenues in  
11 place as established by Commission order in those  
12 proceedings, and I believe those proceedings are the  
13 recent rate case; is that correct, sir?

14 A. That's correct.

15 Q. Okay. Did I quote your testimony correctly?

16 A. Sure.

17 Q. Okay. Now, would you agree that one of the  
18 most common billing determinants are customer numbers?

19 A. Yes.

20 Q. And would you also agree that for purposes of  
21 the WNAR tariff you do not use the customer numbers  
22 established in the rate case?

23 A. That is correct.

24 Q. So your statement there that you're using  
25 billing determinants established in the rate cases,

Page

1 you're not -- that's not true for customer numbers,  
2 correct?

3 A. Well, this is more of a general statement and  
4 not specific.

5 Q. Is that true are you using customer numbers  
6 established in the rate case for purposes of calculating  
7 the WNAR adjustment?

8 MR. PENDERGAST: Your Honor --

9 THE WITNESS: No, because the tariff --

10 MR. PENDERGAST: -- could the witness be  
11 afforded the opportunity to give a complete answer? He  
12 tends to get interrupted by Mr. Keevil.

13 JUDGE GRAHAM: Counsel, if you'd repeat the  
14 last question and give the witness an opportunity to  
15 answer.

16 MR. KEEVIL: I'll be happy to if he answered  
17 the question.

18 BY MR. KEEVIL:

19 Q. For purposes of calculating the WNAR  
20 adjustments, you do not use the customer numbers  
21 established in the most recent rate case, correct?

22 A. That is correct.

23 Q. Okay. Contrary to the statement in your  
24 rebuttal testimony that the Commission should leave the  
25 billing determinants established in the rate cases

Page

1 sacrosanct?

2 A. Those are more general comments on rate case  
3 billing determinants than specific to the many items and  
4 measures in the WNAR.

5 Q. So is there any way as we read through your  
6 testimony to differentiate between when you're being  
7 general and when you're being specific?

8 A. Yeah, I think if I'm specific to the tariff  
9 language in addressing the WNAR tariff that that's being  
10 very specific to the tariff.

11 Q. But that's what you're saying here, isn't it,  
12 that the tariff language leaves the billing determinants  
13 established in the rate case as they were established in  
14 the rate case? Isn't that the point of that statement  
15 on the top of page 9, in your opinion that's what the  
16 billing determinants do?

17 A. Yeah, generally billing determinants are set  
18 in the rate case.

19 Q. Where is the word generally in there?

20 A. When I say or should the Commission --

21 Q. Where is the word generally?

22 JUDGE GRAHAM: Counsel, let him answer the  
23 question.

24 MR. KEEVIL: He wasn't going to answer the  
25 question.

Page

1 JUDGE GRAHAM: I think he was starting to  
2 answer the question when you stepped on his answer. Let  
3 him answer.

4 THE WITNESS: Or should -- what lines were you  
5 wanting clarification on?

6 BY MR. KEEVIL:

7 Q. The sentence where you're talking about --

8 A. Or should the Commission leave the HDDs,  
9 billing determinants and revenues in place.

10 Q. And then continuing on with your answer, leave  
11 test year determinants at the levels they approved in  
12 the rate case?

13 A. It doesn't specify the WNAR tariff language.

14 Q. But I mean, you're not leaving the test year  
15 determinants at the levels they approved in the rate  
16 case anyway, right, because --

17 A. For this measure? For this tariff rider, is  
18 that your question?

19 Q. For purposes of the customer numbers, you were  
20 updating the customer numbers from the rate case,  
21 correct?

22 A. The WNAR tariff updates the customer numbers  
23 and the billing cycles.

24 Q. Okay. And so you're saying that's okay but  
25 it's not okay to update the normal degree days?

Page



1 some questions?

2 CHAIRMAN SILVEY: I do. Just a couple.

3 QUESTIONS BY CHAIRMAN SILVEY:

4 Q. Good morning.

5 A. Good morning.

6 Q. Is staff's method for calculating the WNAR a  
7 possible interpretation under the tariff sheet?

8 A. I don't believe so under the tariff sheet.

9 Q. Why not?

10 A. Because it goes back to obviously why we're  
11 here and need Commission guidance is we took it  
12 literally as determined. We're talking about ranking.  
13 We're getting pretty technical here. At the end of the  
14 day, we're both using the same normal heating degree  
15 days. We're just moving those days around. So we're  
16 just using the normal that was set in the rate case as  
17 determined in the rate case.

18 Q. And then what problems or disadvantages would  
19 there be from using the daily normal weather  
20 calculations from the last rate case for the WNAR  
21 adjustment instead of staff's reassignment of the daily  
22 normal calculations?

23 A. I don't believe there's much difference at  
24 all. Again, we're using the same annual heating degree  
25 days. This is a new measure, a new tariff, and we're

Page

1 just taking the tariff for what it says, and again  
2 there's been that difference with staff. But when we're  
3 looking at ranking and when you're moving things around,  
4 it could pick up different rates. And that's just, you  
5 know, with this being new, we just want some more  
6 comfort around the ranking in keeping -- that's why  
7 we're keeping the normal set in the rate case.

8 Q. Going back to my first question, your position  
9 that staff's methodology is not a possible  
10 interpretation is because you do not believe this to be  
11 ambiguous in the tariff?

12 A. Correct. I'm not here to argue the ranking  
13 methodology. I'm just here to state how this company  
14 interprets the tariff.

15 CHAIRMAN SILVEY: Thank you, Judge.

16 JUDGE GRAHAM: Commissioner Hall?

17 QUESTIONS BY COMMISSIONER HALL:

18 Q. Yes. Good morning.

19 A. Good morning.

20 Q. Could you turn to -- Do you have the direct  
21 testimony of Mr. Stahlman?

22 A. I do.

23 Q. Could you turn to page 1. And Mr. Stahlman  
24 explains staff's view of the difference of the positions  
25 between Spire and staff and I want to make sure -- I

Page



1 want to see if you agree with this characterization.

2 It's starting on line 18.

3 A. Okay.

4 Q. Going through line 21.

5 A. Okay. Again, I'd say the first part is  
6 correct, 2016 actual weather as determined in the rate  
7 case.

8 Q. Let's split it up then.

9 A. Okay.

10 Q. So Spire ranks the normal weather to 2016  
11 actual weather. Do you agree that that is what you are  
12 doing, that that's what the company is doing?

13 A. How it was done in the rate case, yes.

14 Q. Okay. And is it your understanding that staff  
15 is viewing the tariff as requiring that normal weather  
16 to be ranked to the actual weather of the accumulation  
17 period?

18 A. Yes.

19 Q. Okay. What is the accumulation period in this  
20 case?

21 A. The current 2018 year -- or excuse me,  
22 calendar, which was April to August 2018.

23 MR. KEEVIL: It's in Mr. -- that portion of  
24 Mr. Stahlman's testimony you were just looking at.

25 BY COMMISSIONER HALL:

Page

1 Q. So do you agree that it is April through July  
2 of 2018?

3 A. Correct.

4 Q. Okay. I believe in your direct testimony you  
5 indicated that it is unclear what the impact on the  
6 company's revenues would be if the Commission were to  
7 agree with staff and order that its methodology be  
8 utilized; is that correct?

9 A. Yes.

10 Q. So you've not done a calculation as to the  
11 monetary difference?

12 A. We have. Again, it fluctuates month to month.  
13 In my surrebuttal, we looked at our fiscal year because  
14 it started having some heating degree days and some load  
15 and, you know, we did see a difference between the two  
16 measures. You know, to be fair, that did flip. We  
17 looked at December and it flipped the other way. So if  
18 we went with staff's way, we'd be picking up \$800,000,  
19 the Company, as of November and December. But you know,  
20 here come December it goes the other way where it's a  
21 credit, a 400,000 or so credit to the company -- to the  
22 customer, excuse me. So that's, you know, we're using  
23 the same normal heating degree days on an annual  
24 perspective and that just, you know, some of our concern  
25 is that we're seeing these swings inter month, or month

Page

1 to month, and with this just being a new measure, you  
2 know, we just want some clarity on which approach to  
3 take.

4 Q. Which approach would be more volatile?

5 A. That's hard to say, because again we saw an  
6 800,000 difference between both the company and staff's.

7 Q. So you don't know which one would be more  
8 volatile?

9 A. I don't without some more data sets.

10 Q. If you just looked at what the dispute is,  
11 could you speculate as to which would have -- which  
12 would result in more volatility?

13 A. I really couldn't and I've been asked this  
14 question before, because it all depends on staff's  
15 approach how actual weather comes in.

16 Q. Explain that.

17 A. So if -- And staff talks about it in its  
18 surrebuttal with billing cycles. So if all of a sudden  
19 a heating degree day gets ranked, updated ranked and  
20 moved to the front of the month, you know, weather we  
21 don't have any control over, can't predict on. So if it  
22 gets moved to the front of the month, then all of a  
23 sudden all these billing cycles start picking up this  
24 heating degree day that was moved within the month and  
25 then that could impact December. So it all has to do

Page

1 with how weather settles out and where that is moved  
2 within the month and whether it's a summer rate or  
3 winter rate that that billing cycle is picking up. So  
4 it all depends on actual weather using staff's approach.

5 Q. If in the actual year there is the exact same  
6 number of heating degree days as the normal, as  
7 normalized weather from '87 to 2016, will the -- under  
8 both staff and the Company's perspective, it should net  
9 out to zero, right?

10 A. You would think. But again it depends where  
11 those days are moved or updated within that month. It  
12 should be very close.

13 Q. Okay. In your counsel's opening he indicated  
14 that the Company might be open to this -- to the  
15 approach that staff is suggesting in future cases after  
16 you've had more time, and I'm paraphrasing, if I'm not  
17 paraphrasing correct, let me know, after it's had some  
18 time to digest this approach and run some numbers. Is  
19 that essentially true?

20 A. Yes.

21 Q. So why couldn't that have been done prior to  
22 today? What are you waiting for?

23 A. That some sort of it would be, you know, we've  
24 had many conversations with staff on this throughout the  
25 months, better understanding of the ranking methodology

Page

1 and outputs. Again, it's when we start seeing big  
2 dollar swings month to month using different approaches.  
3 We'd just maybe even like to have a year of this rider  
4 under all of our belts to kind of understand the impacts  
5 and implications.

6 Q. But couldn't -- You've got all the data you  
7 need from prior years. Couldn't you run the numbers on  
8 prior years with the two approaches and see what the  
9 differences are?

10 A. Yes.

11 Q. But you've not done that?

12 A. We've done that to some extent.

13 Q. Are any of those calculations the subject of  
14 any document request in this case?

15 A. Staff has requested work papers from the  
16 company. We've been again kind of ongoing transparent  
17 with sending worksheets back and forth to each other  
18 through this process.

19 Q. So to the extent that you've done those  
20 calculations, they have been made available to staff and  
21 OPC?

22 A. I don't believe OPC and maybe not on a -- as  
23 discovery in this case, but we could provide that.

24 COMMISSIONER HALL: Thank you.

25 JUDGE GRAHAM: I've got a couple of questions.  
Page

1 Commissioner Coleman, do you have any questions?

2 COMMISSIONER COLEMAN: No questions.

3 QUESTIONS BY JUDGE GRAHAM:

4 Q. Following up on some things Commissioner Hall  
5 asked you. My understanding this case is about the NDD  
6 and how to calculate it; is that right?

7 A. Correct.

8 Q. Am I to also understand though that the NDD  
9 was calculated in the last rate case; that it's an  
10 actual number; is that correct?

11 A. Yes.

12 Q. If you turn around and look at your formula  
13 from the tariff or look at your own tariff, if you've  
14 got the document in front of you, and it's behind you up  
15 there, the formula for the calculation of WNA, and I  
16 don't remember what that thing is, is that called an  
17 epsilon, equals, I'm just going to say it's an epsilon,  
18 product of that (NDDij.) Do you see where I'm reading?

19 A. Yes.

20 Q. Now, in that formula, isn't it true that NDDij  
21 is a variable; isn't that true?

22 A. True.

23 Q. Well, if it's a variable in that formula,  
24 doesn't the tariff contemplate that it will be  
25 calculated after the rate case is completed? Why is it

Page

1 a variable?

2 A. Because you have i and j in there which have  
3 changing elements.

4 Q. So they have the changing elements. You could  
5 still for the NDD have a number up there, couldn't you?  
6 It's not a variable any more according to the company's  
7 theory of the case; isn't that correct?

8 A. I wish I had that PhD in math. Sure, Judge.

9 JUDGE GRAHAM: No further questions for me.  
10 Is there recross from OPC?

11 RE CROSS-EXAMINATION BY MS. SHEMWELL:

12 Q. OPC would like to take Mr. Weitzel up on his  
13 offer to provide work papers for prior years. My  
14 question is, was the Company dissatisfied with the  
15 results of those work papers using those results going  
16 forward?

17 A. I wouldn't say dissatisfied. Again, it was  
18 more understanding this rider.

19 Q. What word would you use if not dissatisfied?

20 A. On past, on a hypothetical past?

21 Q. You've said you've calculated on the past. So  
22 it's not hypothetical, right? You've actually done the  
23 calculation?

24 A. Yes, to some extent. Again, it wasn't a filed  
25 rider. Staff and both the Company looked at some past

Page

1 information. And again, it's when you have, when you're  
2 using your total normal heating degree days in a year  
3 and you're seeing variations in month to month on the  
4 total output of the equation, that's why we're -- we  
5 looked at both measures.

6 Q. What is both measures?

7 A. Using 2016 rate case normal heating degree  
8 days and an updated ranking methodology.

9 Q. And did the Company receive more revenue using  
10 the 2016 methodology?

11 A. I honestly have run so many models with staff  
12 I do not know. I know there's variations.

13 Q. So you've run them but you don't have the  
14 conclusion?

15 A. I could find that out for you shortly.

16 MS. SHEMWELL: That's all I have. Thank you.

17 JUDGE GRAHAM: Any recross from staff?

18 MR. KEEVIL: Very briefly.

19 RECROSS-EXAMINATION BY MR. KEEVIL:

20 Q. Let me stay on that topic right there,  
21 Mr. Weitzel, on the work papers and running different  
22 scenarios, whatever. Is it true that each time you and  
23 staff's witnesses would calculate the difference between  
24 the two methods that you came up with a larger  
25 difference than staff's calculation, difference between  
Page



1 methods?

2 A. Originally until staff pointed some data out  
3 to me that was in error.

4 Q. That was going to be my next question.  
5 Originally you were doing, no offense, you didn't  
6 understand staff's method or how to implement staff's  
7 method; is that correct?

8 A. We understood it; but again as the first time  
9 doing it, so we wanted to make sure we're on the same  
10 page.

11 Q. You didn't do it correctly several times,  
12 because there was a huge difference between the results,  
13 correct?

14 A. We did not have some updated ranking data and  
15 had old data in there.

16 Q. You had the data. You didn't have it in the  
17 worksheet?

18 A. We didn't have updated ranking information.

19 Q. Updated ranking. Okay. Commissioner Hall was  
20 asking you some questions about, I believe the question  
21 was which approach would be more volatile. You  
22 mentioned something about the swings month to month that  
23 you thought you had seen looking at staff's method. Do  
24 you remember that?

25 A. Staff and the Company's method, yes.  
Page

1 Q. Staff and the Company. If you look at the  
2 chart on page 3 of your rebuttal testimony, I just want  
3 to look at the dollar differences there. As I  
4 understand the chart, the first line where it says rate  
5 case normal, that's your calculation of what the  
6 adjustment would be under the Company's method and the  
7 second line is your calculation of what the adjustment  
8 would be under staff's method for each of those months  
9 shown; is that correct?

10 A. Yes.

11 Q. Okay. So in the first month there of October  
12 that you show, you've got an adjustment of \$491,000  
13 under the Company's method and adjustment of just over  
14 180,000 for staff's method; is that correct?

15 A. Yes.

16 Q. And then for November you've got a negative  
17 adjustment of 5.857 million under Company's method and a  
18 negative 4.679 under staff's method, correct?

19 A. Correct.

20 Q. Okay. So is it correct that under -- on both  
21 these months your -- using your method results in larger  
22 numbers month to month than using staff's method?

23 A. Yes.

24 Q. Okay. And would that indicate to you that  
25 staff's method would result in less volatility than your

Page

1 method?

2 A. Not knowing the percent change from month to  
3 month.

4 Q. Yours is always bigger, though, right?

5 A. Yes.

6 Q. That means staff's is always smaller. Staff's  
7 method would result in less volatility regardless of the  
8 percent?

9 A. It results in less of a dollar figure.

10 Q. Less of a dollar figure?

11 A. Yes.

12 Q. Okay. And do you think that's what the  
13 customers are concerned about is the dollar figure?

14 A. A less impact in total dollars. You're  
15 talking about bigger numbers and that's all it's  
16 clarifying, not what the customer is worried about.

17 MR. KEEVIL: Thank you, Judge. That's all.

18 JUDGE GRAHAM: Thanks. Mr. Pendergast, can I  
19 assume you've got a lot of questions?

20 MR. PENDERGAST: I have a few, yes, Your  
21 Honor.

22 JUDGE GRAHAM: We're right crowding noon. I'd  
23 like to take care of the court reporter. How long do  
24 you anticipate? Shall we take a break?

25 MR. PENDERGAST: I would say maybe 15 minutes  
Page

1 or so.

2 JUDGE GRAHAM: I don't want to hold you to  
3 that; but if we're going to do 15 minutes, let's do it  
4 and then take our break. Proceed, Mr. Pendergast.

5 MR. PENDERGAST: Thank you, Your Honor.

6 REDIRECT EXAMINATION BY MR. PENDERGAST:

7 Q. Mr. Weitzel, you were asked a number of  
8 questions by Mr. Keevil about the meaning of the word  
9 as. Do you recall those?

10 A. Yes.

11 Q. Could I please refer you to page 9 of your  
12 direct testimony. Do you have that?

13 A. Yes.

14 Q. Okay. And in that testimony you cite several  
15 provisions from the state's ISRS law; is that correct?

16 A. Yes.

17 Q. Okay. And the provisions you've cited, do  
18 they generally talk about what elements from a rate case  
19 will be used to determine revenue requirements in an  
20 ISRS proceeding?

21 A. Yes.

22 Q. Okay. Just starting with subsection 2 there,  
23 what does it say that you'll do to reflect the  
24 regulatory capital structure?

25 A. The gas corporation actual regulatory capital  
Page

1 structure as determined during the most recent general  
2 rate proceeding of the gas corporation.

3 Q. Now, you've been processing ISRS cases for  
4 awhile, have you not?

5 A. Yes.

6 Q. Okay. Have you ever seen that implemented in  
7 a way that says we need to go ahead and use a regulatory  
8 capital structure that is determined anew based on what  
9 methodology was used in the rate case?

10 A. No.

11 Q. Okay. Is it you just look at what the actual  
12 capital structure was approved by the Commission and use  
13 it?

14 A. Correct.

15 Q. Okay. The second one talks about cost of  
16 debt, preferred stock, so forth and so on. Would your  
17 answer generally be the same that you just used the  
18 output that was established by the Commission in the  
19 rate case?

20 A. Yes.

21 Q. Okay. And same thing with common equity as  
22 determined during the recent general rate case, you just  
23 use whatever common equity was determined by the  
24 Commission; is that correct?

25 A. Correct.

Page

1 Q. And to your knowledge, has there ever been any  
2 issue associated with what this language means when it  
3 comes to calculating ISRS revenue requirements?

4 A. No.

5 Q. You were asked a number of questions I believe  
6 by Mr. Keevil about billing cycles and customers, and do  
7 you recall those questions?

8 A. Yes.

9 Q. Okay. If you look at the tariff, does it have  
10 anything in there under billing cycle that would suggest  
11 as determined in the rate case?

12 A. No.

13 Q. Okay. And if you look at the other element  
14 that customers that Mr. Keevil questioned you about, is  
15 there anything that says the customer shall be as  
16 determined in the rate case?

17 A. No.

18 Q. Does that make that different than the total  
19 normal heating degree days that is in NDD?

20 A. I believe so, since they're not specified as  
21 determined.

22 Q. Okay. And that one is?

23 A. Yes.

24 Q. You were asked a number of questions about the  
25 transcript of Mr. Stahlman's introduction of his

Page

1 specimen tariff sheet during the evidentiary hearing.

2 Do you recall that?

3 A. I do.

4 Q. Were you in the room when this happened?

5 A. I don't recall.

6 Q. Okay. And is it your testimony that what he  
7 was talking about was a hypothetical tariff sheet that  
8 had not been approved by the Commission?

9 A. That's the point I was trying to make.

10 Q. Assuming after two weeks of hearings that you  
11 were focusing like a laser on this one paragraph, would  
12 you have gone ahead and read this, refer to if a  
13 hypothetical was approved by the Commission you would do  
14 it this way or did you now that you look at it say oh,  
15 this must mean we've got to use the ranking method in  
16 the future?

17 MR. KEEVIL: Objection, calls for speculation.

18 MR. KEEVIL: Well, I'm asking him his opinion.

19 JUDGE GRAHAM: I'm going to sustain that one.

20 BY MR. PENDERGAST:

21 Q. Let me ask you this. Is this language that  
22 was briefly given on the last day of the evidentiary  
23 hearing, if you read it or as you're reading it now,  
24 does it suggest to you that the ranking method was  
25 supposed to be used in calculating WNAR adjustments?

Page

1           A.    The conversation in the transcript was on  
2 exhibit and not the approved tariff that we're currently  
3 talking about today.

4           Q.    When did you learn or become aware that staff  
5 thought its ranking method needed to be reapplied each  
6 time there was a WNAR adjustment?

7           A.    A week or two before the filing we submitted  
8 our work papers to staff just because since this was the  
9 first filing of this kind to kick those conversations  
10 off. Don't have exact time but a week or two out. They  
11 informed us that we were not following the tariff and  
12 had a call about it. But you know, we understood that  
13 ranking was used in the rate case and we were using  
14 those numbers and then that's when they were discussing  
15 and talked to us about a reapplication or ongoing  
16 ranking.

17          Q.    Just to be clear, you don't take issue with  
18 the fact that the ranking method was used by staff in  
19 computing its normal in the rate case and that the  
20 outputs of that exercise is something that we need to  
21 incorporate in our WNAR adjustments? Do you take any  
22 issue with that?

23          A.    No, not as determined inside the rate case.

24          Q.    You were asked some questions about your  
25 educational background. Do you recall those?

Page



1 A. Yes.

2 Q. You did take a few English courses and that  
3 sort of thing?

4 A. Right, I graduated.

5 Q. And I guess my question would be, when it  
6 comes to your familiarity with tariff construction and  
7 tariff words, have you had much experience in that?

8 A. Yes, this recent rate case we have basically  
9 all new tariffs and had to work with staff on three to  
10 400 pages of tariffs and language after the amended  
11 report and order.

12 MR. KEEVIL: Okay. Thank you. I think that's  
13 all the questions I have, Your Honor.

14 JUDGE GRAHAM: Thank you. Any further  
15 questions from the Commissioners? Why don't we take a  
16 lunch break. Can we release this witness?

17 MS. SHEMWELL: Yes.

18 JUDGE GRAHAM: That's a question for all  
19 counsel.

20 MR. KEEVIL: Yes.

21 JUDGE GRAHAM: Shall we say we'll be back here  
22 at 1:15.

23 (The noon recess was taken.)

24 JUDGE GRAHAM: Let's go back on the record at  
25 this point. Per all the filings, Mr. Pendergast, I  
Page

1 believe you rested your case. Have you rested your  
2 case?

3 MR. PENDERGAST: Yes, Your Honor.

4 JUDGE GRAHAM: All right. Then we're going to  
5 proceed to staff's case. Under the orders and filings  
6 that have been made before, I understand that Dr. Won,  
7 is that how you say his name, is going to be your first  
8 witness?

9 MR. KEEVIL: Yes.

10 JUDGE GRAHAM: Mr. Won, why don't you come up  
11 and be sworn and we'll get going. Do you want to go  
12 ahead and state your name, your full name before I swear  
13 you in?

14 THE WITNESS: My name is Seung Joun Won,  
15 S-e-o-u-n-g, J-o-u-n W-o-n.

16 JUDGE GRAHAM: All right. If you'd raise your  
17 right hand, we'll swear you in.

18 (Witness sworn.)

19 JUDGE GRAHAM: Go ahead and you can proceed  
20 now.

21 MR. KEEVIL: Thank you, Judge.

22 SEOUNG JOUN WON,  
23 called as a witness, being sworn, testified as follows:

24 DIRECT EXAMINATION BY MR. KEEVIL:

25 Q. Good afternoon, Dr. Won.  
Page

1 A. Good afternoon.

2 Q. Are you the same Seoung Joun Won that has  
3 caused to be prepared and filed in this case direct  
4 testimony which has been marked as Exhibit No. 200?

5 A. Yes.

6 Q. And have you also prepared and caused to be  
7 filed in this case rebuttal testimony which has been  
8 marked as Exhibit 201?

9 A. Yes.

10 Q. Do you have any changes or corrections you  
11 need to make to either of those pieces of testimony?

12 A. No.

13 Q. If I asked you the questions contained in  
14 those pieces of testimony today, would your answers be  
15 the same as contained in there?

16 A. Yes.

17 Q. And are those answers true and correct, to the  
18 best of your knowledge and information?

19 A. Yes.

20 MR. KEEVIL: Judge, I would offer Exhibit 200  
21 and 201 and tender the witness for cross.

22 JUDGE GRAHAM: Okay. 200 is his direct  
23 testimony as you've stated and 201 is his rebuttal  
24 testimony; is that right?

25 MR. KEEVIL: Yes.  
Page

1 JUDGE GRAHAM: Any objections to 200 and 201,  
2 staff's exhibits? Hearing none, they will be admitted.

3 (STAFF'S EXHIBITS 200 AND 201 WERE RECEIVED  
4 INTO EVIDENCE AND MADE A PART OF THIS RECORD.)

5 JUDGE GRAHAM: And so we will proceed to  
6 cross-examination by OPC.

7 CROSS-EXAMINATION BY MS. SHEMWELL:

8 Q. Good afternoon, Dr. Won.

9 A. Good afternoon.

10 Q. How long have you worked for the Commission  
11 staff?

12 A. Eight years and eight months.

13 Q. How many cases have you participated in?

14 A. More than 50 cases.

15 Q. 5-0 or 1-5?

16 A. More than 50, 5-0.

17 Q. Thank you. Has the emphasis in all of those  
18 been on weather and weather normalization?

19 A. Yes.

20 Q. We have noticed that you have a PhD in  
21 economics and one in mathematics?

22 A. Yes.

23 Q. You published a paper along with Dr. Wang of  
24 the University of Missouri and Dr. Henry Warren from the  
25 Commission on the calculation of normal weather

Page

1 variables, correct?

2 A. Yes.

3 Q. Is it attached to your testimony?

4 A. Yes.

5 Q. And I did not mean any insult in indicating  
6 that I found it readable because weather normalization  
7 is a complex issue. Thank you for making it readable.  
8 So is it your position that the weather normal  
9 calculation that you do should match the same time  
10 period of the WNAR?

11 A. Yes.

12 Q. And I'm going to show you an exhibit that I --

13 MS. SHEMWELL: Have I marked this?

14 MR. KEEVIL: I don't think you did.

15 BY MS. SHEMWELL:

16 Q. I'm going to hand you this exhibit. It comes  
17 from your surrebuttal testimony. Can you turn to that  
18 in your surrebuttal?

19 MR. KEEVIL: You mean rebuttal?

20 MS. SHEMWELL: Rebuttal. I'm sorry.

21 Rebuttal.

22 BY MS. SHEMWELL:

23 Q. And this top portion I'm referring to the  
24 Normal Test Year-Actual Test Year is on your page 4; is  
25 that correct?

Page

1 A. Yes.

2 Q. And our Figures 2 and 3 are derived from your  
3 Figure 2. Can you verify that?

4 A. Yes.

5 Q. And can you also verify that our Figure 2  
6 represents normal weather for the WNA period versus  
7 actual weather?

8 A. Actual weather, yes, WNA period, accumulation  
9 period.

10 Q. For the accumulation period. Okay. And the  
11 bottom, or Figure 3, is also taken from your Figure 2?

12 A. Yes.

13 Q. And it represents the normal test year versus  
14 actual weather for the WNA period. Have I stated that  
15 to your satisfaction? If no, please go ahead.

16 A. Normal based on rate case test year period.

17 JUDGE GRAHAM: Counsel, may I interrupt just  
18 for a minute so we've got a clear record? We're looking  
19 at his rebuttal testimony?

20 THE WITNESS: No.

21 MS. SHEMWELL: We are looking at his rebuttal  
22 page 4 and 5 from which this was taken. So he's looking  
23 at our Exhibit 3 and comparing it to his testimony at  
24 page 4 and 5.

25 JUDGE GRAHAM: Well, Exhibit 3 is not an  
Page

1 exhibit that's going to be in our record.

2 MS. SHEMWELL: I'm going to offer it.

3 JUDGE GRAHAM: As Exhibit 3?

4 MS. SHEMWELL: Yes.

5 MR. KEEVIL: 302.

6 JUDGE GRAHAM: Now I'm in the same world with  
7 you. So we're looking at what is going to be your  
8 Exhibit 302?

9 MS. SHEMWELL: Correct.

10 JUDGE GRAHAM: You can proceed. I'm sorry.  
11 302 was identified as Rate Case Weather Adjustment on  
12 your exhibit list. Are we together?

13 MS. SHEMWELL: We are together. Thank you.

14 JUDGE GRAHAM: All right. Thank you.

15 BY MS. SHEMWELL:

16 Q. Okay. Dr. Won, would you say what you have to  
17 say about this graph?

18 A. So this graph compare 2016 normal and 2018  
19 actual weather.

20 Q. Would you say Exhibit 2, the analysis  
21 generally tracks --

22 JUDGE GRAHAM: Again, you're referring to  
23 Exhibit 2. You mean 302?

24 MS. SHEMWELL: I apologize. Exhibit 302.

25 JUDGE GRAHAM: I don't mean to be tedious.  
Page

1 MS. SHEMWELL: I'm talking about the second  
2 graph on 302. No, thank you, Judge, I want to be clear.

3 BY MS. SHEMWELL:

4 Q. Do the numbers in the third graph here track  
5 the same way?

6 A. Two graphs show different way.

7 Q. Different?

8 A. So first one is showing the same shape. The  
9 second one shows almost there is -- I cannot find any  
10 proper relationship in here.

11 Q. You said proper relationship?

12 A. Yes.

13 Q. So could we use the term correlation?

14 A. So it's very less correlating.

15 MS. SHEMWELL: Okay. That's all I have, thank  
16 you, on this.

17 MR. KEEVIL: Did you offer that?

18 JUDGE GRAHAM: I don't think you have yet.

19 MS. SHEMWELL: I will offer 302.

20 JUDGE GRAHAM: Any objections to 302 which is  
21 the Rate Case Weather Adjustment, and I think is it  
22 this, counsel?

23 MS. SHEMWELL: Yes, sir.

24 JUDGE GRAHAM: You circulated it earlier I  
25 think in your opening statement.

Page



1 MS. SHEMWELL: I did.

2 JUDGE GRAHAM: Any objections to 302? 302 is  
3 admitted.

4 (OPC'S EXHIBIT 302 WAS RECEIVED INTO EVIDENCE  
5 AND MADE A PART OF THIS RECORD.)

6 JUDGE GRAHAM: All right. Does Spire have  
7 some cross-examination for Dr. Won?

8 MR. PENDERGAST: Yes. Thank you, Your Honor.

9 CROSS-EXAMINATION BY MR. PENDERGAST:

10 Q. Good afternoon, Dr. Won. How are you?

11 A. Good afternoon.

12 Q. Good. I just have a couple of questions.  
13 First of all, you testified extensively on the ranking  
14 method during the rate case; is that correct?

15 A. Yes, I did.

16 Q. I think you addressed it in your cost of  
17 service report; is that correct?

18 A. Yes.

19 Q. That was filed earlier in the case?

20 A. Yes.

21 Q. And then I think you also addressed it at  
22 times in your rebuttal and surrebuttal testimony?

23 A. Yes.

24 Q. Okay. And at what point did you address it in  
25 the context of a weather normalization adjustment

Page

1 clause?

2 A. So I just describe what is steps weather  
3 normal is calculated. So I described in my testimony  
4 how steps weather normal is calculated.

5 Q. Right. And was that in the context of  
6 establishing the normal weather in the rate case?

7 A. For the rate case, yes.

8 Q. Okay. And you did not talk about ranking  
9 method in terms of its interplay with an adjustment  
10 mechanism, did you?

11 A. For the rate case, no.

12 Q. Yes. I know you submitted some testimony in  
13 this case. But during the rate case, you did not  
14 address the interplay or impact of the ranking method  
15 with an adjustment mechanism like the WNAR?

16 A. No, that is before the WNAR tariff is  
17 established.

18 Q. Okay. Fair enough. Thank you. And when  
19 staff first came forward with a specimen tariff sheet  
20 proposing a WNAR, were you ever asked to testify about  
21 the normalization components of that in the rate case?

22 A. No, I didn't directly.

23 Q. Okay. Would you say that you were staff's  
24 main witness on weather normalization in the rate case?

25 A. No, I'm not a weather normalization witness in  
Page

1 the rate case. I was weather witness for the rate case.

2 Q. Okay. Would you say that you were staff's  
3 main witness on the ranking matter, issue, whatever?

4 A. Yes.

5 Q. Okay. Okay. And can you tell me based on  
6 your understanding of how the WNAR works, in the end,  
7 you know, it has 12-month periods that it tracks  
8 differences or the impact of weather on usage. Are you  
9 familiar with that?

10 A. Yes, certain extent, yes.

11 Q. And in the end after that 12-month period, are  
12 you really trying to measure the difference between  
13 actual degree days during that 12-month period and  
14 compare them to the normal weather that was established  
15 in the rate case?

16 A. Yes, according to the formula.

17 Q. Yes. So in the end you're comparing these two  
18 numbers, actual degree days to what was established in  
19 the rate case, and the adjustment mechanism should be  
20 recognizing the difference; is that correct?

21 A. Would you rephrase your question?

22 Q. So in the end, say over a 12-month period,  
23 what you're doing is you're comparing the degree days  
24 that were established in the rate case to the actual  
25 degree days that were experienced during that year; is

Page

1 that correct?

2 A. Would you clarify in your during the period?  
3 I'm not clearly compare your comparison. You mean the  
4 test year or accumulation period?

5 Q. Yeah, the total heating degree days that were  
6 established in the rate case to the actual degree days  
7 that happened during whatever period you're looking at.

8 A. For the rate case proposed, yes.

9 Q. Okay. I guess my point is, maybe I don't have  
10 one, but if you're doing that comparison and it all  
11 comes back to how do my actual degree days over an  
12 annual period compare to the degree days that were  
13 established in the rate case, is the ranking method  
14 really just about how do I allocate those various things  
15 between months as opposed to a difference in the amount  
16 of the adjustment that will be made?

17 A. Either way the number of heating degree day  
18 that is right. That is right comparison.

19 Q. Okay. And in terms of correlation and  
20 volatility and that type of thing, things may go up, may  
21 go up faster, may come down faster, but how does that  
22 show up in the bills of customers?

23 A. Would you rephrase your question?

24 Q. Yeah. Is this volatility that people have  
25 talked about between the two methods something that ever

Page

1 really directly impacts customers?

2 A. The volatility of heating degree day?

3 Q. Which method is more volatile? Were you here  
4 when they discussed which method was more volatile and  
5 counsel for staff --

6 A. So according to formula, this formula steps  
7 interpretation is minimized volatility.

8 Q. Okay. I'm just asking, I think we've already  
9 discussed that in the end you're comparing actual degree  
10 days to what degree days were approved in the rate case  
11 and that's what's being reconciled and that's what's  
12 being given right now at whatever the current rate is,  
13 and I'm asking you if that's where it all ends up isn't  
14 all this stuff that's happening in between, allocating  
15 in between the months and that sort of thing, not all  
16 that significant?

17 A. I think it's very subjective.

18 MR. PENDERGAST: Okay. That's good enough.  
19 Thank you, Dr. Won. I appreciate it.

20 JUDGE GRAHAM: Commissioner Hall, do you have  
21 any questions?

22 QUESTIONS BY COMMISSIONER HALL:

23 Q. What I'm going to ask is I'm going to ask if  
24 it is possible to walk through a calculation for a  
25 particular month, but I want -- is that going to take

Page

1 three weeks or is that -- I'm looking at counsel first  
2 because I don't want to do this if this is going to take  
3 an astronomical amount of time, but I would just like to  
4 do a calculation from beginning to end for one month and  
5 go from there.

6 MR. KEEVIL: I think to do an entire month  
7 would take quite awhile, but I think Dr. Won could give  
8 you the steps in the process.

9 COMMISSIONER HALL: With actual numbers?

10 MR. KEEVIL: No. I'm going to have to defer  
11 to the witness as to how long that would take. I would  
12 think that would take quite awhile.

13 THE WITNESS: So using actual numbers actually  
14 is quite complicated, but I can give you some brief step  
15 by step procedure.

16 BY COMMISSIONER HALL:

17 Q. Well, that's give that a whirl and see if that  
18 scratches this itch. Okay. So starting with -- is that  
19 the tariff sheet right there? That's the tariff sheet.

20 MR. KEEVIL: Do you want to do the ranking for  
21 -- the difference between the methods for a month or a  
22 WNAR adjustment calculation for a month?

23 COMMISSIONER HALL: A WNAR adjustment.

24 MR. KEEVIL: That's different. So he may be  
25 -- that may be able -- I don't know.

Page

1 COMMISSIONER HALL: I don't want to disrupt  
2 this proceeding. Well, I'm willing to do it a little  
3 bit. I'm not willing to do it a lot.

4 MR. KEEVIL: Commissioner, if you look at  
5 Mr. Stahlman's Schedule MLS-d2 attached to his direct  
6 testimony, there's a hypothetical that Mr. Stahlman does  
7 there, but I'm not sure now that I've lost my witness.

8 MS. KLIETHERMES: Sorry.

9 MR. KEEVIL: Is this a WNAR calculation or an  
10 HDD calculation?

11 MS. KLIETHERMES: It starts on 2 and then this  
12 will show you.

13 MR. KEEVIL: The column on the right? I gave  
14 you the wrong page.

15 COMMISSIONER HALL: Is Mr. Stahlman the better  
16 witness for this?

17 MR. KEEVIL: Yes. Stahlman would probably be  
18 the witness on the WNAR calculation because that's  
19 attached to his testimony. On ranking, Dr. Won would be  
20 the witness.

21 COMMISSIONER HALL: Let's do that then.

22 BY COMMISSIONER HALL:

23 Q. Give me I guess it's the step by step, is that  
24 what you called it. So where do we start?

25 A. So just make sure you want me to explain this  
Page

1 formula or ranking procedure?

2 Q. The ranking procedure.

3 A. Okay. First we decide year, normal period.  
4 In this case we decide to use 1987 through 2016. So  
5 there is 30 years, 30 years. For example, it's a little  
6 bit easy to compare normal period and steps ranked in  
7 average method. Normal if you decide to January 1  
8 normal, peak 30 numbers January 1 in 30-year time period  
9 and then make average. But still could not calculate  
10 January 1 normal but still calculate January coldest  
11 heating degree day normal. So there is a 30 years and  
12 then I can peak the highest heating degree day in  
13 January of each year and then make average. So that is  
14 coldest heating degree day of normal in January.

15 Q. An example for that might be what?

16 A. You mean the numbers?

17 Q. A number. A number that might be a good  
18 example of that.

19 MR. KEEVIL: Number of heating degree days?

20 COMMISSIONER HALL: Yeah.

21 THE WITNESS: So it can be 20.

22 JUDGE GRAHAM: 20 degrees.

23 THE WITNESS: 20 heating degree days.

24 COMMISSIONER HALL: Okay.

25 THE WITNESS: And then we have for the January



1 31 set of numbers, and then the second step we decide  
2 test year January heating degree day of each day. So we  
3 assign the number based on actual January weather  
4 ranking.

5 BY COMMISSIONER HALL:

6 Q. Okay.

7 A. So there is a two step. First decide set of  
8 numbers and then second we assigned based on actual  
9 temperature.

10 Q. So in that formula up there for the NDDij, what  
11 is that number?

12 A. In here, i represents applicable billing cycle  
13 months. For example, this WNAR accumulation period  
14 starting from April. So i should be April 2018 billing  
15 months and then j there is 18 billing cycle. But the  
16 issue is each year billing cycle there is a starting  
17 date and ending date. So NDDij is the April billing  
18 cycle, for example, for billing cycle one, billing cycle  
19 one April, there is a starting day usually happen in  
20 March some day to April some day. So that has, for  
21 example, 30 days and then we make the sum of each day  
22 heating degree day of normal and then that give you  
23 normal heating degree day.

24 Q. Is there an actual number?

25 A. Yes, actual number.

1 Q. And what is that actual number based on  
2 staff's calculation for the accumulation period? Do you  
3 have that somewhere?

4 A. I do not have in my hand.

5 Q. Is that a better question for Mr. Stahlman?

6 A. It's on the work paper of Michael Stahlman's,  
7 yes.

8 Q. I'm sorry?

9 A. Michael Stahlman's work paper included the  
10 numbers.

11 Q. Okay. So is the NDDij, are those the billing  
12 determinants that were used to set rates in the rate  
13 case?

14 A. This is not billing determinants. NDD is not  
15 billing determinants.

16 Q. Okay. Is that the weather normalization that  
17 was used to set rates in the last rate case?

18 A. As the numbers, yes.

19 Q. Okay.

20 A. But the assign each day is different from rate  
21 case test year and accumulation period.

22 MR. KEEVIL: Commissioner, I think it might  
23 help if you recall his explanation of the steps, first  
24 step is figure your 30-year daily normal average. And  
25 when he says the numbers, I believe that's what he's

1 referring to as the numbers, but then the second step is  
2 the assignment of the heating degree days -- or  
3 comparison of the normals to the actuals. That's the  
4 second step which is not from the rate case.

5 COMMISSIONER HALL: I don't think I have  
6 anything further. Thank you.

7 QUESTIONS BY JUDGE GRAHAM:

8 Q. Dr. Won --

9 A. Yes.

10 Q. -- do you know the source of the formula, and  
11 I'm pointing over your head, you've probably got the  
12 tariff in front of you there but you were directing our  
13 attention to it earlier. Do you know what the source of  
14 that formula is? Who came up with that? Did you come  
15 up with that?

16 A. I cooperated to derive this formula with  
17 Michael Stahlman.

18 Q. I want to direct your attention to Exhibit  
19 302. Do you have Exhibit 302 in front of you? You did  
20 I know. If you look down -- Do you have it now in front  
21 of you, sir?

22 A. Yes.

23 Q. I'll try to speak slowly. If you look down at  
24 the third rank -- shouldn't use rank -- the third chart  
25 here.

1 A. Yes.

2 Q. All right. And I see red there and I see a  
3 legend that says 2016 normal. Do you see what I'm  
4 reading?

5 A. Yes.

6 Q. And are you the one who generated this  
7 exhibit? Did you come up with this yourself? Is this  
8 yours or did somebody else come up with this?

9 A. This chart generated by OPC, but the main  
10 source of data I cooperated with Michael Stahlman.

11 Q. That's my question. Do you know where the  
12 data came from, where the information came from?

13 A. My understanding is this data we're using the  
14 Company's billing cycle information and then weather is  
15 reported by weather service. We're usually using the  
16 NOAA weather data.

17 Q. Do you know how long the data has been in  
18 possession of anyone, including the company, that formed  
19 the basis of this red line, this 2016 normal? How long  
20 has this data been known?

21 A. How long?

22 Q. Let me -- I'll take that question back and try  
23 this one.

24 A. Okay.

25 Q. Was that the data that was used in 2016 in the

1 ratemaking case?

2 A. Yes.

3 Q. Is it your understanding of the company  
4 Spire's position in this case that that is the data that  
5 should be used in your formula up there for the NDD?

6 A. That is Company's position.

7 Q. Okay. So that data has been known ever since  
8 the ratemaking case?

9 A. Yes.

10 Q. Dr. Won, why is there a variable for that in  
11 the formula, the NDD -- strike that. Does NDD in that  
12 formula indicate a variable?

13 A. NDD?

14 Q. Is that a variable in the formula?

15 A. Yes, that is a variable.

16 Q. Why is it a variable if the data has been  
17 known for the last three years?

18 A. Because we're not using 2016.

19 JUDGE GRAHAM: Thank you. That's all the  
20 questions I have.

21 MS. SHEMWELL: Judge, might I add just --

22 JUDGE GRAHAM: Sure, go ahead. That's  
23 probably out of order according to my outline.

24 MS. SHEMWELL: I'm sorry.

25 JUDGE GRAHAM: Go ahead.

1 MS. SHEMWELL: I'm wanting to mention to you  
2 that this is taken from pages 4 and 5 of Dr. Won's  
3 rebuttal testimony.

4 JUDGE GRAHAM: Okay.

5 MS. SHEMWELL: On page 5, we have taken the  
6 data and divided it into two different graphs and put  
7 color on it.

8 MR. KEEVIL: In other words, Judge, on page 5  
9 of his rebuttal Dr. Won has one table which shows  
10 everything that Public Counsel's two graphs show as two  
11 graphs. They've just separated his one graph into two  
12 graphs.

13 JUDGE GRAHAM: I'm going to, just so we've got  
14 a clear record on this, we're talking about -- what was  
15 the exhibit number on that?

16 MS. SHEMWELL: 302.

17 MR. KEEVIL: On Won's testimony you mean?

18 JUDGE GRAHAM: Yes. You're saying it's an  
19 exhibit to his testimony, counsel?

20 MR. KEEVIL: His testimony, Exhibit No. 201,  
21 page 5.

22 JUDGE GRAHAM: Okay. Commissioner Hall, do  
23 you have any further questions?

24 COMMISSIONER HALL: No.

25 JUDGE GRAHAM: Do you have some -- Have you

1 finished your cross, Mr. Pendergast? I think you did  
2 your cross.

3 MR. PENDERGAST: I did.

4 JUDGE GRAHAM: Do you have some redirect,  
5 staff?

6 MR. KEEVIL: Just a little bit, but is there  
7 going to be recross from Mr. Pendergast?

8 JUDGE GRAHAM: I haven't scheduled it, but I  
9 think -- given that we're trying to figure out how this  
10 formula works, I'm going to entertain as many questions  
11 as there are out there. Mr. Pendergast, do you have any  
12 further questions, Mr. Pendergast, before we go to  
13 redirect here?

14 MR. PENDERGAST: No, thank you.

15 JUDGE GRAHAM: Do you have some redirect?

16 MR. KEEVIL: Yes, just briefly.

17 REDIRECT EXAMINATION BY MR. KEEVIL:

18 Q. Dr. Won, I believe in response to one of the  
19 questions from the bench you indicated that you were  
20 involved, along with Michael Stahlman, in the  
21 development of this WNAR formula; is that correct?

22 A. Yes.

23 Q. Okay. And I believe in response to one of the  
24 judge's last questions regarding NDDij you indicated  
25 that that is not intended to represent 2016 normals; is

1 that correct?

2 A. Yes.

3 Q. Can you explain what it is intended to  
4 represent?

5 A. So it should match the other variable. So  
6 better is fixed and this number is presented in the  
7 tariff. And these three numbers are not fixed and then  
8 it should match.

9 Q. So in other words, if your ADD or actual  
10 degree days are being used from 2018 and your customer  
11 numbers are from 2018, your normal should also be from  
12 2018?

13 A. Yes.

14 Q. Now, I believe it was a cross question from  
15 Mr. Pendergast, could have been Commissioner Hall,  
16 referred to degree days being established in the rate  
17 case. Were degree days -- Under staff's method, are  
18 degree days actually established in the rate case? What  
19 I'm referring to there is, are staff's degree days  
20 calendar day specific?

21 A. No.

22 Q. Okay. In your discussion with Commissioner  
23 Hall, I believe you indicated that NOAA does a calendar  
24 day specific normal like for January -- they'll have a  
25 normal for January 1 and January 15; is that correct?



1 A. Yes.

2 Q. But under staff's method, staff has a coldest  
3 day of January and a second coldest day of January and  
4 so on down to the warmest day of January; is that  
5 correct?

6 A. Yes.

7 Q. Okay. So staff did not in the rate case fix a  
8 specific calendar day normals?

9 A. No.

10 Q. Is Spire -- In Spire's application of this  
11 tariff, are they treating the normal from the rate case  
12 as calendar day specific?

13 A. They did.

14 Q. You were also asked some questions about the  
15 correlation and volatility of the degree days and the  
16 two different -- volatility of the two different  
17 methods. Which method, the staff's proposed method or  
18 the method that Spire is proposing to use, in your  
19 expert opinion would result or will result in less  
20 volatility?

21 A. So steps mathematically that is a minimum of  
22 volatility.

23 Q. Can you explain why?

24 A. Because we rank based on actual heating degree  
25 day, normal heating degree day rank is the same. So

1 difference is minimized. There is no smaller variance.

2 Q. You were also in response to questions earlier  
3 you described, I guess Commissioner Hall, you described  
4 staff's process for ranking. To someone like myself and  
5 possibly the Commissioners, it sounded a little  
6 complicated, but my question for you is during the  
7 exchanges back and forth between Company and staff  
8 dating back to the rate case, has staff provided its  
9 work papers to the Company as to how to calculate -- how  
10 staff calculates the daily normals?

11 A. Yes, we provide work paper. If Company want  
12 to get new time period of normal, they just plug in the  
13 work paper, associate actual weather applying the work  
14 paper that produce automatically normal weather.

15 Q. So the Company can simply take the work paper  
16 that was provided to them by staff, update it to include  
17 the current period actual weather and the work paper  
18 spits out the correct answer; is that correct?

19 A. Yes.

20 Q. So it's really not that tough?

21 A. No.

22 MR. KEEVIL: Okay. Thank you. That's all I  
23 have.

24 JUDGE GRAHAM: Mr. Pendergast, do you have any  
25 redirect?

1 MR. PENDERGAST: Yes.

2 MR. KEEVIL: Redirect? He should be done.

3 JUDGE GRAHAM: I'm sorry. I'm afraid I've got  
4 a couple questions though.

5 QUESTIONS BY JUDGE GRAHAM:

6 Q. We've called out for the first time beta over  
7 there in your testimony. Is that a coefficient?

8 A. That is a regression model coefficient, yes.

9 Q. Is that specific to this case? Is that  
10 calculated specific to this case?

11 A. Yes.

12 Q. If we adopt the Company, Spire's, theory of  
13 this case, is that coefficient any longer relevant to  
14 the calculations?

15 A. No.

16 JUDGE GRAHAM: No further questions. Does  
17 anybody have any further?

18 MR. KEEVIL: Follow up on that, Judge.

19 FURTHER REDIRECT EXAMINATION BY MR. KEEVIL:

20 Q. Dr. Won, do you have a copy of the tariff in  
21 front of you there?

22 A. Yes, I have.

23 Q. I believe if you look at the definitions the  
24 beta is defined for Spire. Which one do you have in  
25 front of you? Spire East or Spire West? Which tariff?

1 Do you have them both perhaps, top right corner?

2 A. Spire Missouri West.

3 Q. West. Okay. Beta toward the middle of the  
4 page there is defined to be the coefficient of 0.1291586  
5 for Spire West; is that correct?

6 A. Yes.

7 Q. If you look -- do you have a Spire East tariff  
8 sheet with you by any chance? That's been introduced  
9 already. It's 205.

10 A. I do not have.

11 Q. So if you look at the definition of beta for  
12 Spire East right in the middle of the page of Exhibit  
13 205, it's defined as the coefficient of 0.1493772 for  
14 Spire East, correct?

15 A. Yes.

16 Q. Okay. So in other words, Spire West and Spire  
17 East have different beta coefficients?

18 A. (The witness nodded his head.)

19 Q. You have to say it out loud. You just nodded  
20 your head.

21 A. It's different.

22 Q. And those coefficients, or those betas, were  
23 developed in the rate case?

24 A. Yes.

25 Q. And they were developed in the rate case

1 specifically for purposes of developing the WNAR  
2 tariffs; is that correct or incorrect? If it's  
3 incorrect, that's fine.

4 A. The proposal developing beta is weather  
5 normalization procedure in the rate case, but it should  
6 be used WNAR.

7 Q. In the WNAR?

8 A. Yes.

9 Q. So those beta coefficients were developed for  
10 purposes of weather normalization in the rate case?

11 A. Yes.

12 Q. And they carry over to be used in the WNAR  
13 tariff?

14 A. Yes.

15 Q. That's why, correct me if I'm wrong, but  
16 that's why it's important to maintain the relationship  
17 between the heating degree days and the usage that was  
18 developed in the rate case?

19 A. Yes.

20 Q. Okay. But would using Spire's method, I  
21 believe you told the judge it would eliminate the  
22 usefulness of beta; is that correct?

23 A. Relationship is break so we cannot use.

24 Q. So using Spire's method would break the  
25 relationship between usage and heating degree days. So

1 the calculation of the beta would just be out the  
2 window?

3 A. No, we cannot use.

4 MR. KEEVIL: You can't use it. Thank you.  
5 That's all, Judge.

6 JUDGE GRAHAM: Sorry about the confusion on  
7 redirect. That kind of implies I don't know whose  
8 witness this is. We can let this witness go now. Mr.  
9 Pendergast?

10 MR. PENDERGAST: Your Honor, I had a couple of  
11 follow ups based on your question.

12 JUDGE GRAHAM: All right.

13 FURTHER RECROSS-EXAMINATION BY MR. PENDERGAST:

14 Q. Is it your testimony, Dr. Won, that under NDD  
15 total normal heating degree days they change with every  
16 WNAR adjustment?

17 A. Time periods change. Normal heating degree  
18 days change by definition of step normal.

19 Q. And so the total normal heating degree days  
20 that were established in the rate case --

21 A. Total heating degree days not changing.

22 Q. They aren't changing?

23 A. Total heating degree days not changing.

24 Q. Okay. The total heating degree days are not  
25 changing and so whatever you do with NDD, that doesn't

1 change the total normal heating degree days; is that  
2 correct?

3 A. Because it is specific so part of normal  
4 heating degree days keep changing based on the period of  
5 time, but a year total heating degree days not change.

6 Q. Okay. I guess that gets me back to my  
7 original point. On an annual basis it doesn't change  
8 from what was in the rate case; is that correct?

9 A. Yes.

10 Q. Okay. So all we're talking about here is just  
11 what we do within the annual period allocates stuff  
12 between days of the month; is that right?

13 MR. KEEVIL: I'm going to object to that as  
14 beyond the scope of your questions. It's frankly  
15 argumentative.

16 MR. PENDERGAST: I'll withdraw it. I think I  
17 got the clarification I needed.

18 THE WITNESS: Because based on this formula  
19 customer numbers keep change. So your interpretation is  
20 not right. The total amount of WNA keep changing  
21 because this customer changes and that changing.

22 MR. PENDERGAST: Okay. Thank you. I have no  
23 further questions.

24 JUDGE GRAHAM: I think you can step down.  
25 Thank you very much, Dr. Won.

1 THE WITNESS: Thank you.

2 (Witness excused.)

3 JUDGE GRAHAM: Staff may call its next  
4 witness. I think that's Mr. Stahlman?

5 MR. KEEVIL: Yes.

6 JUDGE GRAHAM: Do you want to state your full  
7 name and then we'll swear you?

8 THE WITNESS: Michael L. Stahlman,  
9 S-t-a-h-l-m-a-n.

10 (Witness sworn.)

11 JUDGE GRAHAM: You can be seated and counsel,  
12 you can proceed.

13 MR. KEEVIL: Thank you, Judge.

14 MICHAEL L. STAHLMAN,  
15 called as a witness, being sworn, testified as follows:

16 DIRECT EXAMINATION BY MR. KEEVIL:

17 Q. Mr. Stahlman, are you the same Michael  
18 Stahlman who has caused to be prepared in this case  
19 direct testimony which has been marked as Exhibit No.  
20 202 and rebuttal testimony which has been marked as  
21 Exhibit 203?

22 A. Yes.

23 Q. Do you have any changes or corrections you  
24 need to make to either of those pieces of testimony?

25 A. No.



1 Q. If I were to ask you the questions contained  
2 in those exhibits, would your answers be the same today  
3 as contained therein?

4 A. Yes.

5 Q. Are those answers true and correct to the best  
6 of your information and belief?

7 A. Yes.

8 MR. KEEVIL: Judge, with that I would offer  
9 Exhibit No. 202 and Exhibit No. 203 and tender the  
10 witness for cross-examination.

11 JUDGE GRAHAM: 202 is his direct, 203 is his  
12 rebuttal. I assume there are no objections. Those are  
13 admitted.

14 (STAFF'S EXHIBITS 202 AND 203 WERE RECEIVED  
15 INTO EVIDENCE AND MADE A PART OF THIS RECORD.)

16 JUDGE GRAHAM: OPC, you can start.

17 MS. SHEMWELL: Before I do, have we admitted  
18 Dr. Won's testimony 200 and 201?

19 JUDGE GRAHAM: I've got it checked. If we  
20 haven't, let the record -- there's no objection to it  
21 I'm sure, is there? That's Dr. Won's No. 200 is his  
22 direct, 201 is his rebuttal. Those two exhibits are  
23 admitted.

24 CROSS-EXAMINATION BY MS. SHEMWELL:

25 Q. Good afternoon, Mr. Stahlman.

1 A. Good afternoon.

2 Q. Are you familiar with Mr. Weitzel's testimony?

3 A. Yes.

4 Q. If you'd like to see it after I ask my  
5 question, please let me know.

6 A. Okay.

7 Q. On page 7 of his rebuttal Mr. Weitzel states  
8 that you attached to your rebuttal testimony in the last  
9 rate case a weatherization tariff sheet from Virginia.  
10 Are you familiar with that?

11 A. Yes.

12 Q. The tariff sheet from Virginia included a  
13 provision that required slopes used to calculate  
14 adjustments be revised every three years. Can you tell  
15 us what using slopes means?

16 A. Slope is a simple math formula. It's  $y=mx+b$ .  
17 So you have the y axis is vertical, the x axis is  
18 horizontal. The slope will be the change in y or a  
19 change in x.

20 Q. Is that equivalent to beta in this  
21 calculation?

22 A. No. In the Virginia tariff, it was changing.  
23 In this tariff, it stays the same.

24 Q. And in your rebuttal, did you say that you do  
25 not agree with the Virginia adjustment; that you do not

1 agree it was necessary?

2 A. I don't recall. Can you direct me?

3 Q. In your surrebuttal.

4 A. Surrebuttal in the case? I don't recall in  
5 the case.

6 Q. I'm talking about -- I'm talking about  
7 rebuttal in this case, I'm sorry, rebuttal in this case.  
8 I'm sorry. This is in Mr. Weitzel's rebuttal.

9 A. Okay.

10 Q. He states that Mr. Stahlman came back in his  
11 surrebuttal testimony in the rate case to clarify that  
12 he did not even agree that such an update should be made  
13 every three years, let alone with each adjustment  
14 filing. Would you like to have this in front of you?

15 A. I have this paragraph here on page 7, lines 16  
16 through 19 of his rebuttal.

17 Q. Mr. Weitzel's rebuttal, correct. Is that an  
18 accurate statement?

19 A. I'm trying to recall. This was made in the  
20 context of the rate case. What I said in that case is  
21 that the values figured out inconsistent with the way we  
22 do the weather normalization adjustment in that rate  
23 case for staff. We wanted to keep that methodology or  
24 method the same. So we would not change the beta in  
25 between rate cases.

1 Q. Did you inconsistent or consistent?

2 A. Let me just -- I wanted our adjustment rider  
3 to remain consistent with the method we used in the rate  
4 case.

5 Q. But the numbers used in the rate case do not  
6 remain consistent for HDD; is that correct -- or NDD?  
7 NDD is a variable?

8 A. NDD is a variable. Part of the confusion for  
9 the rate case we do establish a total number of NDD that  
10 is the same from year to year and even from a calendar  
11 month to a calendar month. The question is when does  
12 the number get assigned on a date within the calendar  
13 month. So if the billing cycles began and ended on the  
14 first and last days of the calendar month, there would  
15 be no difference between what Spire's method is and what  
16 our method does. The problem comes in that billing  
17 cycles go in between two different calendar months and  
18 that results in some of the -- if there's a really cold  
19 day in the first of the month and the actual year  
20 compared to if that coldest day was later in the month,  
21 it would have been in two different -- in a different  
22 month or later month for the normal 2016 period. It  
23 would shift on the -- it would make a difference on  
24 which billing cycle that would have been billed on.

25 Q. If I could try to clarify. Billing cycles do

1 not necessarily follow calendar months. The billing  
2 cycle can be the 15th of one month to the 15th of the  
3 next month?

4 A. Correct. They have 18 billing cycles for a  
5 given essentially calendar month.

6 Q. So how does that complicate determining NDD?

7 A. Yes. If I can turn to -- I have a schedule in  
8 my direct testimony. I think it was MLS-d2. In here I  
9 have --

10 Q. Excuse me. Is that the one that's in like  
11 .00035?

12 A. It was the only way to get the entire  
13 information on one page. I have simplified examples in  
14 the testimony that only involve two days.

15 Q. Thank you.

16 A. But on the right-hand side, there's a yellow  
17 box, which that was the billing cycles for November to  
18 December 2016. And so you can see that the first cycle  
19 started on the 1st of November and ended on the 1st of  
20 December. And the final billing cycle of that period  
21 started on the 29th of November and the 29th of  
22 December. And within a calendar month the Company's  
23 billing NDDs will on total be the same as ours but  
24 they'll be fixed to the 2016 actual period. Ours will  
25 work to minimize the difference between NDD and ADD in a

1 billing cycle period or in a calendar month. This will  
2 mitigate the impact of this mechanism on customer bills  
3 and it results in less volatility because if you do not  
4 rearrange you'll get a spike if there's a large  
5 difference early in the month on one versus if it's  
6 later in the month. And so you get a spike high one  
7 month potentially and a reverse spike low in the next  
8 month.

9 Q. So what's the benefit of limiting volatility?

10 A. One, this would keep the relationship that we  
11 determined for this case consistent with the way we  
12 determined case. So the beta value is only, as Dr. Won  
13 said, valid only for staff's normal method. The other  
14 impact is that it will -- the higher volatility will  
15 result if he follows Spire's method and that means  
16 depending on how billing cycles land, depending on how  
17 customer accounts change, that can result in a large  
18 impact or a small impact for a given period.

19 Q. Mr. Stahlman, what is your role in a rate case  
20 in terms of weather?

21 A. In this -- In the last rate case, I was not  
22 assigned weather or weather normalization. I was asked  
23 to look at Spire's proposed Revenue Stabilization  
24 Mechanism.

25 Q. So what's your role in this case then?

1           A.     In this case I'm defending the tariff that was  
2 modeled off of the weather normalization adjustment  
3 method that we used in the rate case. In fact, the  
4 equation, the WNAi was derived specifically from our  
5 work papers in that case. Dr. Won and I together just  
6 mimicked the way that adjustment would work in a rate  
7 case.

8           MS. SHEMWELL: Thank you, Mr. Stahlman.  
9 That's all I have.

10           JUDGE GRAHAM: Does Spire have any  
11 cross-examination?

12           MR. PENDERGAST: Just a few questions, Your  
13 Honor.

14 CROSS-EXAMINATION BY MR. PENDERGAST:

15           Q.     Mr. Stahlman, I think you just confirmed in  
16 your discussion with Ms. Shemwell that the total annual  
17 heating degree days remains the same under both your  
18 method and the Company's method; is that correct?

19           A.     Correct.

20           Q.     Okay. Is there anything about staff's ranking  
21 method that changes those total HDDs?

22           A.     For an --

23           Q.     For an annual period?

24           A.     -- annual period, no.

25           Q.     Okay. So it really has no impact and to the

1 extent that we're talking about total heating degree  
2 days that's a fixed amount from the rate case, correct?

3 A. Yes.

4 Q. Okay. Now, you talk about -- Well, from the  
5 standpoint of coefficients if you're comparing the same  
6 total heating degree days to the same actual heating  
7 degree days, will your coefficients still work?

8 A. In this case, I don't think it will.

9 Q. On an annual basis?

10 A. The coefficient wasn't developed on an annual  
11 basis. So I don't know how -- I don't know I can answer  
12 that question.

13 Q. So you don't know.

14 A. It's a question that doesn't make sense  
15 because the beta is developed using a series of billing  
16 cycle dates and so it's very specific to the billing  
17 cycle dates where there isn't billing cycle dates on an  
18 annual method.

19 Q. Let me ask you this. In the end, will the  
20 adjustment that you're making on an annual basis at  
21 least reflect the difference between actual degree days  
22 and total heating degree days in the rate case?

23 A. It depends on the method used for that final  
24 adjustment. I think it really depends on the method  
25 used to derive those values.



1 Q. So in the end --

2 A. There will be a non zero difference between  
3 Spire's method and staff's method.

4 Q. Okay. And do you have any estimate what that  
5 difference will be?

6 A. We used -- Between Mr. Weitzel and staff,  
7 we've gone through various scenarios. I'm thinking it  
8 might have been the 2016 period for an annual year ended  
9 up being around 130, \$180,000, somewhere in there.

10 Q. Okay. \$180,000 on an annual basis?

11 A. And Robin Kliethermes might remember the  
12 values more specifically than I do.

13 Q. Okay. So looking at the Company's cost of  
14 service and revenues, would you agree it's a pretty  
15 minimal amount?

16 A. I don't know.

17 Q. Okay. You're just not sure what those  
18 revenues are?

19 A. I'll defer that to Robin Kliethermes.

20 Q. Okay. Now, you talked in your testimony, page  
21 3 of your rebuttal testimony about the circumstances  
22 that led to you filing this specimen tariff sheet we're  
23 proposing; is that correct?

24 A. Yes.

25 Q. And I think you put it in the context of the

1 Company also had an RSM proposal at the time; is that  
2 correct?

3 A. Yes.

4 Q. Okay. And the staff disagreed with that RSM  
5 proposal on a number of grounds; is that correct?

6 A. Yes.

7 Q. Okay. Whether it was authorized by statute  
8 and would allow for more than just adjustments for  
9 conservation and weather?

10 A. Yes.

11 Q. Okay. And did you in your rebuttal testimony  
12 talk about how if you were going to accept some sort of  
13 RSM it should be limited to weather and to the  
14 residential class?

15 A. In rebuttal testimony?

16 Q. Yes.

17 A. Yes.

18 Q. And in saying that and why that was a  
19 reasonable approach, did you also advise the Commission  
20 that weather accounts for about 97 percent of the  
21 variation in usage from the residential class?

22 A. I don't have the testimony in front of me. I  
23 think that's not the right number.

24 Q. It's pretty high, right, 95, 97, something  
25 like that?

1 A. Yes.

2 Q. Okay. And then you came in and during  
3 redirect examination by your counsel you rolled out your  
4 specimen tariff; is that right?

5 A. Yes.

6 Q. And this was once again on the last day of the  
7 regular evidentiary hearings?

8 A. Not quite accurate. There was a follow up  
9 hearing for true-up in which Spire was also given a  
10 chance to respond to these tariffs.

11 Q. Yeah, that's why I said the last day of the  
12 regular we did have a true-up proceeding, we had a tax  
13 proceeding that seemed to go on forever, right?

14 A. Yes.

15 Q. Okay. And you know, you were asked to briefly  
16 explain what this tariff did; is that correct?

17 A. Yes.

18 Q. And you had some comments in there that I  
19 think, you know, Mr. Keevil discussed in the transcript  
20 about what staff intended to do with the tariff or how  
21 it would operate?

22 A. It wasn't Mr. Keevil. It was Mr. Kevin  
23 Thompson.

24 Q. Well, he had a discussion today but Mr. Kevin  
25 Thompson was crossing you back then?

1 A. On redirect, yes.

2 Q. Yes, on redirect. You spent about three or  
3 four pages of transcript describing how the tariff would  
4 operate; is that correct?

5 A. I don't recall a specific page count, but I  
6 did discuss it, yes.

7 Q. Okay. That will be in the exhibit. Now, you  
8 talked about in your rebuttal testimony in this case how  
9 it was modeled after two tariffs that you had appended  
10 to your rebuttal testimony; is that correct?

11 A. Yes.

12 Q. Okay. And those two tariffs, do they mention  
13 the ranking method?

14 A. I do not recall.

15 Q. You don't recall. Okay. They'll speak for  
16 themselves. Did they apply only to the residential  
17 class?

18 A. I don't recall. If the tariffs were  
19 available, I could look at them.

20 MR. PENDERGAST: Let me take just a moment  
21 here. If I could approach the witness.

22 JUDGE GRAHAM: Certainly.

23 BY MR. PENDERGAST:

24 Q. Could you identify the document I'm handing  
25 you?

1 A. This states it is the rebuttal testimony of  
2 Michael L. Stahlman from Case No. GR-2017-0215 and 0216.

3 Q. Okay. And here's the additional pages that go  
4 to that. Do you recognize these two tariffs that were  
5 appended to your testimony?

6 A. Give me a moment. Okay. These appear to be  
7 the tariffs I attached.

8 Q. Yeah. And if we just focus on the one for  
9 Kentucky Brayton Energy, do you see that?

10 A. Yes.

11 Q. And who does it say it applies to?

12 A. Applicable to rate G1 sales service excluding  
13 industrial class only.

14 Q. And then does it go on to say commercial,  
15 residential and public authorities?

16 A. In the third paragraph, the WNA shall apply to  
17 all residential, commercial and public authority bills  
18 based on meters read during the months of November  
19 through April.

20 Q. So is it fair to say that when you do your  
21 specimen tariff sheet you did not adopt the at least  
22 applicability language in those tariffs?

23 A. Correct. I discussed in rebuttal testimony  
24 that I would want to limit it to the residential tariff  
25 or original residential tariff classes. So I fit the --

1 I followed some of the formula's patterns but I fit some  
2 of my recommendations from rebuttal into the specimen  
3 tariff.

4 Q. And they used different normals. One used a  
5 20-year normal, the other uses a 30-year normal; is that  
6 correct?

7 A. I think that is correct.

8 Q. Is there any mention of a ranking method in  
9 there?

10 A. I do not recall. I can sit here and read for  
11 a few minutes.

12 Q. You don't recall it?

13 A. Yes.

14 Q. Now, in that specimen tariff sheet you also  
15 added a fixed rate cap; is that correct?

16 A. Yes.

17 Q. Okay. And that was a \$0.01 fixed rate cap?

18 A. I think that is correct, yes.

19 Q. Okay. Now, you had told the Commission that  
20 in your testimony we just went over that your approach  
21 of just making it for weather was appropriate for one  
22 reason because weather explained 95 to 97 percent of  
23 variation in customer usage; is that correct?

24 A. That's one of the reasons, yes.

25 Q. Okay. If there was a \$0.01 fixed rate cap and

1 that had been approved by the Commission, how much  
2 customer usage variation would your tariff have  
3 addressed in a rather cold or rather warm winter?

4 A. I don't know.

5 Q. Okay. So when you proposed that \$0.01 cap,  
6 you had no idea what impact it would have on covering  
7 customer usage variation; is that correct? Is that what  
8 you're saying?

9 A. At the time we had not went through the total  
10 customer impacts. We didn't have the -- we hadn't gone  
11 through like what the rates would be and other factors  
12 that would need to be calculated. So we did not know  
13 what the impacts would be.

14 Q. Okay. You didn't think it was necessary to go  
15 through that analysis before proposing a hard fixed cap  
16 of \$0.01?

17 A. As you mentioned, this was provided on in the  
18 last day of the last case basically. So there was not  
19 sufficient time for me to do the entire analysis --

20 Q. Do you suspect, Mr. Stahlman, just knowing  
21 what you do know in a ballpark way that a \$0.01 hard cap  
22 would not come anywhere close to providing 95 to 97  
23 percent accounting for customer variation in a warm  
24 winter or a very cold winter?

25 A. I'm not sure I've done compared to a specific

1 cold or warm period either.

2 Q. Okay. I think you mentioned in your testimony  
3 the Company was given an opportunity to respond; is that  
4 correct?

5 A. Yes.

6 Q. Okay. And in giving that opportunity to  
7 respond, Mr. Buck said he had some concerns about three  
8 of the elements in the tariff; is that correct?

9 A. I think that is correct.

10 Q. Was one of them the hard \$0.01 cap that he  
11 said would actually make the Company worse off than it  
12 already was rate design wise?

13 A. I don't recall that reason. I know he was  
14 opposed to the \$0.01 cap.

15 MR. PENDERGAST: Okay. So if I could approach  
16 the witness, please.

17 JUDGE GRAHAM: Surely.

18 BY MR. PENDERGAST:

19 Q. Could you identify the document -- Could you  
20 please identify the document I'm handing you?

21 A. This states the title of the document is  
22 Affidavit. It states to be Exhibit No. 63 of Spire in  
23 File No. GR-2017 Case Nos. 215 and 216.

24 Q. Okay. I don't want you to have to read the  
25 whole thing. He responds to the specimen tariff you had



1 proposed; is that correct?

2 A. Yes.

3 Q. Okay. If we could just look at paragraph 4.  
4 If you could just paraphrase what he's saying there.

5 A. I'd rather just read what he says.

6 Q. Okay. That's fine.

7 A. He said second, the arbitrary \$0.01 per therm  
8 (or ccf) limit on adjustments that can be made under the  
9 WNAR Tariff should be eliminated as its practical effect  
10 would be to substantially increase rather than mitigate  
11 the exposure of both the Company and its customers to  
12 the financial impact of weather-related changes in  
13 customer usage compared to today. This would  
14 effectively eviscerate the entire purpose of such a  
15 tariff. Elimination of this adjustment limit would also  
16 be consistent with the operation of the Company's PGA  
17 clause, the statute that authorizes this kind of  
18 mechanism and the vast majority of similar clauses  
19 approved in other jurisdictions. If the Commission  
20 determines that some limit is appropriate, I would  
21 recommend that it: (1) be a limit only on upward  
22 adjustments and (2) that it be set at \$0.05 per therm or  
23 ccf. This would ensure that any monthly increase for  
24 the average customer would not exceed \$3.35 while  
25 providing customers with an opportunity to receive a

1 larger monthly decrease if the weather is exceptionally  
2 cold. The WNAR Tariff should also provide that any  
3 adjustment amounts falling outside the \$0.05 limit would  
4 be deferred for recovery from customers in the next WNAR  
5 adjustment.

6 Q. Okay. So is it fair to say that at least  
7 according to Mr. Buck, the \$0.01 hard cap you were  
8 proposing would have given the Company less protection  
9 from the impact of weather than it already had under its  
10 existing rate design?

11 A. That is what Mr. Buck states.

12 Q. Okay. And I think in your testimony you talk  
13 about the Company didn't discuss this matter with the  
14 staff and how the tariff would work until after it was  
15 filed. Do you remember saying that in your testimony?

16 A. Can you repeat the question?

17 Q. Yes. Did you say in your testimony that once  
18 the specimen tariff sheet was put on the record on the  
19 last day of the regular evidentiary hearing the Company  
20 did not contact the staff to discuss the tariff and how  
21 it would operate?

22 A. I do not recall any contact, so correct.

23 Q. Okay. But in a very formal way Mr. Buck did  
24 indicate that he thought there was a major flaw in your  
25 proposal and instead of alleviating the impact of

1 weather on the Company and its customers it would  
2 exacerbate it. Isn't that what Mr. Buck said?

3 A. I believe that's what his affidavit said.

4 Q. Okay. What follow up did you do after you  
5 received that affidavit?

6 A. I do not recall having the opportunity for  
7 follow up.

8 Q. Okay. So you didn't go back and talk to your  
9 other staff members and say hey, wait a minute, they're  
10 saying this \$0.01 cap is going to make things worse off  
11 for them rather than better?

12 A. I know I discussed it with staff. Now I'm  
13 trying to recall if I had filed any testimony in the  
14 true-up filing. I don't recall if I did or not.

15 Q. Well, let me ask you this. Did it occur to  
16 you when you were briefly explaining what this tariff  
17 would do to the Commission when it was unveiled on that  
18 last day of the evidentiary hearing to talk to the  
19 Commission a little bit about the \$0.01 cap?

20 A. I don't know if I did or not.

21 Q. Okay. We have the transcript. We can tell  
22 whether you did or not. Do you think that was an  
23 important element?

24 A. Because with the impacts of the mechanism were  
25 known I thought a cap -- this cap also swung both ways.

1 It was a \$0.01 on the customer and \$0.01 on the company  
2 as proposed.

3 Q. Is that a feature that you got from one of  
4 those sample tariffs that you looked at?

5 A. I don't know where -- It could have developed  
6 in discussion with other staff members. I do not  
7 recall.

8 Q. You've got the tariffs in front of you. Do  
9 either of those have a cap in it like that?

10 A. I don't know. I have to go find it again.  
11 These are only one sheets. I do not -- There may be  
12 subsequent sheets to these tariffs. I'm not sure. So  
13 this is like the first page of tariff sheets from the  
14 other companies, the samples. I don't know if there's  
15 subsequent two or three pages to the total.

16 Q. Do you think you may have attached more to  
17 your testimony?

18 A. I don't know if I attached them or did not  
19 attach them. I think it was just examples of providing  
20 some mechanism that Spire could have looked at.

21 Q. Okay. Good enough. For what it's worth, the  
22 pages that you do have do you see a cap there?

23 A. I do not.

24 Q. And how many weather clauses are you familiar  
25 with where they impose a hard cap?

1 A. Define hard. Like well there's the --

2 Q. You have to absorb anything above a certain  
3 percent.

4 A. There's the two in Missouri that were limited  
5 to \$0.05 increase.

6 Q. Okay. But that is with anything over a  
7 deferred for recovery in a subsequent adjustment, right?

8 A. Yes.

9 Q. Okay. So that's what I'm not calling a hard  
10 cap. A hard cap is if it's above it, you absorb it.

11 A. I don't recall that.

12 Q. You don't recall any others?

13 A. Correct.

14 Q. And staff has talked a lot about wanting to  
15 have an accurate reconciliation of the weather customer  
16 usage; is that correct?

17 A. Yes.

18 Q. And that that's why it interprets its language  
19 in part to provide for this re-ranking; is that correct?

20 A. The language itself and where it says staff's  
21 daily normal weather Dr. Won defines that phrase in his  
22 testimony in the rate case.

23 Q. Well, as we have established, the beginning of  
24 that says you use the total heating degree days in the  
25 rate case, right?

1 A. Yes.

2 Q. And that doesn't change. You use that on an  
3 annual basis?

4 A. Yes.

5 Q. Okay. So nothing in the words that go after  
6 that vary the fact that you use the total heating degree  
7 days established in the rate case.

8 A. Was there a question? I'm sorry.

9 Q. Yeah. I'm saying it says you use the total  
10 heating degree days in the rate case and nothing that  
11 follows after that sentence is designed to vary that and  
12 say you use something different than the total heating  
13 degree days?

14 A. I don't read the definition to say that  
15 paraphrase of what you just said. The definition is the  
16 total normal heating degree days based upon staff's  
17 daily normal weather as determined in the most recent  
18 rate case.

19 Q. Yeah. And there's nothing that's going to  
20 change the fact that you're using the total normal  
21 heating degree days established by staff in the rate  
22 case; is that correct?

23 A. That's changing some words around that I'm not  
24 sure that has the same meaning as what I just said.

25 Q. Okay. You may be seeing a difference. I

1 don't. But in any event, the total heating degree days  
2 stayed the same, right?

3 A. The total annual heating degree days does not  
4 change.

5 Q. Okay. Page 3, I think it's in your rebuttal,  
6 you mentioned the fact that Liberty has a tariff in  
7 effect; is that correct?

8 A. Yes.

9 Q. Okay. And they also filed for their first  
10 adjustment; is that correct?

11 A. Yes.

12 Q. How much of an adjustment did they make?

13 A. I don't recall specifically. I think it was  
14 zero or next to zero.

15 Q. How about just zero?

16 A. Okay. I'll take your word for it it was zero.

17 Q. Okay. So they really didn't have anything  
18 financial at stake in that adjustment, did they?

19 A. I don't know.

20 Q. Okay. And did staff provide them copies of  
21 its work papers on how it determined what an adjustment  
22 should be?

23 A. Yes.

24 Q. And that adjustment produced no change in  
25 their WNAR; is that correct?

1 A. I think that's correct.

2 Q. Okay. And they went along with that?

3 A. They filed a method consistent with staff's  
4 method.

5 Q. Based on, yeah, staff's method, right?

6 A. Correct.

7 Q. That and provided work papers. Okay. Did  
8 Liberty, aside from filing on that method, did they make  
9 any representations to the staff that were just fine  
10 with your approach?

11 A. Liberty filed a method consistent with staff's  
12 method.

13 Q. I know they filed a method that was consistent  
14 with staff's method. Did they make any representations  
15 to you that we are fine with staff's method?

16 A. I don't recall a discussion anywhere anything  
17 like this at all with Liberty. They filed something  
18 consistent with what we --

19 Q. They just filed a zero and they just used  
20 staff's method in calculating the zero; is that right?  
21 That's fine. I'll withdraw the question. I don't need  
22 anything additional on that.

23 Okay. I think at page 1 of your rebuttal  
24 testimony, do you have that? I'm referring to page --  
25 or line 21.



1 A. Okay.

2 Q. And there you say Mr. Weitzel's interpretation  
3 ignores the entire clause of the tariff and then you go  
4 on to quote based upon staff's daily normal weather as  
5 determined in the most recent rate case. Now, when you  
6 say he ignores it, you don't mean that he didn't address  
7 it, do you?

8 A. He only -- Mr. Weitzel only examines the as  
9 determined portion of that or he only really says  
10 determined in the most recent rate case. He does not  
11 read the clause as a whole.

12 Q. Okay. So he references that provision but  
13 you're saying he left out based on staff's --

14 MR. PENDERGAST: If I could approach the  
15 witness.

16 JUDGE GRAHAM: Certainly.

17 MR. PENDERGAST: I'm almost done.

18 THE WITNESS: And I have Mr. Weitzel's  
19 testimony.

20 BY MR. PENDERGAST:

21 Q. Oh, you do. Okay. Could you turn to page 5  
22 of his direct testimony then --

23 A. Okay.

24 Q. -- and focus your attention on lines 9 through  
25 12.

1 MR. KEEVIL: The direct?

2 MR. PENDERGAST: Yeah.

3 BY MR. PENDERGAST:

4 Q. Do you have that?

5 A. Yes.

6 Q. Okay. And can you tell me whether Mr. Weitzel  
7 references the entire phrase there?

8 A. He does list from lines 10 to 12 the entire  
9 clause --

10 Q. Okay.

11 A. -- or entire definition.

12 Q. You know, it's not that big of a deal. But  
13 when you say he ignored it, he didn't ignore it, did he?

14 A. I would disagree because the way he focuses on  
15 the emphasizing the as determined in the most recent  
16 rate case. I think that changes how that clause is read  
17 as a whole.

18 Q. Okay. So he repeated the entire clause but  
19 because he italicized certain words in it you're saying  
20 he ignored it. Is that your testimony?

21 A. It changes it which is like ignoring the rest  
22 of the words in front of it. Those impact how that  
23 entire clause is read.

24 Q. Okay. So that's your definition of ignore?

25 MR. KEEVIL: Asked and answered.

1 JUDGE GRAHAM: I'll overrule. You can answer.

2 THE WITNESS: This is how I interpreted it.

3 MR. PENDERGAST: Okay. Thank you,

4 Mr. Stahlman. I appreciate it.

5 JUDGE GRAHAM: Commissioner Hall, do you have  
6 questions?

7 QUESTIONS BY COMMISSIONER HALL:

8 Q. Good afternoon.

9 A. Good afternoon.

10 Q. Could I ask you to look at page 1 of your  
11 direct testimony.

12 A. I'm there.

13 Q. Lines 18 to 21. Then I want to look at that  
14 statement and compare it to the formula for Spire West  
15 but I'm not sure it matters. Staff is recommending  
16 rejection because Spire ranks normal weather to 2016  
17 actual weather. And so where it says normal weather, is  
18 that what is used in NDDij?

19 A. Yes.

20 Q. So where I'm confused amongst other areas is  
21 in your statement here you go on to say what Spire  
22 should have done is normal weather to be ranked to the  
23 actual weather of the accumulation period, right?

24 A. Yes.

25 Q. So in both cases you have Spire and staff with

1 the same normal weather but a different actual weather;  
2 is that correct?

3 A. Not precisely.

4 Q. Or even close?

5 A. The issue is that staff does not assign a  
6 normal value, normal weather value to a specific  
7 calendar date. We do have normal values ranked from the  
8 coldest to warmest in a calendar month, that our method,  
9 what it's referring to in staff's daily normal weather,  
10 is that you would then have to match so that the coldest  
11 normal goes with the coldest actual. If this was only  
12 in a calendar month, if the billing cycle was one cycle  
13 in a calendar month, there would be no difference in the  
14 method or in the outcome of staff's and Spire's. The  
15 issue is that the billing cycles are not on a calendar  
16 month basis. They go before and after a specific  
17 calendar month. So the values of normals that get  
18 assigned in the billing cycle can move in or out of that  
19 period.

20 Q. Okay. Would you be able to run through a  
21 calculation using this formula?

22 A. Yes.

23 Q. Okay.

24 A. I'll try.

25 Q. So you would need to pick an applicable

1 billing cycle month to start?

2 A. Yes.

3 Q. Okay.

4 A. If you have the testimony, can you turn to  
5 Schedule MLS-d2. It's after my credentials. I  
6 apologize for the font of this is the only way to get it  
7 on one page. I try to describe it in simpler fashion  
8 within my testimony. So the example given here, this  
9 was the NORM WX column was the actual normal for the  
10 2016 dates of November 1 through December 31.

11 Q. Where does it say that on here?

12 A. So the NORM WX, that stands for normal  
13 weather. This was taken from the rate case, these  
14 values. And the rank -- 2016 rank shows how basically  
15 the warmest to coldest date for that period, the 2016  
16 rank. So in this example what I did was assume that the  
17 weather miraculously worked out to be the exact same  
18 heating degree days as the normal period but I  
19 rearranged them.

20 So the hypothetical actual HDD I go from the  
21 coldest day on November, make that November 1 and go to  
22 the warmest day which was zero HDD on November 30 and  
23 then I proceeded to go December was the exact opposite.  
24 The warmest day was December 1 and the coldest day was  
25 December 31. So if I skip the next column and go to

1 Staff Reranked Normal --

2 Q. So is the accumulation period here November  
3 and December?

4 A. The calendar months are that. The  
5 accumulation period would depend on what the billing  
6 cycle was which is that's even further to the right in  
7 that box that's highlighted yellow. So the way Staff  
8 Reranked Normal, what staff would do is assign a rank  
9 for the new temperatures and rearrange the normals. As  
10 I stated that because the weather was actually the same  
11 in this hypothetical, the rank of the new normal, which  
12 I called reranked just to try and clarify what I was  
13 referring to, is the same as the hypothetical actual.  
14 So there would be no difference. You would take NDD  
15 minus ADD for a given day as on this equation and you  
16 would end up with zero. Spire's method is on the  
17 hypothetical NDD minus ADD company method. There  
18 they're maintaining that NORM WX column rank and  
19 subtracting the hypothetical actual weather. And so you  
20 end up with large differences. But if you go to the  
21 bottom of the column, I sum up that column. So even all  
22 those differences they net out to zero.

23 Q. So could you have done this for an actual  
24 month instead of this hypothetical?

25 A. Yes. We have this -- this wasn't as a work

1 paper. The purpose of this example is to show that  
2 there was a volatility with the Company's method when  
3 staff's method had no volatility. It would have netted  
4 out to zero on each date.

5 Q. Yeah, but it's assuming that the actual was  
6 the same as the normalized.

7 A. Yes.

8 Q. So then --

9 A. It was unrealistic. I admit that that  
10 scenario wasn't realistic. As a schedule, I did not  
11 provide the example we have. But going through with the  
12 Company we basically did the same thing. This is a  
13 spreadsheet I was providing to the Company just to try  
14 and help compare.

15 Q. Are those your work papers?

16 A. No. These were papers provided to the Company  
17 in discussion over this case.

18 Q. With actual numbers?

19 A. Yes.

20 COMMISSIONER HALL: Okay. We should probably  
21 -- Is that an exhibit?

22 JUDGE GRAHAM: I don't know.

23 MR. KEEVIL: It has not been made an exhibit  
24 but with proper identification we could certainly do  
25 that.

1 COMMISSIONER HALL: If we're going to talk  
2 about it, I think the record would be benefited by doing  
3 so.

4 MR. KEEVIL: If it's --

5 JUDGE GRAHAM: Can we do that now?

6 MR. KEEVIL: I don't have extra copies of it  
7 right now. He can talk about it. We can late file it  
8 if you want it as a late filed exhibit.

9 JUDGE GRAHAM: My concern would be to give it  
10 a number today so that when we're reading this  
11 transcript. We can late file it but can we go ahead and  
12 mark it even though we have a single.

13 MR. KEEVIL: Yes. It would be 209 according  
14 to my numbering.

15 JUDGE GRAHAM: And what are we going to name  
16 that?

17 MR. KEEVIL: I'm going to have to defer to  
18 Mr. Stahlman on that. I don't have one.

19 JUDGE GRAHAM: Mr. Stahlman, what would you  
20 like to entitle those documents?

21 THE WITNESS: Let's do --

22 MR. KEEVIL: It's just one document, isn't it?

23 THE WITNESS: Yes.

24 JUDGE GRAHAM: Just give it a name.

25 THE WITNESS: Sample WNAR for April through



1 September 2018.

2 JUDGE GRAHAM: That's probably good enough for  
3 purposes of being able to understand our transcript.

4 THE WITNESS: Do the other parties want to see  
5 this first?

6 JUDGE GRAHAM: Well, the Commissioner is  
7 asking some questions about it. Do you want to go ahead  
8 and circulate it?

9 COMMISSIONER HALL: I don't think they have  
10 copies.

11 MR. KEEVIL: What did you do? It's his only  
12 copy.

13 THE WITNESS: Just to show them what it is.

14 JUDGE GRAHAM: It's coming back. Watch him.

15 THE WITNESS: I trust him not to tear it up in  
16 front of the Commissioners.

17 MR. KEEVIL: What number did we decide on?  
18 209?

19 MS. SHEMWELL: Yes.

20 JUDGE GRAHAM: Yes. I'm calling it Sample  
21 WNAR for April to September 2018.

22 THE WITNESS: To clarify, this didn't reflect  
23 the actual accumulation period that they had for this  
24 case. So this was just a sample to try and show  
25 differences between the methods between what Spire was

1 doing and what we were doing.

2 BY COMMISSIONER HALL:

3 Q. It's April to what?

4 A. April to I have September of 2018.

5 Q. So six months?

6 A. I think that's right.

7 Q. Okay.

8 A. So what we have is for each calendar day we  
9 put the observed total, that's the actual ADD, and then  
10 I left a 2016 rank on the rate case for -- so this would  
11 be a rank for April 1 of 2016, but then I also have the  
12 staff method rank of 2018. So you'll see there's a  
13 difference in the numbers on most of these numbers.

14 This next column is just taking in this case  
15 it's subtracting the observed from the 2018 ranking. So  
16 NDD minus ADD. And then the next column has the bill  
17 cycle identified. This would be the accumulation  
18 period. There is a little trick that the tariff did not  
19 start until the 19th of April. So since the bill cycle  
20 on cycle number 13 here ended the 18th, there was no sum  
21 of these numbers but the bill cycle number 14 heads the  
22 numbers from 4/19, the effective date, to 4/21.

23 Q. Can you run through the numbers for that first  
24 billing cycle?

25 A. Okay.

1 Q. Over from the left. So 4/20 I guess.

2 A. 4/20.

3 Q. 2018.

4 A. Let me get closer so I can -- okay. So this  
5 was the normal or observed on that day.

6 Q. You probably need to be on the microphone.

7 A. So 4/20/18 had a normal or observed actual of  
8 15.5 degree heating degree days. So roughly -- let me  
9 do the math. I'm going to round it to 15 to make it  
10 easier for me. Would be 65 minus 15. So you would have  
11 the average temperature of that day was 50 degrees.

12 Q. Okay.

13 A. But back in -- So the normal for that day by  
14 the 2018 rank was by staff's method 9.1.

15 Q. Okay. So when you say the 2018 rank, what do  
16 you mean?

17 A. That this -- so in our series of days going  
18 from the calendar month or calendar date of 4/1 to 4/30,  
19 all these normals will have associated rank in them.  
20 They would be more like the column where I actually  
21 provided the rank number in the other -- in the actual  
22 schedule of my testimony. And so this is just making  
23 sure that if it's the coldest day it matches the coldest  
24 observed.

25 Q. In 2018?

1 A. Yes.

2 Q. So that's not 30 years. That's just 2018?

3 A. Yes. So the coldest day for April of 2018  
4 appears to be April the 1st at a heating degree day of  
5 32 heating degree days. So the ranked normal for 2018  
6 is 27.4. That should be the largest number in that  
7 column. And the 2016 column the 27.4 --

8 Q. Which is the Company's approach?

9 A. Yes. -- the 27.4 shows up on April the 9th.  
10 So it can state that in April the 9th, 2016, that was  
11 the coldest day in April.

12 Q. Okay.

13 A. So then this is just subtraction. I wish in  
14 this example I had also provided the Spire column, but  
15 this was the way I worked this out was by switching the  
16 reference on the column on this. So billing cycle 14 of  
17 the cycle it sums up to 20.19 and that is so from 4/19  
18 to 4/21 these three numbers got added up, the 8.85, 6.43  
19 and 4.91 sum up to 20.19. Then it multiplied -- then  
20 all you do is multiply your customer charges and then by  
21 your beta, which in this case I have .14. So this is an  
22 example for Spire East. So when you have your completed  
23 billing cycle, it would be the 13th through the 18th you  
24 would add up all of those -- all of those billing  
25 cycles, the product of the betas and you would get the

1 WNAi and then you multiply that by the applicable rate  
2 which is the WRVR. I'm sorry. This is more complex  
3 following through a spreadsheet by hand than looking at  
4 the actual formulas.

5 COMMISSIONER HALL: But it's helpful. Okay.  
6 I have no further questions.

7 JUDGE GRAHAM: Thank you. This is probably  
8 not the best place to break but our court reporter has  
9 been at it for a solid two hours. Can we give her about  
10 ten minutes, would that be okay, before we go on? I  
11 expect you all have some questions. I've got a couple.  
12 Why don't we have an intermission for about ten minutes  
13 to give our court reporter and anybody else a little  
14 relief.

15 (A recess was taken.)

16 JUDGE GRAHAM: We're going to go back on the  
17 record.

18 All right. I was about to pass the witness  
19 over to Chairman Silvey if he's got some questions.

20 CHAIRMAN SILVEY: I do not at this time.

21 JUDGE GRAHAM: All right. Did you have some  
22 more questions?

23 COMMISSIONER HALL: No.

24 QUESTIONS BY JUDGE GRAHAM:

25 Q. In that event, I did have a couple and I'm

1 looking over your head again at the screen. You were  
2 asked some questions by counsel in the course of  
3 examination about what I took to be perhaps an  
4 annualized way of looking at NDD; but looking at the  
5 tariff language, doesn't it state the WNA factor will be  
6 calculated for each billing cycle and billing month as  
7 follows? So the formula that you're looking at up there  
8 that we have before us, does that calculate on a billing  
9 month or a billing cycle of a billing month? Is that  
10 how the formula works?

11 A. Yes, it would be on a billing cycle basis.

12 Q. Which is give or take 30 days?

13 A. Yes.

14 Q. Something on that order. Okay. The elephant  
15 in the room is why are we doing this. We're calculating  
16 a rider that's going to go on the customer's bill; is  
17 that right?

18 A. Yes.

19 Q. That's going to be a charge or it might be a  
20 credit?

21 A. Yes.

22 Q. Okay. Depending on how this formula comes  
23 out, at the end of the day the customer may actually see  
24 a discount in the bill because of the application of  
25 this process?

1 A. Correct.

2 Q. Or may see an add-on to the bill; is that  
3 correct?

4 A. Correct.

5 Q. That's going to be the monthly bill?

6 A. Yes.

7 Q. Not the annual bill or anything?

8 A. Correct.

9 Q. What I'm driving at gets back to that  
10 coefficient beta?

11 A. Yes.

12 Q. Beta is a coefficient applicable to a monthly  
13 billing cycle and not to anything that's been  
14 annualized, am I right?

15 A. Yes.

16 CHAIRMAN GRAHAM: That's all the questions  
17 I've got. All right. Does OPC have any recross?

18 RE-CROSS-EXAMINATION BY MS. SHEMWELL:

19 Q. I'm trying to -- It was hard to follow the  
20 questions based upon the document that you just handed  
21 out to those of us who didn't have it. I'd like to ask  
22 you something about the annual NDD. And you had said  
23 that it was the same between Spire and staff, the  
24 annual?

25 A. The total count, yes.

1 Q. Is this based on a calendar year?

2 A. Yes.

3 Q. Not --

4 A. Not a billing cycle year.

5 Q. But residential customers are not billed on a  
6 calendar year?

7 A. Correct.

8 Q. Would 12 billing months equal 365 days for  
9 every bill cycle?

10 A. Not necessarily.

11 Q. So less than 365 days or more?

12 A. I think it varies. I would defer to Robin  
13 Kliethermes.

14 Q. So would Spire's NDD and staff's NDD for the  
15 12 billing months be the same?

16 A. Using the same billing cycle dates, the sum  
17 would be the same. The problem is when you multiply by  
18 changing customers within that period.

19 Q. Changing customer numbers?

20 A. Yes. Within one cycle, one bill cycle versus  
21 another bill cycle. If the customer counts change,  
22 that's while our numbers will be different in a given  
23 billing cycle month and they'll sum out to be the same  
24 over a year. The problem is when you -- the different  
25 customer counts will result in magnify the differences



1 between staff's and Company's method.

2 Q. Just to kind of sum up, the NDD up here and  
3 the ADD and the C are all variables?

4 A. Yes.

5 MS. SHEMWELL: Thank you. That's all I have.

6 JUDGE GRAHAM: Any recross from Spire?

7 MR. PENDERGAST: Just a few.

8 RECROSS-EXAMINATION BY MR. PENDERGAST:

9 Q. You were asked some questions about doing  
10 things on a billing cycle billing month basis, and I'm  
11 interested in just asking what the impact of this is on  
12 the customer. And you have been here where we've talked  
13 about which method has more volatility and that sort of  
14 thing. Do you recall that?

15 A. Yes.

16 Q. Okay. And I just want to make sure everybody  
17 has a good understanding of when the impact is on the  
18 customer. Under the WNAR, we basically have into effect  
19 for a year, right?

20 A. Yes.

21 Q. Okay. And you look at all the puts and takes,  
22 the ups and takes, whatever the volatility is, and at  
23 the end of the year you'll have a number that will be  
24 translated into an adjustment that will be reflected in  
25 the customer's bill; is that correct?

1 A. Yes.

2 Q. Okay. And I think you said you went back and  
3 you looked at a prior year and you determined at the end  
4 of the year there was 140,000 difference between the  
5 Company's approach and staff's approach?

6 A. I think approximately that amount.

7 Q. Okay. That's 140,000 difference that would be  
8 reflected in an annual adjustment that then customers  
9 would start to go ahead and pay, right?

10 A. Just to clarify and make sure I'm  
11 understanding, it would be put in a monthly bill basis  
12 but going on for a year.

13 Q. Sure. It would be put in a monthly bill and  
14 billed therefrom until it was either credited back to  
15 customers or collected, right?

16 A. Yes. This was only one example. How it would  
17 work out in other years, I don't know.

18 Q. Okay. But what we're not doing is we're not  
19 taking these variations or these differences between the  
20 Company's method and staff's method and billing the  
21 customers that difference on a monthly basis, right?  
22 We're not making a WNAR adjustment every month, are we?

23 A. No.

24 Q. Okay. It's something that gets made, you  
25 know, after a year and according to one analysis you did

1 the ultimate net result was approximately \$140,000  
2 difference?

3 A. I think we sum these up I think they file  
4 every six month, if I recall right, semi-annual.

5 Q. Yeah. But it lasts for a year after that,  
6 right, a 12-month period. Okay. And it's what happens  
7 through all the reconciliations over that yearly period  
8 that ultimately gets reflected on the customer's bill;  
9 is that correct?

10 A. I think that's correct.

11 Q. Okay. And do you have any idea of what the  
12 Company's distribution revenues are compared to that  
13 140,000?

14 A. No. Robin Kliethermes probably has a better  
15 idea of that.

16 MR. PENDERGAST: Fine. I'll ask her. Thank  
17 you very much.

18 JUDGE GRAHAM: Redirect from staff?

19 MR. KEEVIL: Yes. Thanks, Judge.

20 REDIRECT EXAMINATION BY MR. KEEVIL:

21 Q. Starting at the end there and working back,  
22 Mr. Stahlman, Mr. Pendergast was asking you about this  
23 130 or 140,000 difference that had been calculated.  
24 First of all, I want to clarify what that is a  
25 difference between. As I understand it, that was the

1 difference between staff's method and Spire's method for  
2 calculating the WNAR adjustment; is that correct?

3 A. Yes.

4 Q. And it was also limited to I believe in that  
5 instance Spire East, it did not include Spire West; is  
6 that correct?

7 A. Yes.

8 Q. Okay. So if you assume that, and this  
9 probably would not be an accurate assumption, but if you  
10 assume that Spire West difference was the same as Spire  
11 East, that would put you at 280,000 total company for a  
12 difference between the method?

13 A. Yes, one way to compare it to. I know we  
14 recommended WNAR rates of a negative .0005 and a  
15 positive .008. I don't recall what the Company numbers  
16 were when they filed, but I can give you a comparison on  
17 our difference just for the short period.

18 Q. Right. For this particular accumulation  
19 period?

20 A. Yes.

21 Q. Also, continuing to work backward, while we  
22 were off the record during intermission, staff made  
23 copies of what was marked as Exhibit 209 which I believe  
24 is the document that you were discussing previously with  
25 Commissioner Hall. Do you have a copy of that, sir?

1 A. Yes.

2 MR. KEEVIL: Judge, I would offer, if it  
3 hasn't already been offered, Exhibit 209 into the record  
4 just to make things clean.

5 JUDGE GRAHAM: Any objections? 209 is  
6 admitted. Go ahead.

7 MR. KEEVIL: Thank you.

8 (STAFF'S EXHIBIT 209 WAS RECEIVED INTO  
9 EVIDENCE AND MADE A PART OF THIS RECORD.)

10 BY MR. KEEVIL:

11 Q. Mr. Stahlman, what precisely is Exhibit 209?  
12 By that I mean why was it calculated? What's it  
13 intended to represent?

14 A. The Exhibit 209 was meant to assist Spire in  
15 staff's discussions on the differences between what  
16 their method was and what our method is. So went  
17 through and actually calculated the monthly values for  
18 the time period given. And the way I had it in the  
19 Excel document was the NDD minus ADD column I would just  
20 change out whether it was subtracting from the 2016 or  
21 the 2018 column so I can quickly compare the difference  
22 in the values.

23 Q. As I understand it based on your answer, this  
24 is not the calculation of staff's proposed WNAR  
25 adjustment in this case for either Spire East or Spire

1 West?

2 A. No, this went beyond the accumulation period,  
3 yeah.

4 Q. And the reason it went beyond the accumulation  
5 period was an attempt to compare the difference between  
6 the staff's method and Spire's method?

7 A. Yes. The accumulation period in this case had  
8 less heating degree days than normal. As we were in  
9 discussions, it was later on that we had better more  
10 updated data for the --

11 Q. We had colder months?

12 A. Yes. Colder months and more recent data. I  
13 think in other examples we actually reached back for a  
14 certain time period.

15 Q. Okay. In response to a question Chairman Hall  
16 -- or Commissioner Hall was asking some questions about  
17 the relationship of staff's normal, excuse me, daily  
18 normal heating degree days and the actual heating degree  
19 days if I was understanding the question correctly. Is  
20 it correct that staff's calculation of daily normal  
21 degree days includes ranking based on actual  
22 temperature?

23 A. Yes.

24 Q. Okay. Could you -- That's kind of been a spot  
25 of some I think confusion throughout this hearing.

1 Could you explain that?

2 A. So the phrase staff's daily normal weather  
3 refers basically to a method, not specific values. We  
4 really struggled on trying to write this tariff language  
5 for a week or two because we recognized that the total  
6 -- we wanted the total annual to be the same numbers or  
7 even within a month. We wanted those normals to be the  
8 same numbers, but they needed to be changed on which  
9 specific date they were applied. If the numbers were  
10 fixed, this table -- or we would have inserted a table  
11 on another tariff sheet the reference to and it would  
12 have been a whole lot easier tariff to write. The issue  
13 is that we didn't have a real fixed calendar date that  
14 we could assign it on these normals.

15 Q. Mr. Pendergast asked you several questions  
16 about staff's original WNAR tariff proposal. I believe  
17 it was Exhibit 281 from the rate case, had what he  
18 referred to as a hard fixed rate cap. What relevance do  
19 the calculation of the WNAR adjustment would the  
20 existence of a hard fixed rate cap be?

21 A. It would not change the calculation at all.  
22 It would just limit the final rate at the end of all the  
23 calculations which would include multiplying the WNAi by  
24 the weighted residential volumetric rate.

25 Q. When you say "weighted residential

1 volumetric," what was that? Say that again.

2 A. The weighted residential volumetric rate. You  
3 multiply this WNAi by the applicable rate in order to  
4 get the dollars that need to be collected or paid.

5 Q. And as a result of Mr. Buck's affidavit, which  
6 Mr. Pendergast had you read earlier, did the Commission  
7 wind up approving a 5 percent -- or excuse me, not 5  
8 percent -- a \$0.05 cap rather than just a \$0.01 cap?

9 A. Yes. And the \$0.05 cap also had a -- it was a  
10 soft cap I think is would be the correct term.

11 Q. Meaning?

12 A. That the amounts above \$0.05 would also be  
13 collected with interest in subsequent periods.

14 MR. PENDERGAST: In the rolled over confusion.  
15 Thank you. That's all I have.

16 JUDGE GRAHAM: All right. Mr. Stahlman may  
17 step down, be released.

18 (Witness excused.)

19 JUDGE GRAHAM: Staff, I believe your next  
20 witness is Robin Kliethermes.

21 MR. KEEVIL: Yes.

22 JUDGE GRAHAM: We've heard a lot about her.  
23 Ms. Kliethermes, do you want to state your name for the  
24 record and then we'll swear you?

25 THE WITNESS: Robin Kliethermes,



1 K-l-i-e-t-h-e-r-m-e-s.

2 (Witness sworn.)

3 JUDGE GRAHAM: Be seated. You may proceed,  
4 counsel.

5 MR. PENDERGAST: Thank you.

6 ROBIN KLIETHERMES,  
7 called as a witness, being sworn, testified as follows:

8 DIRECT EXAMINATION BY MR. KEEVIL:

9 Q. Ms. Kliethermes, it just dawned on me I think  
10 I've forgotten to ask this question of all my previous  
11 litany of witnesses. Ms. Kliethermes, by whom are you  
12 employed and in what capacity?

13 A. I am employed by the Missouri Public Service  
14 Commission as the rate and tariff examination manager.

15 Q. All right. Are you the same Robin Kliethermes  
16 that has caused to be prepared in this case rebuttal  
17 testimony which has been marked as Exhibit No. 204?

18 A. Yes.

19 Q. Do you have any changes or corrections you  
20 need to make to that testimony?

21 A. I do. On page 5, I would like to delete the  
22 sentence that starts on line 12 and it ends on 14 but  
23 move the Footnote 3 up to the sentence that ends on line  
24 11.

25 Q. Okay. So lines 12 through 14 delete except

1 the footnote moves up to line 11?

2 A. Yes.

3 Q. Okay. Do you have any other additions or  
4 corrections?

5 A. I do not.

6 Q. All right. With that correction, if I were to  
7 ask you the questions contained in Exhibit 204, would  
8 your answers be the same today as contained therein?

9 A. Yes.

10 Q. Are those answers true and correct to the best  
11 of your knowledge and belief?

12 A. Yes.

13 MR. KEEVIL: Judge, I would offer Exhibit 204  
14 and tender the witness.

15 JUDGE GRAHAM: Any objections to Exhibit 204?  
16 204 is admitted.

17 (STAFF'S EXHIBIT 204 WAS RECEIVED INTO  
18 EVIDENCE AND MADE A PART OF THIS RECORD.)

19 JUDGE GRAHAM: Office for Public Counsel may  
20 proceed.

21 MS. SHEMWELL: Thank you.

22 CROSS-EXAMINATION BY MS. SHEMWELL:

23 Q. Good afternoon, Ms. Kliethermes.

24 A. Good afternoon.

25 Q. I'm looking at your example for the

1 differences of the staff and the Company's  
2 interpretation of actual versus normal for April 19.

3 A. Yes. What page?

4 Q. Okay. You show that Spire East experienced  
5 19.5 heating degree days on April 19, right?

6 A. Yes, yes, 2018.

7 Q. Thank you. So what does 19.5 heating degree  
8 days mean?

9 A. Okay. So 19.5 heating degree days is the  
10 result of what we refer to as the mean daily temperature  
11 subtracted from 65 degrees. So Seung Joun, Dr. Won, in  
12 his direct testimony actually provides a little bit  
13 greater detail about how the mean daily temperature is  
14 calculated, but essentially the average of the daily  
15 maximum and the daily minimum temperature for that day.  
16 So if you have heating degree days of 19.5, then you're  
17 going to have a temperature, an average temperature of  
18 45.5 so you could round up to 20 just to make it easier  
19 and say 45 degrees. So in April 19 of 2018, it was on  
20 an average of 45 degrees.

21 Q. Is this across a territory?

22 A. This would be, it is my understanding, and  
23 again I think this goes back to Dr. Won's testimony, but  
24 for Spire East it would be the weather data or the  
25 temperature of the St. Louis airport.

1 Q. NOAA, calculated by NOAA?

2 A. Oh, I'm sorry. So this comes from the Midwest  
3 Regional Climate Center is where staff's actual weather  
4 is coming from.

5 Q. Thank you. And you said that the mean is the  
6 daily high temperature plus the daily low temperature  
7 divided by two; is that correct?

8 A. Dr. Won provides on page 2 of his direct --  
9 mean daily temperature equals Tmax plus Tmin divided by  
10 two.

11 Q. So what is important about the daily  
12 temperature of 65 degrees? Why do you use 65?

13 A. Well, that's -- So again, this is part of Dr.  
14 Won's testimony but I think the 65 comes from -- it says  
15 a comfort level of 65 degrees. I think that is an  
16 industry standard.

17 Q. When customers heat their home?

18 A. Yeah. I think that's generally, but I would  
19 defer to, you know, again Dr. Won if you have specifics  
20 on how 65 degrees.

21 Q. So is it likely that Spire's residential  
22 customers, I don't know if this is East or West, were  
23 heating their homes on April 19 last year?

24 A. You mean 2018?

25 Q. 2018.

1           A.    I forget that we're in 2019 of this year.  
2    April 19 of 2018, because there were 19.5 heating degree  
3    days, then they would be heating their home.

4           Q.    You state that staff's normal was 10.6 heating  
5    degree days for April 19.  What mean daily temperature  
6    does this equal?

7           A.    So 10.  -- You would subtract 65 -- or 10.6  
8    from 65.  So I'm just going to do it as a 10 and do 55  
9    degrees.

10          Q.    So the mean daily temperature --

11          A.    The mean daily temperature would be 55.

12          Q.    So you subtract the 10 from the 65?

13          A.    Yes.

14          Q.    Okay.  So is it likely that Spire's  
15    residential customers would heat their homes on a day  
16    with a mean daily temperature of 54.4?

17          A.    Yes, because it would be less than 65 degrees.

18          Q.    Certainly this may vary by customer?

19          A.    When they heat their home?

20          Q.    Yes.

21          A.    It could.

22          Q.    So usage for space heating would be higher on  
23    a day with a mean daily temperature of 45 or 55?

24          A.    I'm sorry.  Could you repeat your question?

25          Q.    Customers would be using their space heating

1 -- would it be higher -- their use of space heating,  
2 would it be higher if the mean daily temperature is 45  
3 or 55?

4 A. Generally it would be higher the colder it is.

5 Q. The 45?

6 A. Correct.

7 Q. And what is the normal HDD for April 19 that  
8 Spire is proposing to use? Do you have that?

9 A. I do. So the normal heating degree day ranked  
10 on 2016 actual for April 19 was -- let me find it in my  
11 testimony to be exact.

12 Q. Turn to page 5, the top of page 5 perhaps.

13 A. There were zero heating degree days.

14 MR. KEEVIL: Under what?

15 THE WITNESS: So in April 19 of 2016 was one  
16 of the warmest days in April. So there were zero  
17 heating degree days assigned to that. So under Spire's  
18 interpretation the observed 19.5 heating degree days  
19 from April 19, 2018 would get subtracted from zero from  
20 a normal ranked on 2016 actuals.

21 BY MS. SHEMWELL:

22 Q. So which normal provides a bigger adjustment  
23 for April 19?

24 A. The Spire's interpretation.

25 Q. Of zero for 2016?

1 A. That is correct.

2 Q. Would this mean lower or higher revenues for  
3 Spire?

4 A. It would actually -- So the greater the  
5 difference, so they're 19. -- because if you took 19.5  
6 minus zero you get a negative 19.5 -- well, zero minus  
7 19.5 you get a negative 19.5. Then it would actually be  
8 a greater reduction to -- When we're only talking about  
9 this day in isolation and not summed up over the billing  
10 cycle or the applicable period of time that we're  
11 looking at to calculate a WNAR, you are going to get a  
12 greater adjustment downward on their revenues than what  
13 staff would propose.

14 Q. With Spire's methodology, is there a day in  
15 April that's assigned a normal 10.6 HDD?

16 A. Yes. Hold on just a second. Let me take a  
17 look. So in 2016, the 10.6 normal heating degree day  
18 that would get assigned to -- it is April 6.

19 Q. Why is it important which days staff assigns  
20 as normal?

21 A. So when this gets accumulated -- So I think  
22 what we've already talked about is if everything was on  
23 a calendar month it would come out. But if it's not and  
24 there's billing cycles involved and then we also have  
25 seasonal rates involved and that's where the difference

1 is. When you sum it up over a billing cycle and then  
2 you have different numbers of customers per billing  
3 cycle, then these differences are created.

4 Q. What's the result of those differences on  
5 rates?

6 A. So -- And I think this is what we've kind of  
7 been talking about, or Mr. Stahlman talked about it, I  
8 think even Mr. Weitzel touched on it, that we have  
9 looked at over -- we did go back over a year when we  
10 were discussing this issue and over the year it came up  
11 to a difference between the two interpretations of  
12 approximately I think \$130,000 for Spire East. So that  
13 was over I think the time period we used was like 2016  
14 or maybe 12 months ending October of something. It's  
15 2016-2017 time period we used. So in that over a year  
16 the difference would be about 130. If not for the  
17 changes in customers or seasonal rates, you would, we  
18 suspect, see no difference. But again, this all depends  
19 on how weather happens and number of customers per  
20 billing cycle happen.

21 Q. Are all of those taken into account to reach  
22 the final number?

23 A. Yes.

24 Q. Which methodology results in more volatility?

25 A. Spire's method will result in more volatility.



1 Q. How do you know that?

2 A. Because staff is aligning actuals with the  
3 normals, the difference between the two values will  
4 always smooth over time whereas, for example, I'm going  
5 to use the date of April 13. Well, actually April 19 I  
6 use in my testimony is a very good example. In 2016,  
7 there were zero normal heating degree days assigned to  
8 that day. In 2018, there were 10.6. Just looking at  
9 that day, because it's not realigned, the difference is  
10 larger.

11 Now, when you're using Spire's interpretation,  
12 there's another day that probably has a positive offset  
13 to that that is much greater. For example, April 13  
14 there was observed in 2018 zero heating degree days. In  
15 2016, there were 12.9 heating degree days assigned to  
16 that day and in 2018 zero. So there's a positive  
17 difference. Where this comes in to creating these  
18 differences is because that positive value could have  
19 gotten to a different bill cycle with a different number  
20 of customers. The negative value, the large negative  
21 went to a different bill cycle with a different level of  
22 customers or a different came in April 19 could have  
23 come into the May billing month. So the difference gets  
24 added over time and that's where these differences come  
25 from.

1 Q. I'm not completely clear, and perhaps you can  
2 help me on how billing cycles interact with this with  
3 the tariff?

4 A. Well, the billing cycle will be, and it's  
5 zoomed in, I forget whether that's the -- I think we're  
6 talking about June on the billing cycle. So i and j  
7 will be the billing cycle. So when the applicable  
8 billing cycle -- the applicable billing cycle month. So  
9 all those will work together and then basically the way  
10 Michael or Mr. Stahlman explained it to Commissioner  
11 Hall.

12 MS. SHEMWELL: Thank you very much. That's  
13 all I have.

14 JUDGE GRAHAM: Spire, cross-examination?

15 MR. PENDERGAST: Yes. Thank you, Your Honor.

16 CROSS-EXAMINATION BY MR. PENDERGAST:

17 Q. I think Mr. Stahlman deferred this question to  
18 you. We had the discussion about after all the puts and  
19 takes were taken into account and netted at the end of  
20 the year there was about a \$130,000 difference?

21 A. Yes.

22 Q. Okay. Can you just put that difference into  
23 perspective as a percent of Spire East's total  
24 distribution revenues?

25 A. So for subject to check final revenue numbers

1 but Spire East residential revenue I believe was  
2 approximately \$272 million.

3 Q. Okay.

4 A. So 130,000 of that is I think .04 percent.

5 Q. Okay. And you know, when we talk about this  
6 volatility and greater differences, you know, between  
7 actuals and whatever baseline you're using, you know,  
8 that's all taken into account kind of on a back office  
9 basis and the customer just kind of sees the cumulative  
10 impact of that at the end of the period, don't they?

11 A. The cumulative -- yes, the cumulative  
12 differences, they will see those, yeah.

13 Q. And you talked, gave an example, you know, the  
14 one day when reliance on the rate case information  
15 showed zero but the actual temperature was higher maybe  
16 that day got pushed into another period or another area,  
17 but the fact of the matter is when you come to the  
18 annual reconciliation, you know, volatility if you will  
19 between those two results kind of gets taken care of  
20 through the netting process, doesn't it?

21 A. It should. There is still the unknown of what  
22 does weather do in the next month and does it, but it  
23 should net out.

24 Q. Okay. If you had a normal HDD and it's the  
25 same for the year and it's the same for the month, would

1 the coefficient be the same?

2 A. Could you repeat your question?

3 Q. Yeah. If you have a normal HDD and it's the  
4 same for the year and same for the month, doesn't vary,  
5 would the coefficient be the same?

6 A. I don't know. You mean actual heating degree  
7 day, you have the same level of actual heating degree  
8 days for the month?

9 Q. Yeah.

10 A. I don't know.

11 MR. PENDERGAST: You don't know. Okay. I  
12 believe that's all I have. Thank you.

13 JUDGE GRAHAM: Chairman Silvey, do you have  
14 any questions?

15 CHAIRMAN SILVEY: No.

16 JUDGE GRAHAM: Commissioner Hall, do you have  
17 any questions?

18 COMMISSIONER HALL: No questions. Thank you.

19 THE WITNESS: Thank you.

20 QUESTIONS BY JUDGE GRAHAM:

21 Q. I need to clarify something, ma'am. You  
22 referred to -- You were asked questions about the 65  
23 degrees?

24 A. Yeah.

25 Q. Indicated it had something to do with the

1 industry standard. Counsel, I don't know if you want to  
2 provide her with this exhibit, but I think we need to  
3 clear up the record on this. This is the direct  
4 testimony of Dr. Won, which I believe is Exhibit No.  
5 200. Do you have that in front of you there?

6 A. Yes.

7 Q. If you would refer I believe it's to page 2 of  
8 his testimony.

9 A. Yes.

10 Q. Okay. And you see where I am? He's talking  
11 about -- He starts out, if I can go part way down the  
12 page, HDDs are based on the difference of MDT which I  
13 guess is mean daily temperature according to his  
14 statement above?

15 A. Yes.

16 Q. From a comfort level of 65 degrees, HDDs are  
17 calculated as the difference between 65 degrees and MDT.  
18 When MDT is below 65 and are equal to zero when MDT is  
19 above 65?

20 A. That is correct.

21 Q. Okay. Now, having reviewed that, do you have  
22 anything more that you want to tell us about how --  
23 that's a bad question. Strike that question.

24 How does the 65 degree factor function as some  
25 kind of a threshold in the computation of the WNA or can

1 you answer that question?

2 A. Oh, so if I understand what you're asking, so  
3 the 65 degree, the difference between the 65 degrees and  
4 the MDT, or the mean daily temperature, if the MDT is  
5 below 65 creates the heating degree day.

6 Q. That's what creates the heating degree day?

7 A. That creates the heating degree day.

8 Q. So lest there be any confusion in the room  
9 beyond my own confusion, it is very possible that we  
10 will have far fewer than 365 days in a year in question;  
11 is that right?

12 A. Right.

13 Q. That will depend upon the year in question; is  
14 that right?

15 A. Yes.

16 Q. 2018 could be a lot different than 2017 or  
17 '16; is that also correct?

18 A. Are you talking about actual heating degree  
19 days or normal?

20 Q. The days that qualify using this 65 degree  
21 threshold.

22 A. Well, for example, and I think I'm going to  
23 say this as a general, I believe the level of normal  
24 heating degree days, for example, that we were looking  
25 at in the rate case and I think this is Spire East, this

1 is subject to check, I think it's approximately like  
2 3,500 or 3,600 heating degree days. So there will be  
3 more than 365 heating degree because a day and a heating  
4 degree day are not the same.

5 Q. I see. So that number could be -- 365 doesn't  
6 mean anything?

7 A. Correct.

8 JUDGE GRAHAM: Thanks. That's all the  
9 questions I have. Does OPC have some recross?

10 MS. SHEMWELL: No, thank you, Judge.

11 JUDGE GRAHAM: Does Spire have some recross?

12 MR. PENDERGAST: No, Your Honor.

13 JUDGE GRAHAM: Does staff have some redirect?

14 MR. KEEVIL: Very briefly based on your  
15 question.

16 REDIRECT EXAMINATION BY MR. KEEVIL:

17 Q. Ms. Kliethermes, back to the Judge's question,  
18 for example, you could have one day that has 30 heating  
19 degree days in it, correct?

20 A. Yes. So 30 -- If you had 30 heating degree  
21 days, you'd have a temperature of 35 degrees.

22 Q. The reason going back to Dr. Won's testimony  
23 where he talks about HDDs are calculated or equal to  
24 zero when MDT is above 65. If it's 65 or above, then  
25 the assumption is there's no heating necessary so that

1 day just gets a zero; is that correct?

2 A. That is correct.

3 MR. KEEVIL: I don't know if that helps the  
4 Judge or not. That's all I have.

5 JUDGE GRAHAM: Appreciate your help. Okay.  
6 Can this witness step down?

7 MS. SHEMWELL: Sure.

8 (Witness excused.)

9 JUDGE GRAHAM: Okay. We are at five after  
10 4:00. I guess we're ready to proceed with Public  
11 Counsel's witnesses? Staff, you rest? You've rested  
12 for the record?

13 MR. KEEVIL: I have, yes.

14 JUDGE GRAHAM: Yes, Ms. Mantle, do you want to  
15 state your full name?

16 THE WITNESS: My name is Lena M. Mantle.

17 (Witness sworn.)

18 JUDGE GRAHAM: You may be seated. Counsel,  
19 you may proceed.

20 MS. SHEMWELL: Thank you.

21 LENA M. MANTLE,  
22 called as a witness, being sworn, testified as follows:

23 DIRECT EXAMINATION BY MS. SHEMWELL:

24 Q. Ms. Mantle, in this case you have prepared  
25 direct and rebuttal testimony. Your direct has been



1 marked as Exhibit 300?

2 A. That is correct.

3 Q. And you prepared this yourself?

4 A. Yes, I did.

5 Q. Your rebuttal is marked 301, and again you  
6 prepared this yourself?

7 A. Yes.

8 Q. And it's marked 301?

9 A. Yes.

10 Q. That's all of your testimony in this case?

11 A. That is all of it.

12 Q. For whom do you work and in what position?

13 A. I work for the Office of the Public Counsel as  
14 senior analyst.

15 Q. Do you have any corrections to your testimony?

16 A. Yes, I do.

17 Q. What page would that be?

18 A. To my direct testimony, page 3. In my  
19 preparation yesterday for the hearing, I realized that I  
20 had the methodology for how normals were prepared for  
21 the electric cases and not the gas cases. So I'd like  
22 to make the following changes.

23 Beginning on line 9. Staff's methodology of  
24 determining normal-weather HDD calculates 365 days of  
25 "normal" HDD utilizing a method that ranks, by month

1 instead by year, for thirty years, the daily HDD and  
2 calculates an average for each rank to obtain a "normal"  
3 HDD for each rank. So in that sentence I changed the  
4 word year to month.

5 In the next sentence, I would like to do the  
6 same.

7 Q. Just a moment. And you also changed averages  
8 to average on line 11?

9 A. Yes.

10 Q. Thank you.

11 A. And then the next sentence begins with for  
12 example, the coldest day in each -- it should be month,  
13 not year -- (the day with the largest HDD) is given the  
14 rank of 1 in every year in the 30 year time period. The  
15 next -- or the coldest "normal" HDD is calculated by  
16 averaging the ADD that ranked 1 of each month. So again  
17 changing the word year to month. The second coldest  
18 normal HDD is calculated by averaging the second ranking  
19 HDD in each calendar month. This is continued for each  
20 rank and ending that paragraph there.

21 I then would like to strike in line 17 through  
22 22 except for the last word of 22. So that paragraph  
23 would then just read thus the actual assignment of  
24 normal HDD to a given date varies based on the actual  
25 weather in the time period for which the normalization

1 is being conducted. That ends my corrections.

2 Q. So you don't have any corrections to any other  
3 testimony?

4 A. No.

5 MR. KEEVIL: Can I ask one question?

6 THE WITNESS: Yes.

7 MR. KEEVIL: On line 16, the very last  
8 sentence, this is continued for each rank --

9 THE WITNESS: And then strike through 365.

10 MR. KEEVIL: Just period after rank?

11 THE WITNESS: Yes, that would change for every  
12 month the numbers.

13 BY MS. SHEMWELL:

14 Q. With these corrections if I asked you the same  
15 questions today, would your answers be the same?

16 A. Yes, they would.

17 Q. Is your testimony true and correct to the best  
18 of your knowledge and belief?

19 A. Yes, it is.

20 MS. SHEMWELL: Thank you. I offer the witness  
21 for cross-examination.

22 JUDGE GRAHAM: Are you going to offer the  
23 exhibits?

24 MS. SHEMWELL: I will offer Exhibits 300 and  
25 301.

1 JUDGE GRAHAM: Any objections? 300 and 301  
2 are admitted.

3 (OPC'S EXHIBITS 300 AND 301 WERE RECEIVED INTO  
4 EVIDENCE AND MADE A PART OF THIS RECORD.)

5 JUDGE GRAHAM: And staff, would you like to  
6 cross?

7 MR. KEEVIL: No questions, Judge.

8 JUDGE GRAHAM: Spire, do you have any  
9 cross-examination?

10 MR. PENDERGAST: No questions, Your Honor.

11 JUDGE GRAHAM: Chairman Silvey, do you have  
12 any questions?

13 CHAIRMAN SILVEY: No.

14 JUDGE GRAHAM: Commissioner Hall, do you have  
15 any questions?

16 COMMISSIONER HALL: No questions. Thank you.

17 COMMISSIONER COLEMAN: No questions.

18 JUDGE GRAHAM: I don't have any questions of  
19 this witness.

20 MS. SHEMWELL: So she may be excused?

21 JUDGE GRAHAM: Yes, you may. I guess nobody  
22 had any questions. OPC doesn't have any redirect.

23 (Witness excused.)

24 JUDGE GRAHAM: When is the transcript due in  
25 this case?

1 THE COURT REPORTER: The 18th.

2 JUDGE GRAHAM: Well, I'm going to reflect on  
3 this and issue an order concerning briefing and a  
4 briefing schedule. I'm pretty sure I'm going to want to  
5 identify in that after we've reflected some specific  
6 issues and things that we'll want addressed in the  
7 brief.

8 MR. KEEVIL: Not disagreeing with anything you  
9 just said.

10 JUDGE GRAHAM: Of course not.

11 MR. KEEVIL: No, I'm really not. We did  
12 include in the procedural schedule a briefing date which  
13 I assume is now caput.

14 JUDGE GRAHAM: Well, I want to look at that  
15 because there's some -- We're going to look at this in  
16 terms of what we heard today and concerns that we may  
17 have and we may have to look at that briefing schedule  
18 again. But until further notice, that briefing schedule  
19 remains in place.

20 MR. KEEVIL: It does.

21 JUDGE GRAHAM: Is that your question? I'm not  
22 changing any procedural orders in that regard today.  
23 I'm just kind of giving you a heads up.

24 MR. KEEVIL: Related to that then, since it's  
25 currently scheduled for I think the 25th of this month

1 which is only, what, 12 days --

2 JUDGE GRAHAM: It's coming right up.

3 MR. KEEVIL: -- less than two weeks from now,  
4 can we get an expedited transcript?

5 JUDGE GRAHAM: That's three days from now.  
6 This is expedited enough.

7 MR. KEEVIL: It is already expedited?

8 JUDGE GRAHAM: Yeah, it's three days from  
9 today. That's expedited enough. I want to review the  
10 exhibits with you today. Mr. Pendergast, you offered  
11 and I show that we've received 100 and 101?

12 MR. PENDERGAST: That is correct, Your Honor.

13 JUDGE GRAHAM: But I also show that you spent  
14 a good deal of time with Exhibits, I think, 63 and 238  
15 from the rate hearings.

16 MR. PENDERGAST: Yes.

17 JUDGE GRAHAM: Did you offer those?

18 MR. PENDERGAST: I did not offer them. I  
19 thought that the response I got from the witness was  
20 informative enough I didn't need to do that.

21 JUDGE GRAHAM: All right. I didn't miss  
22 anything there. Then I'll go to the next easiest one  
23 and that's the OPC. Now, I show that 300 and 301 are  
24 in, but was 302 offered?

25 MS. SHEMWELL: I checked it.

1 JUDGE GRAHAM: You certainly spent a lot of  
2 time with it and we called it No. 2 many times. We're  
3 going to let the record reflect that -- there's no  
4 objection to 302, is there, that was a rate case weather  
5 adjustment. That's what I show your title as.

6 MS. SHEMWELL: There was no objection at the  
7 time.

8 JUDGE GRAHAM: Okay. We're going to let that  
9 in. That's been admitted 302. Then I'm going to turn  
10 to the lengthier list of staff, and I do show that  
11 Exhibits 200 through 204 were offered and admitted and  
12 209 was offered and admitted. And it may be that 205,  
13 6, 7 and 8 were too but I didn't get them checked off  
14 here.

15 MR. KEEVIL: If they're not checked off, I'll  
16 reoffer them because they all should have been offered  
17 and received, Judge.

18 JUDGE GRAHAM: Well, 205 and 206 are the  
19 tariffs. 205 is the tariff for East. 206 is the tariff  
20 for West. I'm sure I let those in. Those have been  
21 admitted because you asked that we take official notice  
22 of it and we did do that. And then yes, 207 was the  
23 dictionary definition of as.

24 MR. KEEVIL: Right.

25 JUDGE GRAHAM: Is there any objection to the

1 dictionary definition of as? We're going to show the  
2 record is going reflect that 207 was admitted. And then  
3 certain pages from Mr. Stahlman's testimony from the  
4 rate case were offered as Exhibit 208 and I'm pretty  
5 sure that they have been admitted.

6 MR. KEEVIL: Okay.

7 JUDGE GRAHAM: All right. So I'm showing  
8 Exhibits 200 through 209 are in.

9 MR. KEEVIL: Did you say 205?

10 JUDGE GRAHAM: 205 is in. That was the tariff  
11 for Spire East.

12 MR. KEEVIL: My testimony -- There should be  
13 five pieces of testimony: Direct and rebuttal of Won,  
14 direct and rebuttal of Stahlman and rebuttal of  
15 Kliethermes.

16 JUDGE GRAHAM: That's correct. And then  
17 several more that you offered. All right. Okay. The  
18 expedited transcript has been ordered to be ready no  
19 later than January 18. All right. Until you hear  
20 further from me, if anything, or from the Commission, if  
21 anything, we're going to observe the briefing schedule  
22 that's set out in the existing procedural order. Okay.  
23 With that, if there are any further matters, Mr.  
24 Pendergast, you look like you've got something.

25 MR. PENDERGAST: Yeah. Just in considering



1 whether or not there should be any changes in the  
2 briefing schedule, and I know for now we're maintaining  
3 it, just a practical consideration, I think we've  
4 addressed this maybe in some pleadings before, but our  
5 next WNAR filing is due to be filed on March 1. So I  
6 know that is a pretty expedited situation for the  
7 Commission but, you know, preference would be if we're  
8 going to get some guidance if we could get it in time to  
9 reflect it in our filing that would be great. If not,  
10 you know --

11 JUDGE GRAHAM: In other words, by February 1?

12 MR. PENDERGAST: Pardon?

13 JUDGE GRAHAM: That's the thing. It will take  
14 30 days. It's really expedited. In any event, I just  
15 wanted to mention it to put into your calculus if you  
16 could. Secondly, I think there was some talk with the  
17 Company and maybe with the staff briefly. You know, we  
18 do have some work papers that have been shared between  
19 staff and the Company and I think maybe OPC that just  
20 has kind of a more detailed kind of reconciliation, if  
21 you will, of our method versus their method with actual  
22 numbers and I know Chairman Hall was really kind of keen  
23 on getting that kind of information. I just wanted to  
24 alert you that we may discuss it with the parties  
25 afterwards, see how they feel about --

1 JUDGE GRAHAM: Supplementing the record?

2 MR. PENDERGAST: -- submitting that as a late  
3 filed exhibit just for the Commission's interest. I  
4 don't know whether they'll be interested in doing that.  
5 I didn't want it to come as a surprise if they are.

6 JUDGE GRAHAM: So you're warning us that we  
7 need to hurry up and you're telling us there may be more  
8 coming. I've got it all, Mr. Pendergast. Thank you.

9 MR. PENDERGAST: That may be a reason why  
10 nothing gets filed.

11 JUDGE GRAHAM: All right. If there's nothing  
12 further, then this hearing is adjourned. It's 4:17 on  
13 the same day we started, January 15.

14 (Off the record.)

15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25

CERTIFICATE OF REPORTER

I, Beverly Jean Bentch, RPR, CCR No. 640, Certified Court Reporter with the firm of Tiger Court Reporting, LLC, within the State of Missouri, do hereby certify that I was personally present at the proceedings had in the above-entitled cause at the time and place set forth in the caption sheet thereof; that I then and there took down in Stenotype the proceedings had; and that the foregoing is a full, true and correct transcript of such Stenotype notes so made at such time and place.

*Beverly Jean Bentch*

Beverly Jean Bentch, CCR No. 640

<hr/> <b>\$</b> <hr/>	<b>10</b> 142:8 169:7,8,12	<b>19.5</b> 167:5,7,9,16 169:2 170:18 171:5,6, 7	14,16 178:16
<b>\$0.01</b> 20:15 130:17,25 131:5,16,21 132:10,14 133:7 134:7 135:10,19 136:1 164:8	<b>10.6</b> 169:4,7 171:15, 17 173:8	<b>1987</b> 100:4	<b>2019</b> 12:3 169:1
<b>\$0.05</b> 133:22 134:3 137:5 164:8,9,12	<b>100</b> 13:21,24 49:22 50:8,14,16,18,21	<b>19th</b> 150:19	<b>202</b> 116:20 117:9,11, 14
<b>\$130,000</b> 172:12 174:20	<b>101</b> 50:1,8,14,16,18, 21	<b>1:15</b> 85:22	<b>203</b> 116:21 117:9,11, 14
<b>\$140,000</b> 159:1	<b>11</b> 165:24 166:1 182:8	<b>1st</b> 121:19 152:4	<b>204</b> 13:25 165:17 166:7,13,15,16,17
<b>\$180,000</b> 125:9,10	<b>110</b> 13:21,24	<hr/> <b>2</b> <hr/>	<b>205</b> 26:22,24 27:3,11, 14 112:9,13
<b>\$272</b> 175:2	<b>12</b> 49:21 141:25 142:8 156:8,15 165:22,25 172:14	<b>2</b> 55:15 62:8 80:22 90:2,3,5,11 91:20,23 99:11 168:8 177:7	<b>206</b> 26:24 27:4,12,14 54:16
<b>\$3.35</b> 133:24	<b>12-month</b> 95:7,11,13, 22 159:6	<b>20</b> 58:9 100:21,22,23 167:18	<b>207</b> 54:17,18,19,23 55:4,6,10
<b>\$491,000</b> 78:12	<b>12.9</b> 173:15	<b>20-year</b> 130:5	<b>208</b> 56:21 57:13,17, 19,23,25 58:18
<b>\$800,000</b> 70:18	<b>13</b> 150:20 173:5,13	<b>20.19</b> 152:17,19	<b>209</b> 148:13 149:18 160:23 161:3,5,8,11, 14
<hr/> <b>(</b> <hr/>	<b>130</b> 125:9 159:23 172:16	<b>200</b> 13:4,25 87:4,20, 22 88:1,3 117:18,21 177:5	<b>21</b> 69:4 140:25 143:13
<hr/> <b>(</b> <hr/>	<b>130,000</b> 175:4	<b>201</b> 87:8,21,23 88:1,3 106:20 117:18,22	<b>215</b> 132:23
<b>(1)</b> 133:21	<b>13th</b> 152:23	<b>2016</b> 30:12 31:8,14,16 34:1 38:11,13 55:25 69:6,10 72:7 76:7,10 91:18 100:4 104:3,19, 25 105:18 107:25 120:22 121:18,24 125:8 143:16 145:10, 14,15 150:10,11 152:7,10 161:20 170:10,15,20,25 171:17 172:13 173:6, 15	<b>216</b> 132:23
<b>(2)</b> 133:22	<b>14</b> 58:13 150:21 152:16,21 165:22,25	<b>2016-2017</b> 172:15	<b>22</b> 182:22
<hr/> <b>0</b> <hr/>	<b>140,000</b> 158:4,7 159:13,23	<b>2017</b> 178:16	<b>23</b> 58:7 59:2
<b>0.1291586</b> 112:4	<b>15</b> 12:3 79:25 80:3 108:25 151:9,10	<b>2018</b> 30:9,13 31:9,14 32:18 34:1 39:1,3,5,6 47:4,5 69:21,22 70:2 91:18 101:14 108:10, 11,12 149:1,21 150:4, 12,15 151:3,14,15,25 152:2,3,5 161:21 167:6,19 168:24,25 169:2 170:19 173:8,	<b>2433</b> 58:5,6,13,17
<b>0.1493772</b> 112:13	<b>15.5</b> 151:8		<b>25</b> 59:6
<b>00035</b> 121:11	<b>15th</b> 121:2		<b>25th</b> 185:25
<b>0005</b> 160:14	<b>16</b> 119:15 178:17 183:7		<b>27.4</b> 152:6,7,9
<b>0016</b> 44:20	<b>17</b> 182:21		<b>28</b> 26:3
<b>008</b> 160:15	<b>18</b> 69:2 101:15 121:4 143:13		<b>280,000</b> 160:11
<b>0216</b> 129:2	<b>180,000</b> 78:14		<b>281</b> 28:25 58:21,22 59:24 60:5 163:17
<b>04</b> 175:4	<b>18th</b> 150:20 152:23 185:1		<b>29th</b> 121:21
<hr/> <b>1</b> <hr/>	<b>19</b> 58:13 119:16 167:2,5,19 168:23 169:2,5 170:7,10,15, 19,23 171:5 173:5,22		<hr/> <b>3</b> <hr/>
<b>1</b> 47:4,5 68:23 100:7,8, 10 108:25 140:23 143:10 145:10,21,24 150:11 182:14,16			<b>3</b> 53:12 55:16 78:2 90:2,11,23,25 91:3 125:21 139:5 165:23 181:18
<b>1-5</b> 88:15			

<b>3,500</b> 179:2	<b>45</b> 167:19,20 169:23 170:2,5	<b>800,000</b> 71:6	<b>accurate</b> 19:9 44:18 48:2 119:18 127:8 137:15 160:9
<b>3,600</b> 179:2	<b>45.5</b> 167:18	<b>81</b> 44:21	<b>accurately</b> 25:5 29:10 45:21
<b>30</b> 15:21 20:22 46:5 100:5,8,11 101:21 145:22 152:2 154:12 179:18,20 182:14	<b>4:00</b> 180:10	<b>85</b> 27:21	<b>actions</b> 15:3
<b>30-year</b> 18:2 47:22 100:8 102:24 130:5	<b>5</b>	<b>87</b> 72:7	<b>actual</b> 15:23 19:23 23:5 30:4,6,10,12,13 31:3 32:17,19,21 33:25 39:2 44:16 47:12,13,20,22 48:1 59:14,18,23 60:8,24 69:6,11,16 71:15 72:4, 5 74:10 80:25 81:11 90:7,8,14 91:19 95:13, 18,24 96:6,11 97:9 98:9,13 101:3,8,24,25 102:1 108:9 109:24 110:13,17 120:19 121:24 124:6,21 143:17,23 144:1,11 145:9,20 146:13,19,23 147:5,18 149:23 150:9 151:7,21 153:4 162:18,21 167:2 168:3 170:10 175:15 176:6,7 178:18 182:23,24
<b>300</b> 14:3 181:1 183:24 184:1,3	<b>5</b> 34:16 90:22,24 106:2,5,8,21 141:21 164:7 165:21 170:12	<b>9</b>	<b>actuals</b> 66:2 103:3 170:20 173:2 175:7
<b>301</b> 181:5,8 183:25 184:1,3	<b>5-0</b> 88:15,16	<b>9</b> 35:25 55:15 58:18 62:7 64:15 66:5 80:11 141:24 181:23	<b>add</b> 30:20 31:3,7,10, 14 38:7,24 39:3,5 45:23 105:21 108:9 121:25 146:15,17 150:9,16 152:24 157:3 161:19 182:16
<b>302</b> 14:3 91:5,8,11,23, 24 92:2,19,20 93:2,4 103:19 106:16	<b>5.857</b> 78:17	<b>9.1</b> 151:14	<b>add-on</b> 155:2
<b>31</b> 101:1 145:10,25	<b>50</b> 88:14,16 151:11	<b>95</b> 29:7 45:2,17 126:24 130:22 131:22	<b>added</b> 130:15 152:18 173:24
<b>32</b> 152:5	<b>54.4</b> 169:16	<b>97</b> 45:11 126:20,24 130:22 131:22	<b>adding</b> 45:1
<b>35</b> 179:21	<b>55</b> 169:8,11,23 170:3	<b>9th</b> 152:9,10	<b>addition</b> 31:12 38:22
<b>360</b> 13:4	<b>6</b>	<b>A</b>	<b>additional</b> 21:25 38:7,12 129:3 140:22
<b>365</b> 156:8,11 178:10 179:3,5 181:24 183:9	<b>6</b> 171:18	<b>absolutely</b> 16:2	<b>additions</b> 166:3
<b>386.266.3</b> 28:4	<b>6.43</b> 152:18	<b>absorb</b> 137:2,10	<b>address</b> 12:19 14:21 49:18 93:24 94:14 141:6
<b>4</b>	<b>63</b> 132:22	<b>accept</b> 126:12	
<b>4</b> 53:12 54:7 55:16 89:24 90:22,24 106:2 133:3	<b>63301</b> 12:20	<b>accepted</b> 15:19 45:14 47:2 55:22	
<b>4.679</b> 78:18	<b>65</b> 151:10 167:11 168:12,14,15,20 169:7,8,12,17 176:22 177:16,17,18,19,24 178:3,5,20 179:24	<b>accordance</b> 55:18	
<b>4.91</b> 152:19	<b>65102</b> 13:5	<b>account</b> 24:12,15 45:10,13 172:21 174:19 175:8	
<b>4/1</b> 151:18	<b>7</b>	<b>accounting</b> 131:23	
<b>4/19</b> 150:22 152:17	<b>7</b> 26:12 34:16 118:7 119:15	<b>accounts</b> 122:17 126:20	
<b>4/20</b> 151:1,2	<b>700</b> 49:19	<b>accumulated</b> 171:21	
<b>4/20/18</b> 151:7	<b>78</b> 27:21	<b>accumulation</b> 30:4, 6,8 33:19 34:1 69:16, 19 90:8,10 96:4 101:13 102:2,21 143:23 146:2,5 149:23 150:17 160:18 162:2, 4,7	
<b>4/21</b> 150:22 152:18	<b>8</b>	<b>accuracy</b> 20:5,24 21:4 51:25 53:4,7	
<b>4/30</b> 151:18	<b>8</b> 26:13 35:25		
<b>400</b> 85:10	<b>8.85</b> 152:18		
<b>400,000</b> 70:21	<b>80</b> 44:21		
<b>423</b> 12:19			

<p><b>addressed</b> 93:16,21 131:3 185:6</p> <p><b>addresses</b> 34:11 43:3</p> <p><b>addressing</b> 64:9</p> <p><b>adequate</b> 46:18</p> <p><b>adjusting</b> 29:1</p> <p><b>adjustment</b> 14:16,24 16:9,20 18:13 19:13 22:3,17 24:9 28:23 29:17,18 33:15 36:19 37:17 39:2 47:9,10 52:10 53:5,24 56:2 59:9 63:7 67:21 78:6, 7,12,13,17 84:6 91:11 92:21 93:25 94:9,15 95:19 96:16 98:22,23 114:16 118:25 119:13, 22 120:2 123:2,6 124:20,24 133:15 134:3,5 137:7 139:10, 12,18,21,24 157:24 158:8,22 160:2 161:25 163:19 170:22 171:12</p> <p><b>adjustments</b> 16:6 22:11 28:6,9 30:1,7,11 33:12,20,24 35:7,22 36:6,8,14,24 52:1,6 63:20 83:25 84:21 118:14 126:8 133:8,22</p> <p><b>adjusts</b> 58:15</p> <p><b>Administration</b> 51:19</p> <p><b>admission</b> 50:14</p> <p><b>admit</b> 147:9</p> <p><b>admitted</b> 27:12 28:24 50:20 55:6 57:9 66:13 88:2 93:3 117:13,17, 23 161:6 166:16 184:2</p> <p><b>adopt</b> 111:12 129:21</p> <p><b>adopted</b> 37:9</p> <p><b>adoption</b> 34:23</p> <p><b>adverb</b> 43:6,17</p> <p><b>advise</b> 126:19</p>	<p><b>advises</b> 13:22</p> <p><b>affidavit</b> 20:16 132:22 135:3,5 164:5</p> <p><b>afforded</b> 63:11</p> <p><b>afraid</b> 111:3</p> <p><b>afternoon</b> 86:25 87:1 88:8,9 93:10,11 117:25 118:1 143:8,9 166:23,24</p> <p><b>agree</b> 37:11 53:4 55:20,24 57:25 58:9, 10 62:17,20 69:1,11 70:1,7 118:25 119:1, 12 125:14</p> <p><b>agreed</b> 14:7 17:7</p> <p><b>agreement</b> 58:25</p> <p><b>agrees</b> 48:13</p> <p><b>ahead</b> 16:13,14,25 17:23,25 18:6,21 19:1, 21 21:16 22:5 23:8 49:5,11 81:7 83:12 86:12,19 90:15 105:22,25 148:11 149:7 158:9 161:6</p> <p><b>airport</b> 167:25</p> <p><b>aligning</b> 173:2</p> <p><b>alleviating</b> 134:25</p> <p><b>allocate</b> 96:14</p> <p><b>allocates</b> 115:11</p> <p><b>allocating</b> 97:14</p> <p><b>allocation</b> 23:9</p> <p><b>allowed</b> 35:23</p> <p><b>ambiguity</b> 34:15</p> <p><b>ambiguous</b> 24:1,25 25:2,7,10,12,14 48:8, 10,13 68:11</p> <p><b>amended</b> 27:21 34:24 85:10</p> <p><b>amount</b> 16:22 21:2 96:15 98:3 115:20 124:2 125:15 158:6</p>	<p><b>amounts</b> 134:3 164:12</p> <p><b>analysis</b> 91:20 131:15,19 158:25</p> <p><b>analyst</b> 181:14</p> <p><b>anew</b> 81:8</p> <p><b>annual</b> 19:24 29:6,7 45:2,17,18 67:24 70:23 96:12 115:7,11 123:16,23,24 124:9, 10,18,20 125:8,10 138:3 139:3 155:7,22, 24 158:8 163:6 175:18</p> <p><b>annualized</b> 154:4 155:14</p> <p><b>answers</b> 47:18 50:8, 10 87:14,17 117:2,5 166:8,10 183:15</p> <p><b>anticipate</b> 79:24</p> <p><b>apologize</b> 52:12 91:24 145:6</p> <p><b>Apparently</b> 34:18</p> <p><b>appearance</b> 13:1</p> <p><b>appearances</b> 12:15</p> <p><b>appearing</b> 12:18 13:2</p> <p><b>appears</b> 152:4</p> <p><b>appended</b> 128:9 129:5</p> <p><b>apples</b> 31:8</p> <p><b>applicability</b> 129:22</p> <p><b>applicable</b> 30:25 31:5 38:9 59:15 101:12 129:12 144:25 153:1 155:12 164:3 171:10 174:7,8</p> <p><b>application</b> 109:10 154:24</p> <p><b>applied</b> 21:20 163:9</p> <p><b>applies</b> 129:11</p> <p><b>apply</b> 18:21 128:16 129:16</p>	<p><b>applying</b> 38:16 110:13</p> <p><b>appreciation</b> 15:2</p> <p><b>approach</b> 19:8 21:4 22:9 40:16 42:25 44:13,15 71:2,4,15 72:4,15,18 77:21 126:19 128:21 130:20 132:15 140:10 141:14 152:8 158:5</p> <p><b>approached</b> 60:2</p> <p><b>approaches</b> 73:2,8</p> <p><b>approved</b> 14:24,25 15:19 29:22 34:5 65:11,15 81:12 83:8, 13 84:2 97:10 131:1 133:19</p> <p><b>approving</b> 164:7</p> <p><b>approximately</b> 158:6 159:1 172:12 175:2 179:1</p> <p><b>April</b> 69:22 70:1 101:14,17,19,20 129:19 148:25 149:21 150:3,4,11,19 152:3,4, 9,10,11 167:2,5,19 168:23 169:2,5 170:7, 10,15,16,19,23 171:15,18 173:5,13,22</p> <p><b>arbitrary</b> 133:7</p> <p><b>area</b> 175:16</p> <p><b>areas</b> 143:20</p> <p><b>argue</b> 68:12</p> <p><b>arguing</b> 21:10</p> <p><b>argument</b> 24:24</p> <p><b>argumentative</b> 115:15</p> <p><b>asks</b> 58:7</p> <p><b>assign</b> 101:3 102:20 144:5 146:8 163:14</p> <p><b>assigned</b> 101:8 120:12 122:22 144:18 170:17 171:15,18</p>
--	---	---	---

173:7,15	<b>averages</b> 182:7	<b>began</b> 120:13	23,24 154:6,8,9,11
<b>assignment</b> 103:2	<b>averaging</b> 182:16,18	<b>begin</b> 27:18 62:9	155:13 156:4,8,15,16,
182:23	<b>aware</b> 84:4	<b>beginning</b> 58:6,18	23 157:10 158:20
<b>assigns</b> 171:19	<b>awhile</b> 81:4 98:7,12	59:6 62:8 98:4 137:23	171:9,24 172:1,2,20
<b>assist</b> 161:14	<b>axis</b> 118:17	181:23	173:23 174:2,4,6,7,8
<b>associate</b> 110:13		<b>begins</b> 182:11	<b>bills</b> 96:22 122:2
<b>associates</b> 15:23	<b>B</b>	<b>behalf</b> 12:18 13:2	129:17
<b>assume</b> 79:19 117:12	<b>back</b> 23:4 31:1 37:6,7	17:22	<b>bit</b> 14:15 17:24 27:18
145:16 160:8,10	58:9 67:10 68:8 73:17	<b>belief</b> 50:11 117:6	48:23 99:3 100:6
185:13	85:21,24 96:11 104:22	166:11 183:18	107:6 135:19 167:12
<b>assuming</b> 27:9 36:22	110:7,8 115:6 119:10	<b>belts</b> 73:4	<b>blue</b> 47:12,15
83:10 147:5	127:25 135:8 149:14	<b>bench</b> 13:25 14:2	<b>bottom</b> 47:24 54:7
<b>assumption</b> 33:15,	151:13 153:16 155:9	107:19	58:6 90:11 146:21
20 160:9 179:25	158:2,14 159:21	<b>benchmark</b> 16:5	<b>box</b> 13:4 121:17 146:7
<b>astronomical</b> 98:3	162:13 167:23 172:9	<b>benefit</b> 122:9	<b>boys</b> 55:19
<b>Atmospheric</b> 51:18	175:8 179:17,22	<b>benefited</b> 148:2	<b>Brayton</b> 129:9
<b>attach</b> 136:19	<b>background</b> 27:18,	<b>beta</b> 41:15,18 111:6,	<b>break</b> 48:23 79:24
<b>attached</b> 26:2 46:10	20,25 84:25	24 112:3,11,17 113:4,	80:4 85:16 113:23,24
89:3 99:5,19 118:8	<b>backward</b> 160:21	9,22 114:1 118:20	153:8
129:7 136:16,18	<b>bad</b> 20:5 177:23	119:24 122:12 124:15	<b>briefing</b> 185:3,4,12,
<b>attempt</b> 162:5	<b>ballpark</b> 131:21	152:21 155:10,12	17,18
<b>attention</b> 42:16	<b>based</b> 15:10,20	<b>betas</b> 112:22 152:25	<b>briefly</b> 54:5 76:18
103:13,18 141:24	17:12,23 19:15 23:9,	<b>big</b> 73:1 142:12	83:22 107:16 127:15
<b>attorney</b> 58:19	12 24:7,8 29:1 31:19	<b>bigger</b> 79:4,15 170:22	135:16 179:14
<b>August</b> 69:22	32:3,14,19,24 33:8	<b>bill</b> 150:16,19,21	<b>bring</b> 60:12
<b>authoritative</b> 16:16	36:23 37:4 39:2 41:21	154:16,24 155:2,5,7	<b>brings</b> 29:20
<b>authorities</b> 129:15	44:1 45:8,10 55:20	156:9,20,21 157:25	<b>Buck</b> 132:7 134:7,11,
<b>authority</b> 129:17	57:7 81:8 90:16 95:5	158:11,13 159:8	23 135:2
<b>authorize</b> 18:9	101:3,8 102:1 109:24	173:19,21	<b>Buck's</b> 164:5
<b>authorized</b> 126:7	114:11 115:4,18	<b>billed</b> 120:24 156:5	<b>business</b> 12:19 49:18
<b>authorizes</b> 28:6	129:18 138:16 140:5	158:14	<b>C</b>
133:17	141:4,13 155:20 156:1	<b>billing</b> 30:25 31:6,12,	<b>calculate</b> 19:2 39:2
<b>authorizing</b> 36:9	161:23 162:21 177:12	13 38:9,10,11,12,13	48:3 52:7 60:14 74:6
<b>automatically</b>	179:14 182:24	52:24 62:10,18,25	76:23 100:9,10 110:9
110:14	<b>baseline</b> 19:21 175:7	63:25 64:3,12,16,17	118:13 154:8 171:11
<b>average</b> 28:10,12	<b>basically</b> 21:1 29:23	65:9,23 66:4,14,21	<b>calculated</b> 29:25
100:7,9,13 102:24	41:19 42:11 85:8	71:18,23 72:3 82:6,10	31:16 35:4 51:20 74:9,
133:24 151:11 167:14,	131:18 145:14 147:12	101:12,14,15,16,17,18	25 75:21 94:3,4
17,20 182:2,8	157:18 163:3 174:9	102:11,14,15 104:14	111:10 131:12 154:6
	<b>basis</b> 19:9 104:19	120:13,16,24,25	159:23 161:12,17
	115:7 124:9,11,20	121:1,4,17,20,23	167:14 168:1 177:17
	125:10 138:3 144:16	122:1,16 124:15,16,17	
	154:11 157:10 158:11,	144:12,15,18 145:1	
	21 175:9	146:5 150:24 152:16,	

179:23 182:15,18	<b>caput</b> 185:13	29:20,23 30:8 46:18	<b>Cij</b> 30:22
<b>calculates</b> 31:19	<b>care</b> 79:23 175:19	49:21 58:3 60:13	<b>circulate</b> 149:8
32:13 110:10 181:24	<b>carry</b> 113:12	62:25 63:25 72:15	<b>circulated</b> 92:24
182:2	<b>case</b> 15:12,18 16:3	81:3 88:13,14 119:25	<b>circumstances</b>
<b>calculating</b> 15:9	18:13,16,18,21,23	143:25 181:21	125:21
29:25 30:7 35:6 62:2	19:1,2,5,17,23 20:8	<b>caused</b> 87:3,6 116:18	<b>cite</b> 80:14
63:6,19 67:6 82:3	21:19,22 22:6,7,23	165:16	<b>cited</b> 80:17
83:25 140:20 154:15	23:2 27:10,22 28:21	<b>ccf</b> 133:8,23	<b>City</b> 13:5
160:2	30:13 31:9,16 32:4,6,	<b>cell</b> 13:17	<b>claims</b> 32:1
<b>calculation</b> 29:5	11,13,18 33:9,14,18	<b>Center</b> 168:3	<b>clarification</b> 65:5
33:14 34:22 51:25	34:3,4,25 35:23 36:2,	<b>Chairman</b> 21:16,17,	115:17
52:5 53:5,8 56:1 59:11	18 38:17 40:1,14 41:7,	21 22:10,22 23:21	<b>clarified</b> 17:24
70:10 74:15 75:23	8 42:4 44:3 45:15	35:20,22 36:4,16,25	<b>clarify</b> 96:2 119:11
76:25 78:5,7 88:25	46:15,24 47:2,3,10	37:14,23 38:5,15 39:7,	120:25 146:12 149:22
89:9 97:24 98:4,22	48:4,16 52:7,11,22	10 48:7,11,18 66:25	158:10 159:24 176:21
99:9,10,18 102:2	53:24 55:25 56:6,10,	67:2,3 68:15 153:19,	<b>clarifying</b> 79:16
114:1 118:21 144:21	59:10 62:13,22 63:6,	20 155:16 162:15	<b>clarity</b> 71:2
161:24 162:20 163:19,	21 64:2,13,14,18	176:13,15 184:11,13	<b>class</b> 28:11 126:14,21
21	65:12,16,20 66:15	<b>chance</b> 112:8 127:10	128:17 129:13
<b>calculations</b> 32:5	67:16,17,20 68:7 69:7,	<b>change</b> 18:24 19:3,19	<b>classes</b> 129:25
67:20,22 73:13,20	13,20 73:14,23 74:5,9,	31:2,13 38:3 39:14	<b>clause</b> 22:1,4 94:1
111:14 163:23	25 75:7 76:7 78:5	66:6 79:2 114:15,17,	133:17 141:3,11
<b>calendar</b> 31:17,18	80:18 81:9,19,22	18 115:1,5,7,19	142:9,16,18,23
32:12 69:22 108:20,23	82:11,16 84:13,19,23	118:18,19 119:24	<b>clauses</b> 133:18
109:8,12 120:10,11,	85:8 86:1,2,5 87:3,7	122:17 138:2,20	136:24
12,14,17 121:1,5,22	90:16 91:11 92:21	139:4,24 156:21	<b>clean</b> 161:4
122:1 144:7,8,12,13,	93:14,19 94:6,7,11,13,	161:20 163:21 183:11	<b>clear</b> 16:2 18:5 21:18
15,17 146:4 150:8	21,24 95:1,15,19,24	<b>changed</b> 33:18 34:18	39:16 84:17 90:18
151:18 156:1,6 163:13	96:6,8,13 97:10 100:4	163:8 182:3,7	92:2 106:14 174:1
171:23 182:19	102:13,17,21 103:4	<b>changing</b> 66:9,13,14,	177:3
<b>call</b> 49:7 84:12 116:3	105:1,4,8 108:17,18	20,21 75:3,4 114:21,	<b>Climate</b> 168:3
<b>called</b> 15:22 49:15	109:7,11 110:8 111:9,	22,23,25 115:4,20,21	<b>climatic</b> 29:8 44:25
74:16 86:23 99:24	10,13 112:23,25	118:22 138:23 156:18,	45:19
111:6 116:15 146:12	113:5,10,18 114:20	119 182:17 185:22	<b>close</b> 72:12 131:22
165:7 180:22	115:8 116:18 118:9	<b>characterization</b>	144:4
<b>calling</b> 137:9 149:20	119:4,5,7,11,20,23	69:1	<b>closer</b> 151:4
<b>calls</b> 83:17	120:4,5,9 122:11,12,	<b>charge</b> 53:22 154:19	<b>coefficient</b> 41:15,18
<b>cap</b> 20:15 21:1	19,21,25 123:1,3,5,7	<b>charges</b> 31:4 152:20	111:7,8,13 112:4,13
130:15,17,25 131:5,	124:2,8,22 128:8	<b>Charles</b> 12:20	124:10 155:10,12
15,21 132:10,14 134:7	129:2 131:18 132:23	<b>chart</b> 47:17 78:2,4	176:1,5
135:10,19,25 136:9,	137:22,25 138:7,10,	103:24 104:9	
22,25 137:10 163:18,	18,22 141:5,10 142:16	<b>check</b> 174:25 179:1	
20 164:8,9,10	145:13 147:17 149:24	<b>checked</b> 117:19	
<b>capacity</b> 165:12	150:10,14 152:21		
<b>capital</b> 18:18 35:25	161:25 162:7 163:17		
80:24,25 81:8,12	165:16 175:14 178:25		
	180:24 181:10 184:25		
	<b>cases</b> 12:9,10 14:18		
	19:4 27:22 28:2,5		



<p><b>coefficients</b> 41:14 112:17,22 113:9 124:5,7</p> <p><b>cold</b> 120:18 131:3,24 132:1 134:2</p> <p><b>colder</b> 162:11,12 170:4</p> <p><b>coldest</b> 15:24,25 23:10 31:20 32:14 100:10,14 109:2,3 120:20 144:8,10,11 145:15,21,24 151:23 152:3,11 182:12,15,17</p> <p><b>Coleman</b> 25:18 41:24,25 48:19,20 74:1,2 184:17</p> <p><b>collected</b> 158:15 164:4,13</p> <p><b>color</b> 106:7</p> <p><b>column</b> 99:13 145:9, 25 146:18,21 150:14, 16 151:20 152:7,14,16 161:19,21</p> <p><b>comfort</b> 68:6 168:15 177:16</p> <p><b>comfortable</b> 17:5 21:22,24 22:9,24,25</p> <p><b>commending</b> 14:19</p> <p><b>comments</b> 64:2 127:18</p> <p><b>commercial</b> 129:14, 17</p> <p><b>Commission</b> 12:3,25 13:3 14:14,19,23 23:24 24:2 25:11,13 27:16,17 28:5,8,14,16, 23 29:6,13 34:8,11,20 35:1,5 37:9 40:10,14 44:9,19 45:8,14,15 62:9,11 63:24 64:20 65:8 67:11 70:6 81:12, 18,24 83:8,13 88:10, 25 126:19 130:19 131:1 133:19 135:17, 19 164:6 165:14</p>	<p><b>Commission's</b> 15:2 27:21 34:23,24 44:21</p> <p><b>Commissioner</b> 23:22,24 24:11,22 25:8,12,17,18 26:10 39:11,12 40:9,20 41:23,24,25 47:18 48:6,19,20 68:16,17 69:25 73:24 74:1,2,4 77:19 97:20,22 98:9, 16,23 99:1,4,15,21,22 100:20,24 101:5 102:22 103:5 106:22, 24 108:15,22 110:3 143:5,7 147:20 148:1 149:6,9 150:2 153:5, 23 160:25 162:16 174:10 176:16,18 184:14,16,17</p> <p><b>commissioners</b> 26:1 42:21 44:6 85:15 110:5 149:16</p> <p><b>common</b> 12:10,12 62:18 81:21,23</p> <p><b>companies</b> 41:12 136:14</p> <p><b>company</b> 14:25 28:18 44:22 45:7 47:2 48:12 49:7 52:3,8 53:17,21 56:5 68:13 69:12 70:19,21 71:6 72:14 73:16 75:14,25 76:9 78:1 104:18 105:3 110:7,9,11,15 111:12 126:1 132:3,11 133:11 134:8,13,19 135:1 136:1 146:17 147:12,13,16 160:11, 15</p> <p><b>company's</b> 15:18 21:6 22:15 24:25 36:11 47:24 50:21 70:6 72:8 75:6 77:25 78:6,13,17 104:14 105:6 121:22 123:18 125:13 133:16 147:2 152:8 157:1 158:5,20 159:12 167:1</p>	<p><b>compare</b> 30:13 31:8 36:14 91:18 95:14 96:3,12 100:6 143:14 147:14 160:13 161:21 162:5</p> <p><b>compared</b> 30:5 120:20 131:25 133:13 159:12</p> <p><b>compares</b> 44:17 47:10</p> <p><b>comparing</b> 46:25 90:23 95:17,23 97:9 124:5</p> <p><b>comparison</b> 24:9 36:14 96:3,10,18 103:3 160:16</p> <p><b>complete</b> 63:11</p> <p><b>completed</b> 74:25 152:22</p> <p><b>completely</b> 21:3 36:7,22 37:2 45:4 174:1</p> <p><b>complex</b> 30:18 89:7 153:2</p> <p><b>complicate</b> 121:6</p> <p><b>complicated</b> 98:14 110:6</p> <p><b>components</b> 94:21</p> <p><b>computation</b> 59:20, 21 60:9,10 61:24 177:25</p> <p><b>compute</b> 59:13,17,19 60:2,6,9,14,17 61:2,5, 6,8,20 62:5</p> <p><b>computed</b> 51:13,14 60:3 61:7,8</p> <p><b>computing</b> 62:1 84:19</p> <p><b>concept</b> 59:12</p> <p><b>concern</b> 70:24 148:9</p> <p><b>concerned</b> 20:23 43:15 79:13</p>	<p><b>concerns</b> 14:4 24:18 132:7 185:16</p> <p><b>concluded</b> 34:3</p> <p><b>conclusion</b> 35:1 38:16 76:14</p> <p><b>conduct</b> 20:13</p> <p><b>conducted</b> 183:1</p> <p><b>confirm</b> 34:13</p> <p><b>confirmed</b> 123:15</p> <p><b>conforms</b> 44:18</p> <p><b>confused</b> 52:9 143:20</p> <p><b>confusion</b> 114:6 120:8 162:25 164:14 178:8,9</p> <p><b>conjoin</b> 43:24</p> <p><b>conjoined</b> 44:2</p> <p><b>conjunction</b> 43:8,17, 24 55:15</p> <p><b>conjunctive</b> 46:20 48:10,14</p> <p><b>conservation</b> 28:7, 13,21 44:24 126:9</p> <p><b>considerable</b> 19:7</p> <p><b>consideration</b> 24:20 25:15 28:23 56:4</p> <p><b>considered</b> 45:24,25</p> <p><b>consistency</b> 34:8</p> <p><b>consistent</b> 18:12 24:4 25:4 28:15 34:22 35:7 38:23 39:8 120:1, 3,6 122:11 133:16 140:3,11,13,18</p> <p><b>consistently</b> 32:17</p> <p><b>consisting</b> 49:21</p> <p><b>consists</b> 58:1</p> <p><b>consolidated</b> 12:11</p> <p><b>construction</b> 21:19 85:6</p>
--	--	---	---

<p><b>constructive</b> 15:3</p> <p><b>consumption</b> 40:14, 25</p> <p><b>contact</b> 134:20,22</p> <p><b>contained</b> 87:13,15 117:1,3 166:7,8</p> <p><b>contemplate</b> 74:24</p> <p><b>context</b> 22:3 36:23 60:25 93:25 94:5 119:20 125:25</p> <p><b>continue</b> 39:12</p> <p><b>continued</b> 46:6 182:19 183:8</p> <p><b>continuing</b> 65:10 160:21</p> <p><b>Contrary</b> 63:23</p> <p><b>contrast</b> 46:13</p> <p><b>control</b> 71:21</p> <p><b>conversation</b> 58:16 84:1</p> <p><b>conversations</b> 72:24 84:9</p> <p><b>cooperated</b> 103:16 104:10</p> <p><b>copies</b> 26:6 139:20 148:6 149:10 160:23</p> <p><b>copy</b> 26:5,7 57:22 111:20 149:12 160:25</p> <p><b>corner</b> 112:1</p> <p><b>corporation</b> 34:4 80:25 81:2</p> <p><b>correct</b> 18:12 21:8 33:18 36:23 41:1 50:10 51:24 52:25 53:3 54:11 55:3 56:12, 18,19 62:13,14,23 63:2,21,22 65:21 66:16 68:12 69:6 70:3, 8 72:17 74:7,10 75:7 77:7,13 78:9,14,18,19, 20 80:15 81:14,24,25 87:17 89:1,25 91:9 93:14,17 95:20 96:1</p>	<p>107:21 108:1,25 109:5 110:18 112:5,14 113:2,15,22 115:2,8 117:5 119:17 120:6 121:4 123:18,19 124:2 125:23 126:2,5 127:16 128:4,10 129:23 130:6,7,15,18,23 131:7 132:4,8,9 133:1 134:22 137:13,16,19 138:22 139:7,10,25 140:1,6 144:2 155:1,3, 4,8 156:7 157:25 159:9,10 160:2,6 162:20 164:10 166:10 168:7 170:6 171:1 177:20 178:17 179:7, 19 180:1,2 181:2 183:17</p> <p><b>correction</b> 166:6</p> <p><b>corrections</b> 50:3 87:10 116:23 165:19 166:4 181:15 183:1,2, 14</p> <p><b>correctly</b> 62:15 77:11 162:19</p> <p><b>correlated</b> 29:7 45:3, 4,18 47:15,16</p> <p><b>correlating</b> 92:14</p> <p><b>correlation</b> 19:10 41:10 45:8 47:23,25 92:13 96:19 109:15</p> <p><b>cost</b> 35:25 81:15 93:16 125:13</p> <p><b>costs</b> 18:18 20:22</p> <p><b>counsel</b> 12:22 13:7, 10,13,21 14:2,20 20:6 21:15 42:1 44:10 49:12 63:13 64:22 85:19 90:17 92:22 97:5 98:1 106:19 116:11 127:3 154:2 165:4 166:19 177:1 180:18 181:13</p> <p><b>counsel's</b> 44:12 72:13 106:10 180:11</p>	<p><b>count</b> 66:13 128:5 155:25</p> <p><b>counts</b> 66:20,22 156:21,25</p> <p><b>couple</b> 17:10 42:1 52:18 67:2 73:25 93:12 111:4 114:10 153:11,25</p> <p><b>courses</b> 85:2</p> <p><b>court</b> 13:13 48:24 79:23 153:8,13 185:1</p> <p><b>covering</b> 131:6</p> <p><b>crafted</b> 24:4</p> <p><b>create</b> 17:3</p> <p><b>created</b> 20:17 172:3</p> <p><b>creates</b> 178:5,6,7</p> <p><b>creating</b> 173:17</p> <p><b>creation</b> 16:23</p> <p><b>creatively</b> 14:21</p> <p><b>credentials</b> 145:5</p> <p><b>credit</b> 53:22 70:21 154:20</p> <p><b>credited</b> 158:14</p> <p><b>cross</b> 54:4 87:21 107:1,2 108:14 184:6</p> <p><b>cross-examination</b> 50:15 51:1 54:6 88:6,7 93:7,9 117:10,24 123:11,14 166:22 174:14,16 183:21 184:9</p> <p><b>crossing</b> 127:25</p> <p><b>crowding</b> 79:22</p> <p><b>crystal</b> 39:16</p> <p><b>cumulative</b> 175:9,11</p> <p><b>current</b> 29:20 30:4,5, 8 39:2,4 69:21 97:12 110:17</p> <p><b>customer</b> 14:22 20:18 28:10 31:4 39:4</p>	<p>53:2,21,22 62:18,21 63:1,5,20 65:19,20,22 66:13,20,22 70:22 79:16 82:15 108:10 115:19,21 122:2,17 130:23 131:2,7,10,23 133:13,24 136:1 137:15 152:20 154:23 156:19,21,25 157:12, 18 169:18 175:9</p> <p><b>customer's</b> 154:16 157:25 159:8</p> <p><b>customers</b> 28:11 53:17 79:13 82:6,14 96:22 97:1 133:11,25 134:4 135:1 156:5,18 158:8,15,21 168:17,22 169:15,25 172:2,17,19 173:20,22</p> <p><b>cycle</b> 30:25 31:1,6,12, 13 38:9,10,12 66:14 72:3 82:10 101:12,15, 16,18 104:14 120:24 121:2,18,20 122:1 124:16,17 144:12,18 145:1 146:6 150:17, 19,20,21,24 152:16, 17,23 154:6,9,11 155:13 156:4,9,16,20, 21,23 157:10 171:10 172:1,3,20 173:19,21 174:4,6,7,8</p> <p><b>cycles</b> 38:11,13 65:23 66:22 71:18,23 82:6 120:13,17,25 121:4,17 122:16 144:15 152:25 171:24 174:2</p> <hr/> <p style="text-align: center;"><b>D</b></p> <hr/> <p><b>d/b/a</b> 12:5,7</p> <p><b>daily</b> 15:11,19 16:3 29:24 30:3,5,6,9,10, 11,12,13 31:19,21 32:3,4,10,14 33:8,11, 21,24,25 44:1 67:19, 21 102:24 110:10 137:21 138:17 141:4 144:9 162:17,20 163:2</p>
---	---	--	---

167:10,13,14,15 168:6,9,11 169:5,10, 11,16,23 170:2 177:13 178:4 182:1	70:14,23 72:6,11 76:2, 8 82:19 95:13,18,23, 25 96:5,6,11,12 97:10 100:19,23 101:21 103:2 108:10,16,17, 18,19 109:15 113:17, 25 114:15,18,19,21, 23,24 115:1,4,5,12 120:14 121:14 123:17 124:2,6,7,21,22 137:24 138:7,10,13, 16,21 139:1,3 145:18 151:8,17 152:5 154:12 156:8,11 162:8,18,19, 21 167:5,8,9,16 169:3, 5 170:13,16,17,18 171:19 173:7,14,15 176:8 178:10,19,20,24 179:2,19,21 181:24	<b>definitions</b> 30:23 33:5 39:20,21,23 42:22 54:25 55:16,22 111:23	<b>describe</b> 94:2 145:7 <b>describes</b> 17:16 <b>describing</b> 128:3 <b>design</b> 20:17,20,21 132:12 134:10 <b>designed</b> 36:8 138:11 <b>desk</b> 12:22 <b>detail</b> 17:17 21:7 27:25 167:13 <b>determinants</b> 52:24 62:4,7,10,18,25 63:25 64:3,12,16,17 65:9,11, 15 66:4,5 102:12,14, 15 <b>determination</b> 24:16 40:15 <b>determine</b> 23:25 33:2 52:22 80:19 <b>determined</b> 15:11,19 16:11,13 22:6 29:14 32:3,24 33:3,9,13,17 36:2,17 38:16 43:1,2, 4,10,20 44:2 54:9 67:12,17 69:6 81:1,8, 22,23 82:11,16,21 84:23 122:11,12 138:17 139:21 141:5, 9,10 142:15 158:3 <b>determines</b> 25:14 34:11,20 44:15 133:20 <b>determining</b> 24:12 25:16 121:6 181:24 <b>develop</b> 41:9 <b>developed</b> 46:2 112:23,25 113:9,18 124:10,15 136:5 <b>developing</b> 113:1,4 <b>development</b> 107:21 <b>deviate</b> 40:11 <b>dictionaries</b> 16:17 <b>dictionary</b> 54:10 55:2,21 60:13
<b>data</b> 30:5,10,12 31:9, 12 33:25 51:13 55:25 56:6 71:9 73:6 77:2, 14,15,16 104:10,12, 13,16,17,20,25 105:4, 7,16 106:6 162:10,12 167:24	<b>deal</b> 142:12	<b>degree</b> 15:10,20,23 16:3 17:11 18:2 19:10, 15,17,23,24 20:6 23:5, 6,9,12,15 29:5,8 31:3 32:2,5,10 33:8,11,13, 17,22,24 40:19 41:7, 10 44:1 45:3,18 47:14, 21 59:14,17,18 60:7,8 65:25 66:1 67:14,24 70:14,23 71:19,24 72:6 76:2,7 82:19 95:13,18,23,25 96:5,6, 11,12,17 97:2,9,10 100:11,12,14,19,23 101:2,22,23 103:2 108:10,16,17,18,19 109:15,24,25 113:17, 25 114:15,17,19,21, 23,24 115:1,4,5 123:17 124:1,6,7,21, 22 137:24 138:6,10, 13,16,21 139:1,3 145:18 151:8 152:4,5 162:8,18,21 167:5,7,9, 16 169:2,5 170:9,13, 17,18 171:17 173:7, 14,15 176:6,7 177:24 178:3,5,6,7,18,20,24 179:2,3,4,19,20	
<b>data-based</b> 51:11,12	<b>debt</b> 35:25 81:16	<b>degrees</b> 100:22 151:11 167:11,19,20 168:12,15,20 169:9,17 176:23 177:16,17 178:3 179:21	
<b>date</b> 101:17 120:12 144:7 145:15 147:4 150:22 151:18 163:9, 13 173:5 182:24 185:12	<b>December</b> 70:17,19, 20 71:25 121:18,20,22 145:10,23,24,25 146:3	<b>delete</b> 165:21,25 <b>depend</b> 146:5 178:13 <b>depending</b> 43:16 122:16 154:22 <b>depends</b> 36:10 71:14 72:4,10 124:23,24 172:18 <b>derive</b> 103:16 124:25 <b>derived</b> 90:2 123:4	
<b>dates</b> 31:13 124:16, 17 145:10 156:16	<b>decide</b> 100:3,4,7 101:1,7 149:17		
<b>dating</b> 110:8	<b>decimal</b> 41:17		
<b>dawned</b> 165:9	<b>decisions</b> 21:12		
<b>day</b> 15:25 16:1 20:1, 11 31:17,18,20 32:13, 14 56:5 67:14 71:19, 24 83:22 96:17 97:2 100:11,12,14 101:2, 19,20,21,22,23 102:20 108:20,24 109:3,4,8, 12,25 120:19,20 127:6,11 131:18 134:19 135:18 145:21, 22,24 146:15 150:8 151:5,11,13,23 152:3, 4,11 154:23 167:15 169:15,23 170:9 171:9,14,17 173:8,9, 12,16 175:14,16 176:7 178:5,6,7 179:3,4,18 180:1 182:12,13	<b>decrease</b> 12:6 134:1 <b>defending</b> 123:1 <b>defer</b> 98:10 125:19 148:17 156:12 168:19 <b>deferred</b> 134:4 137:7 174:17 <b>Define</b> 137:1 <b>defined</b> 32:2 36:12 38:8 111:24 112:4,13 <b>defines</b> 137:21 <b>definition</b> 29:4 32:1, 8,10,25 33:2,4,6,7 38:7,20,22 39:15 40:4 42:16,18 43:21 54:8 55:8,14 60:15 112:11 114:18 138:14,15 142:11,24		

<p><b>difference</b> 23:7 41:6 67:23 68:2,24 70:11, 15 71:6 76:23,25 77:12 95:12,20 96:15 98:21 110:1 120:15,23 121:25 122:5 124:21 125:2,5 138:25 144:13 146:14 150:13 158:4, 7,21 159:2,23,25 160:1,10,12,17 161:21 162:5 171:5,25 172:11,16,18 173:3,9, 17,23 174:20,22 177:12,17 178:3</p> <p><b>differences</b> 73:9 78:3 95:8 146:20,22 149:25 156:25 158:19 161:15 167:1 172:3,4 173:18, 24 175:6,12</p> <p><b>differentiate</b> 64:6</p> <p><b>difficult</b> 30:18</p> <p><b>difficulty</b> 28:19</p> <p><b>digest</b> 72:18</p> <p><b>digested</b> 22:8</p> <p><b>digits</b> 41:17</p> <p><b>direct</b> 35:24 48:3 49:16,21,22 50:4 68:20 70:4 80:12 86:24 87:3,22 99:5 103:18 116:16,19 117:11,22 119:2 121:8 141:22 142:1 143:11 165:8 167:12 168:8 177:3 180:23,25 181:18</p> <p><b>directing</b> 42:15 103:12</p> <p><b>directly</b> 94:22 97:1</p> <p><b>disadvantages</b> 67:18</p> <p><b>disagree</b> 23:17 56:15 142:14</p> <p><b>disagreed</b> 126:4</p> <p><b>disagreeing</b> 185:8</p>	<p><b>discount</b> 154:24</p> <p><b>discovery</b> 20:13 73:23</p> <p><b>discuss</b> 128:6 134:13,20</p> <p><b>discussed</b> 97:4,9 127:19 129:23 135:12</p> <p><b>discussing</b> 84:14 160:24 172:10</p> <p><b>discussion</b> 46:18 48:14 60:1 108:22 123:16 127:24 136:6 140:16 147:17 174:18</p> <p><b>discussions</b> 37:15, 20 161:15 162:9</p> <p><b>dispute</b> 16:7 42:17 71:10</p> <p><b>disrespect</b> 51:6</p> <p><b>disrupt</b> 40:16,22 41:21 99:1</p> <p><b>disruption</b> 40:12</p> <p><b>dissatisfied</b> 75:14, 17,19</p> <p><b>distinguish</b> 66:3</p> <p><b>distribution</b> 20:22 159:12 174:24</p> <p><b>divided</b> 106:6 168:7,9</p> <p><b>document</b> 29:2 54:23 58:20 73:14 74:14 128:24 132:19,20,21 148:22 155:20 160:24 161:19</p> <p><b>documents</b> 148:20</p> <p><b>dollar</b> 73:2 78:3 79:9, 10,13</p> <p><b>dollars</b> 79:14 164:4</p> <p><b>dot</b> 61:25 62:1</p> <p><b>downward</b> 29:18 171:12</p> <p><b>drafted</b> 36:25 37:1,4, 8 40:2</p>	<p><b>drafting</b> 37:20</p> <p><b>driving</b> 155:9</p> <p><b>drop</b> 39:19</p> <p><b>due</b> 21:2 28:7 45:13 184:24</p> <hr/> <p style="text-align: center;"><b>E</b></p> <hr/> <p><b>earlier</b> 33:1 92:24 93:19 103:13 110:2 164:6</p> <p><b>early</b> 48:23 122:5</p> <p><b>easier</b> 151:10 163:12 167:18</p> <p><b>easily</b> 39:22</p> <p><b>East</b> 26:13 27:4,23 41:4,12,16,18 51:21 111:25 112:7,12,14,17 152:22 160:5,11 161:25 167:4,24 168:22 172:12 175:1 178:25</p> <p><b>East's</b> 174:23</p> <p><b>easy</b> 100:6</p> <p><b>economic</b> 28:12</p> <p><b>economics</b> 46:3,6,7, 8 51:7 88:21</p> <p><b>education</b> 46:3,14</p> <p><b>educational</b> 84:25</p> <p><b>effect</b> 23:11 133:9 139:7 157:18</p> <p><b>effective</b> 47:4 150:22</p> <p><b>effectively</b> 15:17 133:14</p> <p><b>EFIS</b> 26:2,4</p> <p><b>electric</b> 181:21</p> <p><b>element</b> 32:19 82:13 135:23</p> <p><b>elements</b> 24:15 75:3, 4 80:18 132:8</p>	<p><b>elephant</b> 154:14</p> <p><b>eliminate</b> 113:21</p> <p><b>eliminated</b> 133:9</p> <p><b>elimination</b> 29:18 133:15</p> <p><b>emphasis</b> 88:17</p> <p><b>emphasizing</b> 142:15</p> <p><b>employed</b> 165:12,13</p> <p><b>encourage</b> 27:24 35:11 37:21</p> <p><b>end</b> 19:21 61:18 67:13 95:6,11,17,22 97:9 98:4 124:19 125:1 146:16,20 154:23 157:23 158:3 159:21 163:22 174:19 175:10</p> <p><b>ended</b> 120:13 121:19 125:8 150:20</p> <p><b>ending</b> 101:17 172:14 182:20</p> <p><b>ends</b> 97:13 165:22,23 183:1</p> <p><b>Energy</b> 129:9</p> <p><b>English</b> 85:2</p> <p><b>ensure</b> 53:15 133:23</p> <p><b>enter</b> 12:25</p> <p><b>entertain</b> 107:10</p> <p><b>entire</b> 57:12 98:6 121:12 131:19 133:14 141:3 142:7,8,11,18, 23</p> <p><b>entitle</b> 148:20</p> <p><b>entry</b> 12:15 55:14</p> <p><b>epsilon</b> 74:17</p> <p><b>equal</b> 156:8 169:6 177:18 179:23</p> <p><b>equals</b> 30:24,25 74:17 168:9</p> <p><b>equation</b> 76:4 123:4 146:15</p>
--	---	---	--

<b>equity</b> 81:21,23	<b>examples</b> 16:16 21:25 121:13 136:19 162:13	<b>experienced</b> 95:25 167:4	<b>familiarity</b> 85:6
<b>equivalent</b> 46:14 118:20	<b>exceed</b> 133:24	<b>experiencing</b> 19:24	<b>fashion</b> 39:22 145:7
<b>error</b> 77:3	<b>Excel</b> 161:19	<b>expert</b> 109:19	<b>faster</b> 96:21
<b>essential</b> 32:19	<b>exception</b> 29:2 37:12	<b>experts</b> 46:2	<b>favor</b> 35:2
<b>essentially</b> 40:13,17 59:8 72:19 121:5 167:14	<b>exceptionally</b> 134:1	<b>explain</b> 19:8 21:6 58:8 59:3 71:16 99:25 108:3 109:23 127:16 163:1	<b>feature</b> 136:3
<b>establish</b> 120:9	<b>exchanges</b> 110:7	<b>explained</b> 130:22 174:10	<b>feel</b> 21:22 24:7
<b>established</b> 16:3 18:16,18,20,25 19:2, 17 24:5 62:11,22,25 63:6,21,25 64:13 81:18 94:17 95:14,18, 24 96:6,13 108:16,18 114:20 137:23 138:7, 21	<b>excluding</b> 56:7 129:12	<b>explaining</b> 135:16	<b>fewer</b> 178:10
<b>establishing</b> 94:6	<b>excuse</b> 31:12 39:6 60:7 66:4 69:21 70:22 121:10 162:17 164:7	<b>explains</b> 68:24	<b>figure</b> 79:9,10,13 90:3,5,11 102:24 107:9
<b>estimate</b> 125:4	<b>excused</b> 116:2 164:18 180:8 184:20, 23	<b>explanation</b> 102:23	<b>figured</b> 119:21
<b>evaluate</b> 37:7	<b>exercise</b> 84:20	<b>explicit</b> 18:7,8	<b>Figures</b> 90:2
<b>event</b> 34:19 139:1 153:25	<b>exhibit</b> 13:21 14:2 26:2,11,16 28:25 47:6 49:22 50:1 54:13,15, 23 55:4,10 56:21 57:9, 13,17,19,22,25 58:17, 20 59:24 60:5 84:2 87:4,8,20 89:12,16 90:23,25 91:1,3,8,12, 20,23,24 93:4 103:18, 19 104:7 106:15,19,20 112:12 116:19,21 117:9 128:7 132:22 147:21,23 148:8 160:23 161:3,8,11,14 163:17 165:17 166:7, 13,15,17 177:2,4 181:1	<b>exposure</b> 133:11	<b>file</b> 12:6,8 22:16 35:3 132:23 148:7,11 159:3
<b>eventually</b> 53:1	<b>exhibits</b> 13:20,23,25 14:3 26:17 27:8,11,14 50:7,14,16,21 88:2,3 117:2,14,22 183:23,24 184:3	<b>express</b> 15:2	<b>filed</b> 35:3 37:7 47:4 48:3 49:20,25 75:24 87:3,7 93:19 134:15 135:13 139:9 140:3, 11,13,17,19 148:8 160:16
<b>everytime</b> 16:20 19:12	<b>existence</b> 163:20	<b>extensively</b> 93:13	<b>files</b> 12:10
<b>evidence</b> 27:15 50:22 55:11 57:7,20 88:4 93:4 117:15 161:9 166:18 184:4	<b>existing</b> 20:19 134:10	<b>extent</b> 36:4 47:19 73:12,19 75:24 95:10 124:1	<b>filing</b> 18:19 34:6 84:7, 9 119:14 125:22 135:14 140:8
<b>evidentiary</b> 12:4 20:11 83:1,22 127:7 134:19 135:18	<b>expect</b> 153:11	<b>extra</b> 148:6	<b>filings</b> 29:21 35:7 85:25 86:5
<b>eviscerate</b> 133:14	<b>experience</b> 46:14,16, 17 85:7	<b>face</b> 31:11	<b>final</b> 121:20 124:23 163:22 172:22 174:25
<b>exacerbate</b> 135:2		<b>fact</b> 17:21 19:25 26:5 30:21 31:23 84:18 123:3 138:6,20 139:6 175:17	<b>finalize</b> 16:14
<b>exact</b> 72:5 84:10 145:17,23 170:11		<b>factor</b> 154:5 177:24	<b>finalized</b> 32:6
<b>examination</b> 49:16 80:6 86:24 107:17 111:19 116:16 127:3 154:3 159:20 165:8,14 179:16 180:23		<b>factors</b> 14:22 24:20 25:15 28:12 131:11	<b>finally</b> 37:23
<b>examines</b> 141:8		<b>fair</b> 36:14 42:15,17 53:18,21 55:9 70:16 94:18 129:20 134:6	<b>financial</b> 19:22 133:12 139:18
		<b>fairly</b> 17:8	<b>find</b> 17:19 76:15 92:9 136:10 170:10
		<b>falling</b> 134:3	<b>finding</b> 35:2
		<b>familiar</b> 95:9 118:2,10 136:24	<b>fine</b> 16:4 51:5 113:3 133:6 140:9,15,21 159:16
			<b>finished</b> 107:1

<b>fiscal</b> 70:13	97:6 100:1 101:10	14 98:7,14,17 99:23	93:2,6 97:20 100:22
<b>fit</b> 129:25 130:1	103:10,14,16 105:5, 11,12,14 107:10,21	101:22 129:6 148:9,24	103:7 105:19,22,25
<b>fix</b> 16:13 109:7	115:8 118:16 143:14	153:9,13 154:12	106:4,13,18,22,25
<b>fixation</b> 20:4,5	144:21 154:7,10,22	160:16	107:4,8,15 110:24
<b>fixed</b> 17:12 18:23,24 19:3,21 22:6 32:6 108:6,7 121:24 124:2 130:15,17,25 131:15 163:10,13,18,20	<b>formula's</b> 130:1	<b>giving</b> 132:6 185:23	111:3,5,16 114:6,12
<b>flaw</b> 134:24	<b>formulas</b> 153:4	<b>glad</b> 21:9	115:24 116:3,6,11
<b>flip</b> 70:16	<b>formulate</b> 43:13	<b>GO-2019-0058</b> 12:6	117:11,16,19 123:10
<b>flipped</b> 70:17	<b>forward</b> 15:3 21:12 75:16 94:19	<b>GO-2019-0059</b> 12:8	128:22 132:17 141:16
<b>fluctuates</b> 70:12	<b>found</b> 28:5,14,16 29:6 45:8 89:6	<b>GO-2019-0060</b> 47:4	143:1,5 147:22 148:5, 9,15,19,24 149:2,6,14, 20 153:7,16,21,24
<b>fluctuations</b> 29:12 45:23	<b>frankly</b> 39:18 115:14	<b>goal</b> 21:4 44:22,23	155:16 157:6 159:18
<b>focus</b> 30:19 38:20 129:8 141:24	<b>front</b> 71:20,22 74:14 103:12,19,20 111:21, 25 119:14 126:22 136:8 142:22 149:16 177:5	<b>good</b> 13:11 14:13 20:24 23:22,23 28:20 35:20,21 40:7 44:8 51:2,3 55:18 67:4,5 68:18,19 86:25 87:1 88:8,9 93:10,11,12 97:18 100:17 117:25 118:1 136:21 143:8,9 149:2 157:17 166:23, 24 173:6	161:5 164:16,19,22 165:3 166:15,19 174:14 176:13,16,20 179:8,11,13 180:5,9, 14,18 183:22 184:1,5, 8,11,14,18,21,24 185:2,10,14,21
<b>focuses</b> 142:14	<b>fuel</b> 28:10	<b>GR-2017</b> 132:23	<b>graph</b> 47:9,24 91:17, 18 92:2,4 106:11
<b>focusing</b> 38:3 59:18 83:11	<b>full</b> 20:24 86:12 116:6 180:15	<b>GR-2017-0015</b> 44:20	<b>graphs</b> 92:6 106:6,10, 11,12
<b>follow</b> 14:5 34:9 40:15 111:18 114:11 121:1 127:8 135:4,7 155:19	<b>function</b> 177:24	<b>GR-2017-0215</b> 27:23 129:2	<b>great</b> 37:18
<b>font</b> 145:6	<b>future</b> 19:18 22:24 35:7 59:21 61:7,20,23, 24 72:15 83:16	<b>GR-2017-0216</b> 27:23	<b>greater</b> 167:13 171:4, 8,12 173:13 175:6
<b>footnote</b> 165:23 166:1	<hr/> <b>G</b> <hr/>	<b>graduation</b> 23:10	<b>greatest</b> 45:6
<b>forest</b> 15:1	<b>G1</b> 129:12	<b>graduated</b> 85:4	<b>grounds</b> 126:5
<b>forever</b> 24:17 127:13	<b>gas</b> 29:7 33:12,16 34:4 44:23 45:2,17 80:25 81:2 181:21	<b>Graham</b> 12:2,13,21, 24 13:6,9,15 21:14 25:19,21 26:1,9,15,19, 22,25 27:9 35:19 39:11 41:24 42:1,4,15, 24 43:5,9,12,19 44:4 48:19,22 49:4,8,11 50:16,19,23 52:13,16 54:4,13,15,19 55:5,9 56:22 57:1,4,8,15,17 61:16 63:13 64:22 65:1 66:25 68:16 73:25 74:3 75:9 76:17 79:18,22 80:2 83:19 85:14,18,21,24 86:4, 10,16,19 87:22 88:1,5 90:17,25 91:3,6,10,14, 22,25 92:18,20,24	<b>guess</b> 13:16 24:22 25:5 36:20 37:23 42:14 50:24 85:5 96:9 99:23 110:3 115:6 151:1 177:13 180:10 184:21
<b>forget</b> 169:1 174:5	<b>gave</b> 99:13 175:13	<b>graduated</b> 85:4	<b>guidance</b> 67:11
<b>forgotten</b> 165:10	<b>general</b> 36:18 38:17 63:3 64:2,7 66:12 81:1,22 178:23	<hr/> <b>H</b> <hr/>	<hr/> <b>Hall</b> 23:22,24 24:11,22 25:8,12,17 26:10 39:11,12 40:9,20 41:23 47:18 48:6 68:16,17 69:25 73:24 74:4 77:19 97:20,22 98:9,16,23 99:1,15,21, 22 100:20,24 101:5 103:5 106:22,24 108:15,23 110:3
<b>form</b> 29:9 45:20 52:2	<b>generally</b> 18:25 64:17,19,21 80:18 81:17 91:21 168:18 170:4		
<b>formal</b> 134:23	<b>generated</b> 104:6,9		
<b>formed</b> 104:18	<b>give</b> 26:25 27:18 32:7 59:7 61:13,15 63:11,		
<b>formula</b> 17:15,16 25:24 30:17,21,22,24 31:1,10 34:5 37:24,25 38:21 39:8,19,20 41:15 42:23 53:8,10 74:12,15,20,23 95:16			

143:5,7 147:20 148:1 149:9 150:2 153:5,23 160:25 162:15,16 174:11 176:16,18 184:14,16	<b>heart</b> 31:23	<b>home</b> 168:17 169:3, 19	<b>impacts</b> 73:4 97:1 131:10,13 135:24
<b>Hanauer</b> 25:23	<b>heat</b> 168:17 169:15,19	<b>homes</b> 168:23 169:15	<b>implement</b> 77:6
<b>hand</b> 47:7 49:9 86:17 89:16 102:4 153:3	<b>heating</b> 15:10,20 18:2 19:22 29:5,8 32:2,5,10 33:7,11,13,17,21,24 40:19 41:7,10 43:25 45:3,18 47:13,21 59:13,14,17,18 60:6,8 66:1 67:14,24 70:14, 23 71:19,24 72:6 76:2, 7 82:19 96:5,17 97:2 100:11,12,14,19,23 101:2,22,23 103:2 109:24,25 113:17,25 114:15,17,19,21,23,24 115:1,4,5 123:17 124:1,6,22 137:24 138:6,10,12,16,21 139:1,3 145:18 151:8 152:4,5 162:8,18 167:5,7,9,16 168:23 169:2,3,4,22,25 170:1, 9,13,17,18 171:17 173:7,14,15 176:6,7 178:5,6,7,18,24 179:2, 3,18,20,25	<b>honesty</b> 36:3 76:11	<b>implementation</b> 45:16
<b>handed</b> 54:22 155:20	<b>helpful</b> 153:5	<b>honesty</b> 36:6	<b>implemented</b> 21:23 81:6
<b>handing</b> 128:24 132:20	<b>helps</b> 47:8 180:3	<b>Honor</b> 12:17 14:13 49:2,13 50:13 63:8 79:21 80:5 85:13 86:3 93:8 114:10 123:13 174:15 179:12 184:10	<b>implications</b> 73:5
<b>handled</b> 22:11	<b>Henry</b> 46:7 88:24	<b>hope</b> 24:19	<b>implies</b> 114:7
<b>happen</b> 101:19 172:20	<b>hey</b> 135:9	<b>horizontal</b> 118:18	<b>important</b> 21:12 51:25 52:6 53:4 113:16 135:23 168:11 171:19
<b>happened</b> 37:2 83:4 96:7	<b>high</b> 122:6 126:24 168:6	<b>hour</b> 48:23	<b>impose</b> 136:25
<b>happening</b> 97:14	<b>higher</b> 122:14 169:22 170:1,2,4 171:2 175:15	<b>hours</b> 153:9	<b>improper</b> 33:10,21
<b>happier</b> 52:19	<b>highest</b> 100:12	<b>huge</b> 23:19 77:12	<b>incentivize</b> 28:20
<b>happy</b> 48:4 63:16	<b>highlighted</b> 146:7	<b>hypothetical</b> 60:1 75:20,22 83:7,13 99:6 145:20 146:11,13,17, 19,24	<b>include</b> 36:1 110:16 160:5 163:23 185:12
<b>hard</b> 20:15 21:1 71:5 131:15,21 132:10 134:7 136:25 137:1,9, 10 155:19 163:18,20	<b>highly</b> 47:14,15	<b>idea</b> 27:19 131:6 159:11,15	<b>included</b> 28:25 37:16 102:9 118:12
<b>harm</b> 23:1	<b>hinges</b> 38:18	<b>identical</b> 34:5	<b>includes</b> 162:21
<b>HDD</b> 99:10 120:6 145:20,22 170:7 171:15 175:24 176:3 181:24,25 182:1,3,13, 15,18,19,24	<b>historical</b> 15:25 16:1	<b>identification</b> 147:24	<b>including</b> 104:18
<b>HDDS</b> 62:10 65:8 123:21 177:12,16 179:23	<b>history</b> 14:20 22:14 24:8 46:17	<b>identified</b> 14:3 66:9 91:11 150:17	<b>inconsistent</b> 119:21 120:1
<b>head</b> 103:11 112:18, 20 154:1	<b>hold</b> 33:20 80:2 171:16	<b>identify</b> 54:23 128:24 132:19,20 185:5	<b>incorporate</b> 84:21
<b>heads</b> 150:21 185:23		<b>ignore</b> 142:13,24	<b>incorrect</b> 66:12,17 113:2,3
<b>heard</b> 31:25 33:1 34:13 164:22 185:16		<b>ignores</b> 141:3,6	<b>increase</b> 12:8 44:22 133:10,23 137:5
<b>hearing</b> 12:4 20:11 44:5 55:5 83:1,23 88:2 127:9 134:19 135:18 162:25 181:19		<b>ignoring</b> 142:21	<b>indicating</b> 89:5
<b>hearings</b> 83:10 127:7		<b>ij</b> 30:20 31:2 115:3	<b>industrial</b> 45:5 129:13
		<b>impact</b> 14:21 19:22 20:25 70:5 71:25 79:14 94:14 95:8 122:2,14,18 123:25 131:6 133:12 134:9,25 142:22 157:11,17 175:10	<b>industry</b> 168:16 177:1
		<b>I</b>	<b>information</b> 13:13 27:20 56:6 76:1 77:18 87:18 104:12,14 117:6 121:13 175:14
			<b>informed</b> 84:11
			<b>infrastructure</b> 18:14

<b>inherent</b> 17:9	<b>irrelevant</b> 20:3	63:13 64:22 65:1	56:20,24 57:2,5,14,21
<b>inquiry</b> 39:13	<b>isolation</b> 171:9	66:25 68:15,16 73:25	61:12,21 63:12,16,18
<b>inserted</b> 163:10	<b>ISRS</b> 18:15,19 36:1,6	74:3 75:8,9 76:17	64:24 65:6 66:23
<b>inside</b> 84:23	80:15,20 81:3 82:3	79:17,18,22 80:2	69:23 76:18,19 79:17
<b>instance</b> 160:5	<b>issue</b> 14:15 15:3,5,8	83:19 85:14,18,21,24	80:8 82:6,14 83:17,18
<b>insult</b> 89:5	22:14,21 29:11,23	86:4,10,16,19,21	85:12,20 86:9,21,24
<b>intended</b> 107:25	30:2,3 34:10 35:2	87:20,22 88:1,5 90:17,	87:20,25 89:14,19
108:3 127:20 161:13	45:22 56:8 82:2 84:17,	25 91:3,6,10,14,22,25	91:5 92:17 98:6,10,20,
<b>intent</b> 24:4 25:4 34:23	22 89:7 95:3 101:16	92:2,18,20,24 93:2,6	24 99:4,9,13,17
<b>intents</b> 56:8	144:5,15 163:12	97:20 100:22 103:7	100:19 102:22 106:8,
<b>inter</b> 70:25	172:10 185:3	105:19,21,22,25	17,20 107:6,16,17
<b>interact</b> 174:2	<b>issues</b> 21:11 34:11	106:4,8,13,18,22,25	110:22 111:2,18,19
<b>interest</b> 29:15 164:13	43:14 44:14 185:6	107:4,8,15 110:24	114:4 115:13 116:5,
<b>interested</b> 157:11	<b>italicized</b> 142:19	111:3,5,16,18 113:21	13,16 117:8 127:19,22
<b>intermission</b> 153:12	<b>itch</b> 98:18	114:5,6,12 115:24	142:1,25 147:23
160:22	<b>item</b> 26:2,4	116:3,6,11,13 117:8,	148:4,6,13,17,22
<b>interplay</b> 94:9,14	<b>items</b> 64:3	11,16,19 123:10	149:11,17 159:19,20
<b>interpret</b> 15:9	<hr/>	128:22 132:17 141:16	161:2,7,10 164:21
<b>interpretation</b> 15:7	<b>J</b>	143:1,5 147:22 148:5,	165:8 166:13 170:14
17:11 18:9,12 21:8	<b>J-O-U-N</b> 86:15	9,15,19,24 149:2,6,14,	179:14,16 180:3,13
23:2 25:1 32:7,9,23	<b>January</b> 12:3 100:7,8,	20 153:7,16,21,24	183:5,7,10 184:7
34:21 37:25 67:7	10,13,14,25 101:2,3	157:6 159:18,19	185:8,11,20,24
68:10 97:7 115:19	108:24,25 109:3,4	161:2,5 164:16,19,22	<b>Kentucky</b> 129:9
141:2 167:2 170:18,24	<b>Jeff</b> 13:4 27:17	165:3 166:13,15,19	<b>Kevin</b> 127:22,24
173:11	<b>Jefferson</b> 13:4	174:14 176:13,16,20	<b>kick</b> 84:9
<b>interpretations</b>	<b>John</b> 25:25	179:8,10,11,13 180:4,	<b>kind</b> 18:3 20:3 21:11
15:17 172:11	<b>joined</b> 22:21	5,9,14,18 183:22	22:18 73:4,16 84:9
<b>interpreted</b> 38:1	<b>Joun</b> 35:10 46:8	184:1,5,7,8,11,14,18,	114:7 133:17 157:2
143:2	86:14,22 87:2 167:11	21,24 185:2,10,14,21	162:24 172:6 175:8,9,
<b>interprets</b> 68:14	<b>journal</b> 17:1	<b>judge's</b> 107:24	19 177:25 185:23
137:18	<b>judge</b> 12:2,14,21,24	179:17	<b>Kliethermes</b> 35:11
<b>interrupt</b> 52:13 90:17	13:2,6,9,12,15 21:14	<b>July</b> 70:1	54:17 99:8,11 125:11,
<b>interrupted</b> 63:12	23:21 25:19,21,22	<b>June</b> 174:6	19 156:13 159:14
<b>introduced</b> 112:8	26:1,8,9,11,15,19,22,	<b>jurisdictions</b> 133:19	164:20,23,25 165:6,9,
<b>introduction</b> 82:25	25 27:9,13 35:19	<hr/>	11,15 166:23 179:17
<b>invention</b> 16:24	39:10,11 41:24 42:1,4,	<b>K</b>	<b>knowing</b> 79:2 131:20
<b>involve</b> 121:14	15,24 43:5,9,12,16,19,	<b>K-L-I-E-T-H-E-R-M-</b>	<b>knowledge</b> 50:11,12
<b>involved</b> 37:19 40:8	24 44:4 48:19,22 49:4,	<b>E-S</b> 165:1	82:1 87:18 166:11
107:20 171:24,25	8,11 50:16,19,23	<b>keeping</b> 68:6,7	183:18
	52:13,16 54:4,5,13,15,	<b>Keevil</b> 13:2,4,8 25:22	<b>knowledgeable</b>
	19 55:4,5,9 56:20,22	26:5,11,17,21,24 27:3,	35:13
	57:1,4,5,8,15,17 61:16	13,16,17 35:21 36:3,	<hr/>
		20 37:1,18 38:2,6,19	<b>L</b>
		39:9,18 40:17 41:2	<b>Laclede</b> 20:20
		42:3,7,19 43:1,7,11,	<b>land</b> 122:16
		16,23 44:20 54:5,6,14,	
		18,20,21 55:4,8,12	



<p><b>language</b> 16:19 23:25 34:18 36:1,9,17, 21 37:16 38:16,18 42:6,8,14 46:19 48:8 64:9,12 65:13 66:19 82:2 83:21 85:10 129:22 137:18,20 154:5 163:4</p> <p><b>large</b> 122:4,17 146:20 173:20</p> <p><b>larger</b> 76:24 78:21 134:1 173:10</p> <p><b>largest</b> 152:6 182:13</p> <p><b>laser</b> 83:11</p> <p><b>lasts</b> 159:5</p> <p><b>late</b> 20:10 148:7,8,11</p> <p><b>law</b> 12:14 80:15</p> <p><b>lead</b> 15:16</p> <p><b>leap</b> 56:4,7</p> <p><b>learn</b> 84:4</p> <p><b>leave</b> 24:17 62:10 63:24 65:8,10</p> <p><b>leaves</b> 21:1 64:12</p> <p><b>leaving</b> 65:14</p> <p><b>led</b> 125:22</p> <p><b>left</b> 141:13 150:10 151:1</p> <p><b>legend</b> 104:3</p> <p><b>Lena</b> 13:14 180:16,21</p> <p><b>length</b> 40:4</p> <p><b>lengths</b> 19:7</p> <p><b>Lera</b> 13:12 44:9</p> <p><b>let alone</b> 119:13</p> <p><b>level</b> 23:17 46:3 66:12 168:15 173:21 176:7 177:16 178:23</p> <p><b>levels</b> 23:17 65:11,15</p> <p><b>Liberty</b> 14:25 34:3,6 47:2 139:6 140:8,11, 17</p>	<p><b>limit</b> 29:18,19 129:24 133:8,15,20,21 134:3 163:22</p> <p><b>limited</b> 28:13 47:25 57:9 126:13 137:4 160:4</p> <p><b>limiting</b> 122:9</p> <p><b>lines</b> 47:15 58:13 65:4 119:15 141:24 142:8 143:13 165:25</p> <p><b>link</b> 40:24,25 41:2</p> <p><b>linkage</b> 40:12,15,16, 22 41:21</p> <p><b>linked</b> 29:11 45:23</p> <p><b>list</b> 13:25 14:3,4 30:3 34:10 91:12 142:8</p> <p><b>listed</b> 34:10</p> <p><b>listing</b> 14:6</p> <p><b>litany</b> 165:11</p> <p><b>literally</b> 67:12</p> <p><b>live</b> 22:5 60:24</p> <p><b>load</b> 70:14</p> <p><b>logic</b> 39:1</p> <p><b>logical</b> 44:15</p> <p><b>long</b> 14:20 19:25 46:17 79:23 88:10 98:11 104:17,19,21</p> <p><b>longer</b> 32:22 38:4 111:13</p> <p><b>looked</b> 70:13,17 71:10 75:25 76:5 136:4,20 158:3 172:9</p> <p><b>lost</b> 15:1 99:7</p> <p><b>lot</b> 52:18 79:19 99:3 137:14 163:12 164:22 178:16</p> <p><b>loud</b> 112:19</p> <p><b>Louis</b> 49:19 167:25</p> <p><b>low</b> 122:7 168:6</p>	<p><b>lower</b> 171:2</p> <p><b>lunch</b> 49:4 85:16</p> <hr/> <p style="text-align: center;"><b>M</b></p> <hr/> <p><b>made</b> 16:21 21:12 27:15 28:9 29:2 40:14 50:22 55:11 57:20 59:20,21 60:11 73:20 86:6 88:4 93:5 96:16 117:15 119:12,19 133:8 147:23 158:24 160:22 161:9 166:18 184:4</p> <p><b>Madison</b> 13:4</p> <p><b>magnify</b> 156:25</p> <p><b>main</b> 12:19 15:8 21:4 94:24 95:3 104:9</p> <p><b>maintain</b> 113:16</p> <p><b>maintaining</b> 146:18</p> <p><b>major</b> 134:24</p> <p><b>majority</b> 30:21 133:18</p> <p><b>make</b> 16:8 18:19 19:13 39:19 50:3 59:9 68:25 77:9 82:18 83:9 87:11 99:25 100:9,13 101:21 116:24 120:23 124:14 132:11 135:10 139:12 140:8,14 145:21 151:9 157:16 158:10 161:4 165:20 167:18 181:22</p> <p><b>makes</b> 24:2,3</p> <p><b>making</b> 16:5 24:15 89:7 124:20 130:21 151:22 158:22</p> <p><b>manager</b> 165:14</p> <p><b>manages</b> 17:2</p> <p><b>manner</b> 33:5 53:16, 17 55:17,21</p> <p><b>Mantle</b> 13:14 46:2,17 48:3 180:14,16,21,24</p>	<p><b>March</b> 101:20</p> <p><b>mark</b> 13:20,23 56:20 148:12</p> <p><b>marked</b> 14:1 26:18 47:6 49:22 50:1 54:23 58:20 87:4,8 89:13 116:19,20 160:23 165:17 181:1,5,8</p> <p><b>Market</b> 49:19</p> <p><b>massaged</b> 17:12 19:4</p> <p><b>match</b> 37:24 38:1 89:9 108:5,8 144:10</p> <p><b>matches</b> 15:24 151:23</p> <p><b>math</b> 75:8 118:16 151:9</p> <p><b>mathematically</b> 109:21</p> <p><b>mathematics</b> 46:9 88:21</p> <p><b>matter</b> 12:4,6,14 19:20 33:10 95:3 134:13 175:17</p> <p><b>matters</b> 14:9 143:15</p> <p><b>maximum</b> 167:15</p> <p><b>MDT</b> 177:12,17,18 178:4 179:24</p> <p><b>meaning</b> 16:12 32:7, 24 36:21 43:15 80:8 138:24 164:11</p> <p><b>means</b> 16:13,14,17 32:4 43:3 46:21 48:15 53:20 79:6 82:2 118:15 122:15</p> <p><b>meant</b> 161:14</p> <p><b>meantime</b> 35:16</p> <p><b>measure</b> 65:17 67:25 71:1 95:12</p> <p><b>measures</b> 64:4 70:16 76:5,6</p> <p><b>mechanism</b> 14:17</p>
--	--	--	--



<p><b>necessarily</b> 121:1 156:10</p> <p><b>needed</b> 84:5 115:17 163:8</p> <p><b>negative</b> 78:16,18 160:14 171:6,7 173:20</p> <p><b>net</b> 72:8 146:22 159:1 175:23</p> <p><b>netted</b> 147:3 174:19</p> <p><b>netting</b> 175:20</p> <p><b>NOAA</b> 51:15 104:16 108:23 168:1</p> <p><b>nodded</b> 112:18,19</p> <p><b>noon</b> 79:22 85:23</p> <p><b>NORM</b> 145:9,12 146:18</p> <p><b>normal</b> 15:10,11,21 18:2 29:5,8,24,25 30:3,9,11 31:3,21 32:2,3,4,10,16,20,22 33:7,8,11,21,24 43:25 44:1,17,25 45:9,19 47:1,10,11,13,19,20 56:1,9,11,14,16,17 59:13,17 60:6 65:25 66:1,2 67:14,16,19,22 68:7 69:10,15 70:23 72:6 76:2,7 78:5 82:19 84:19 88:25 89:8,24 90:6,13,16 91:18 94:3, 4,6 95:14 100:3,6,7,8, 10,11,14 101:22,23 102:24 104:3,19 108:11,24,25 109:11, 25 110:12,14 114:15, 17,18,19 115:1,3 120:22 122:13 130:5 137:21 138:16,17,20 141:4 143:16,17,22 144:1,6,7,9,11 145:9, 12,18 146:1,8,11 151:5,7,13 152:5 162:8,17,18,20 163:2 167:2 169:4 170:7,9, 20,22 171:15,17,20 173:7 175:24 176:3 178:19,23 181:25</p>	<p>182:2,15,18,24</p> <p><b>normal-weather</b> 181:24</p> <p><b>normalization</b> 14:16, 24 19:12 28:22 29:9 35:14 45:1,9,12,19,21 51:11,20 52:1,5,10,11, 21 59:9 88:18 89:6 93:25 94:21,24,25 102:16 113:5,10 119:22 122:22 123:2 182:25</p> <p><b>normalized</b> 47:13,21 48:1 72:7 147:6</p> <p><b>normals</b> 15:23 31:15, 17,18,19 32:13,14 103:3 107:25 109:8 110:10 130:4 144:17 146:9 151:19 163:7,14 173:3 181:20</p> <p><b>Nos</b> 13:21 132:23</p> <p><b>Notably</b> 47:1</p> <p><b>noted</b> 27:11 31:15 34:2</p> <p><b>notice</b> 27:7,12 34:12, 14 41:14 57:7,11,13, 18 185:18</p> <p><b>noticed</b> 88:20</p> <p><b>November</b> 70:19 78:16 121:17,19,21 129:18 145:10,21,22 146:2</p> <p><b>number</b> 16:16 26:22 31:4 39:4 54:16 72:6 74:10 75:5 80:7 82:5, 24 96:17 100:17,19 101:3,11,24,25 102:1 106:15 108:6 120:9,12 126:5,23 148:10 149:17 150:20,21 151:21 152:6 157:23 172:19,22 173:19 179:5</p> <p><b>numbering</b> 148:14</p> <p><b>numbers</b> 26:11,16,19 48:17 62:18,21 63:1,5,</p>	<p>20 65:19,20,22 72:18 73:7 78:22 79:15 84:14 92:4 95:18 98:9, 13 100:8,16 101:1,8 102:10,18,25 103:1 108:7,11 115:19 120:5 147:18 150:13,21,22, 23 152:18 156:19,22 160:15 163:6,8,9 172:2 174:25 183:12</p> <hr/> <p style="text-align: center;"><b>O</b></p> <hr/> <p><b>object</b> 61:10 115:13</p> <p><b>objection</b> 27:10,11 29:2 57:16 61:17 83:17 117:20</p> <p><b>objections</b> 50:19 55:5 57:15 88:1 92:20 93:2 117:12 161:5 166:15 184:1</p> <p><b>oblique</b> 34:18</p> <p><b>observed</b> 150:9,15 151:5,7,24 170:18 173:14</p> <p><b>obtain</b> 182:2</p> <p><b>occur</b> 61:4,22 135:15</p> <p><b>occurred</b> 60:20,23 61:3,23</p> <p><b>Oceanic</b> 51:17</p> <p><b>October</b> 47:4 78:11 172:14</p> <p><b>odds</b> 20:7</p> <p><b>offense</b> 77:5</p> <p><b>offer</b> 55:4 75:13 87:20 91:2 92:17,19 117:8 161:2 166:13 183:20, 22,24</p> <p><b>offered</b> 161:3</p> <p><b>office</b> 13:9,12 14:1,19 44:10 166:19 175:8 181:13</p> <p><b>official</b> 27:7,12 57:7, 11,13,18</p>	<p><b>offset</b> 173:12</p> <p><b>ongoing</b> 73:16 84:15</p> <p><b>OPC</b> 14:1 15:12 44:7 50:24 73:21,22 75:10, 12 88:6 104:9 117:16 155:17 179:9 184:22</p> <p><b>OPC's</b> 46:16,19 93:4 184:3</p> <p><b>open</b> 72:14</p> <p><b>opening</b> 14:10,11 21:15 25:21 44:7 72:13 92:25</p> <p><b>operate</b> 127:21 128:4 134:21</p> <p><b>operates</b> 53:16</p> <p><b>operation</b> 133:16</p> <p><b>opinion</b> 64:15 83:18 109:19</p> <p><b>opportunity</b> 20:12,16 22:25 63:11,14 132:3, 6 133:25 135:6</p> <p><b>oppose</b> 21:18,21</p> <p><b>opposed</b> 22:22 96:15 132:14</p> <p><b>opposite</b> 145:23</p> <p><b>orange</b> 47:12</p> <p><b>order</b> 14:8 24:5 27:22, 25 34:9,25 35:2,5 37:9 41:8 44:19,21 62:11 70:7 85:11 105:23 154:14 164:3 185:3</p> <p><b>ordered</b> 34:23 45:15</p> <p><b>ordering</b> 35:3</p> <p><b>orders</b> 86:5 185:22</p> <p><b>ordinary</b> 16:12</p> <p><b>original</b> 115:7 129:25 163:16</p> <p><b>originally</b> 40:2 77:2,5</p> <p><b>other's</b> 22:18</p> <p><b>outcome</b> 144:14</p>
--	--	--	--

<b>outline</b> 105:23	<b>passed</b> 30:15	122:1,18 123:23,24	115:7
<b>output</b> 18:23,24 76:4 81:18	<b>past</b> 22:11 46:23 49:4 61:20 75:20,21,25	125:8 132:1 143:23	<b>pointed</b> 77:2
<b>outputs</b> 18:13,15 22:6 73:1 84:20	<b>patterns</b> 130:1	144:19 145:15,18	<b>pointing</b> 19:6 103:11
<b>overrule</b> 61:17 143:1	<b>Paul</b> 12:13	146:2,5 149:23 150:18	<b>policy</b> 21:12 24:3 25:3
<hr/> <b>P</b> <hr/>	<b>pay</b> 158:9	156:18 159:6,7	<b>portion</b> 58:11 69:23 89:23 141:9
<b>pages</b> 27:21,25 35:25 39:23 49:21 85:10	<b>peak</b> 100:8,12	160:17,19 161:18	<b>position</b> 15:18 20:7 21:7,19 22:20 25:6
106:2 128:3 129:3	<b>peer-reviewed</b> 46:10,15	162:2,5,7,14 171:10	30:2 34:14,19 36:16
136:15,22	<b>Pendergast</b> 12:17, 18,23 14:11,13 21:21	172:13,15 175:10,16	40:10,11,12,21,23
<b>paid</b> 164:4	22:12 23:3,23 24:6,14	182:14,25 183:10	44:12 46:19 68:8 89:8
<b>paper</b> 88:23 102:6,9 110:11,13,14,15,17	25:5,9,13,20 29:21	<b>periods</b> 95:7 114:17 164:13	105:4,6 181:12
147:1	31:25 33:1 34:2,13	<b>person</b> 13:7 37:19 40:7	<b>positions</b> 15:14 68:24
<b>papers</b> 22:18 56:10, 12,15,16,18 73:15	35:14 48:25 49:2,6,13,	<b>personally</b> 37:20 40:8	<b>positive</b> 160:15 173:12,16,18
75:13,15 76:21 84:8	16 50:13,18 57:16	<b>perspective</b> 20:3 21:11 22:16 23:4	<b>possession</b> 104:18
110:9 123:5 139:21	61:10 63:8,10 79:18, 20,25 80:4,5,6 83:20	39:14,15 70:24 72:8	<b>possibly</b> 42:9 110:5
140:7 147:15,16	85:25 86:3 93:8,9	174:23	<b>post</b> 60:15
<b>paragraph</b> 41:13 83:11 119:15 129:16	97:18 107:1,3,7,11,12, 14 108:15 110:24	<b>PGA</b> 19:1,2 36:6 133:16	<b>potentially</b> 122:7
133:3 182:20,22	111:1 114:9,10,13	<b>Phd</b> 46:2,7,8 51:7,8 75:8 88:20	<b>practical</b> 41:20 133:9
<b>paraphrase</b> 133:4 138:15	115:16,22 123:12,14	<b>phones</b> 13:18	<b>pre</b> 60:14
<b>paraphrasing</b> 72:16, 17	128:20,23 132:15,18	<b>phrase</b> 15:9 43:21,25 44:2 61:2 137:21	<b>precedes</b> 33:3
<b>part</b> 27:15 30:8,21 41:11 43:6 46:12	141:14,17,20 142:2,3	142:7 163:2	<b>precisely</b> 144:3 161:11
50:22 51:23 52:22	143:3 157:7,8 159:16,	<b>pick</b> 38:12 68:4 144:25	<b>predict</b> 71:21
53:7 55:11 57:20 69:5	22 163:15 164:6,14	<b>picking</b> 70:18 71:23 72:3	<b>predominantly</b> 56:3
88:4 93:5 115:3	165:5 174:15,16	<b>pieces</b> 87:11,14 116:24	<b>prefer</b> 22:5
117:15 120:8 137:19	176:11 179:12 184:10	<b>place</b> 60:24 62:11 65:9 153:8 185:19	<b>preferred</b> 81:16
161:9 166:18 168:13	<b>people</b> 17:25 22:17 52:18 96:24	<b>places</b> 41:4	<b>prefiled</b> 50:7
177:11 184:4	<b>percent</b> 29:7 45:2,11, 17 79:2,8 126:20	<b>plain</b> 16:12	<b>preliminary</b> 14:9
<b>participated</b> 88:13	130:22 131:23 137:3	<b>plug</b> 110:12	<b>preparation</b> 181:19
<b>parties</b> 14:7 17:8 37:15 149:4	164:7,8 174:23 175:4	<b>PO</b> 13:4	<b>prepared</b> 87:3,6 116:18 165:16 180:24 181:3,6,20
<b>partly</b> 37:4	<b>performed</b> 33:15	<b>point</b> 12:15 14:18 18:3 19:20 21:9 22:17, 24 23:18 24:1 41:17	<b>preposition</b> 43:18
<b>parts</b> 51:22	<b>period</b> 18:22 19:25 30:4,6,8 32:18 33:19	57:10 61:13,17 64:14	<b>present</b> 17:6
<b>pass</b> 50:23 153:18	34:1 38:25 44:16,18	83:9 85:25 93:24 96:9	
	45:24,25 46:25 47:1, 19,20,22 51:9,10		
	69:17,19 89:10 90:6,8, 9,10,14,16 95:11,13,		
	22 96:2,4,7,12 100:3, 6,8 101:13 102:2,21		
	110:12,17 115:4,11		
	120:22 121:20,24		

<b>presented</b> 28:21 108:6	<b>processing</b> 81:3	166:19 180:10 181:13	68:17 73:25 74:1,2,3 75:9 77:20 79:19 80:8 82:5,7,24 84:24 85:13, 15 87:13 93:12 97:21, 22 103:7 105:20 106:23 107:10,12,19, 24 109:14 110:2 111:4,5,16 115:14,23 117:1 123:12 143:6,7 149:7 153:6,11,19,22, 24 154:2 155:16,20 157:9 162:16 163:15 166:7 176:14,17,18, 20,22 179:9 183:15 184:7,10,12,15,16,17, 18,22
<b>presenting</b> 35:9	<b>Proctor</b> 46:4	<b>publication</b> 46:10,15	<b>quickly</b> 161:21
<b>presiding</b> 12:14	<b>produce</b> 31:18 32:12 110:14	<b>published</b> 16:25 35:15 88:23	<b>quote</b> 62:15 141:4
<b>pretty</b> 15:12 17:15,17 46:18 67:13 125:14 126:24 185:4	<b>produced</b> 139:24	<b>pulled</b> 51:13,15	<b>quoted</b> 36:23
<b>previous</b> 165:10	<b>product</b> 74:18 152:25	<b>purple</b> 47:13,15	<hr/> <b>R</b> <hr/>
<b>previously</b> 160:24	<b>pronoun</b> 43:17	<b>purpose</b> 133:14 147:1	<b>raise</b> 86:16
<b>price</b> 23:16	<b>proper</b> 32:21 33:24 92:10,11 147:24	<b>purposes</b> 29:25 30:7 32:5 34:8 36:8,24 41:20 56:1,9 62:20 63:6,19 65:19 113:1, 10 149:3	<b>raised</b> 14:17 22:3
<b>pricing</b> 23:16	<b>proposal</b> 113:4 126:1,5 134:25 163:16	<b>pushed</b> 175:16	<b>rank</b> 103:24 109:24, 25 145:14,16 146:8, 11,18 150:10,11,12 151:14,15,19,21 182:2,3,14,20 183:8, 10
<b>pride</b> 16:22	<b>propose</b> 171:13	<b>put</b> 21:1 38:13 49:9 106:6 125:25 134:18 150:9 158:11,13 160:11 174:22	<b>ranked</b> 30:4,9,12 32:17 33:25 35:6 69:16 71:19 100:6 143:22 144:7 152:5 170:9,20 182:16
<b>primarily</b> 16:23 58:15	<b>proposed</b> 20:9,10,14 28:8,14,17 29:3,13,16 37:6,7,10,13 47:25 96:8 109:17 122:23 131:5 133:1 136:2 161:24	<b>puts</b> 157:21 174:18	<b>ranking</b> 15:22 16:22 17:13,19 22:19 23:13 32:16,18 67:12 68:3,6, 12 72:25 76:8 77:14, 18,19 83:15,24 84:5, 13,16,18 93:13 94:8, 14 95:3 96:13 98:20 99:19 100:1,2 101:4 110:4 123:20 128:13 130:8 150:15 162:21 182:18
<b>printout</b> 54:25 55:2	<b>proposing</b> 37:3 94:20 109:18 125:23 131:15 134:8 170:8	<b>qualify</b> 178:20	<b>rankings</b> 32:21
<b>prior</b> 13:19 14:18 72:21 73:7,8 75:13 158:3	<b>protected</b> 20:17,18	<b>qualifying</b> 36:1	
<b>proactive</b> 15:4	<b>protection</b> 134:8	<b>question</b> 42:10 47:3, 19 52:4 56:13 58:7,8 59:3 60:3 61:1,13,19 63:14,17 64:23,25 65:2,18 68:8 71:14 75:14 77:4,20 85:5,18 95:21 96:23 102:5 104:11,22 108:14 110:6 114:11 118:5 120:11 124:12,14 134:16 138:8 140:21 162:15,19 165:10 169:24 174:17 176:2 177:23 178:1,10,13 179:15,17 183:5 185:21	
<b>proactively</b> 14:21	<b>proud</b> 17:1	<b>questioned</b> 82:14	
<b>problem</b> 17:3 23:19, 20 52:17 120:16 156:17,24	<b>provide</b> 28:17 73:23 75:13 110:11 134:2 137:19 139:20 147:11 177:2	<b>questions</b> 21:15 25:18 35:12,17,19 41:25 42:2 43:13 44:5 48:5,6,20 50:6 67:1,3	
<b>problems</b> 67:18	<b>provided</b> 13:24 14:2 36:12 110:8,16 131:17 140:7 147:16 151:21 152:14		
<b>procedural</b> 185:12, 22	<b>providing</b> 131:22 133:25 136:19 147:13		
<b>procedure</b> 98:15 100:1,2 113:5	<b>provision</b> 118:13 141:12		
<b>proceed</b> 14:11 48:25 49:5,12 57:4 80:4 86:5,19 88:5 91:10 116:12 165:3 166:20 180:10,19	<b>provisions</b> 80:15,17		
<b>proceeded</b> 145:23	<b>PSC</b> 26:12,13		
<b>proceeding</b> 49:25 80:20 81:2 99:2 127:12,13	<b>public</b> 13:3,10,13 14:2,20 20:6 29:14 44:10,12 106:10 129:15,17 165:13		
<b>proceedings</b> 62:12			
<b>process</b> 15:22 16:8 20:10 48:15 51:11,12 73:18 98:8 110:4 154:25 175:20			



<b>reflected</b> 16:10 41:8 157:24 158:8 159:8 185:5	<b>remind</b> 13:16	129:15,17,24,25 156:5 163:24,25 164:2 168:21 169:15 175:1	<b>right-hand</b> 121:16
<b>refuses</b> 61:13	<b>remote</b> 41:3		<b>road</b> 25:11
<b>regard</b> 58:12,24 185:22	<b>repeat</b> 52:4 56:13 60:3 63:13 134:16 169:24 176:2	<b>resolution</b> 44:13	<b>Robin</b> 35:11 125:11, 19 156:12 159:14 164:20,25 165:6,15
<b>Regional</b> 168:3	<b>repeated</b> 142:18	<b>resolve</b> 16:14 29:10 45:21	<b>robust</b> 17:15
<b>regression</b> 41:9,22 111:8	<b>rephrase</b> 95:21 96:23	<b>resolved</b> 44:24	<b>ROE</b> 18:17,20,22 35:25
<b>regressions</b> 45:9	<b>replicated</b> 19:18	<b>respect</b> 14:8 51:12	<b>role</b> 122:19,25
<b>regular</b> 127:7,12 134:19	<b>report</b> 27:21 34:24 37:9 85:11 93:17	<b>respective</b> 15:13	<b>rolled</b> 127:3 164:14
<b>regulatory</b> 12:14 17:2 80:24,25 81:7	<b>reported</b> 104:15	<b>respond</b> 20:16 127:10 132:3,7	<b>room</b> 52:19 83:4 154:15 178:8
<b>rejected</b> 28:8 29:13 37:3,10	<b>reporter</b> 13:13 48:24 79:23 153:8,13 185:1	<b>responds</b> 132:25	<b>roughly</b> 151:8
<b>rejecting</b> 35:2	<b>represent</b> 38:23 44:10 107:25 108:4 161:13	<b>response</b> 107:18,23 110:2 162:15	<b>round</b> 151:9 167:18
<b>rejection</b> 143:16	<b>representations</b> 140:9,14	<b>rest</b> 142:21 180:11	<b>RSM</b> 28:4,6,8,14,17 29:13 58:15 126:1,4, 13
<b>Related</b> 185:24	<b>representing</b> 13:12 27:17	<b>rested</b> 86:1 180:11	<b>RSMO</b> 28:4
<b>relationship</b> 33:12, 16 40:18,23 41:6 92:10,11 113:16,23,25 122:10 162:17	<b>represents</b> 90:6,13 101:12	<b>result</b> 32:9 40:3,12 71:12 78:25 79:7 109:19 122:15,17 156:25 159:1 164:5 167:10 172:4,25	<b>rules</b> 27:12 57:18
<b>release</b> 85:16	<b>request</b> 12:5,7 57:8, 9,12 73:14	<b>results</b> 17:4 19:8 31:14 52:1,2 53:1 75:15 77:12 78:21 79:9 120:18 122:3 172:24 175:19	<b>run</b> 49:4 72:18 73:7 76:11,13 144:20 150:23
<b>released</b> 164:17	<b>requested</b> 73:15	<b>revenue</b> 14:17 28:3, 19 29:10 44:23 45:22 52:2,7,22 76:9 80:19 82:3 122:23 174:25 175:1	<b>rundown</b> 59:7
<b>relevance</b> 36:7 163:18	<b>requests</b> 35:1,5	<b>revenues</b> 45:7 62:10 65:9 70:6 125:14,18 159:12 171:2,12 174:24	<b>running</b> 76:21
<b>relevant</b> 111:13	<b>required</b> 22:20 24:19 118:13	<b>reverse</b> 122:7	<hr/> <b>S</b> <hr/>
<b>reliance</b> 175:14	<b>requirement</b> 28:19 52:2,7	<b>reviewed</b> 177:21	<b>S-E-O-U-N-G</b> 86:15
<b>relied</b> 20:6	<b>requirements</b> 52:22 80:19 82:3	<b>revised</b> 118:14	<b>S-T-A-H-L-M-A-N</b> 116:9
<b>relief</b> 153:14	<b>requires</b> 32:16 44:11, 12	<b>rewrote</b> 39:21	<b>sacrosanct</b> 64:1
<b>relies</b> 18:15,17 32:8	<b>requiring</b> 69:15	<b>rider</b> 14:16,24 28:23 45:12,15 52:10 53:23 59:23 65:17 73:3 75:18,25 120:2 154:16	<b>sales</b> 129:12
<b>relying</b> 15:12,13	<b>reranked</b> 146:1,8,12		<b>sample</b> 28:22,24 136:4 148:25 149:20, 24
<b>remain</b> 19:3 120:3,6	<b>reserve</b> 13:22		<b>samples</b> 136:14
<b>remains</b> 123:17 185:19	<b>reserved</b> 13:20,24		<b>satisfaction</b> 90:15
<b>remember</b> 13:17 32:12 38:8 46:4 74:16 77:24 125:11 134:15	<b>residential</b> 45:2,5,11 126:14,21 128:16		<b>scenario</b> 147:10
			<b>scenarios</b> 76:22 125:7

<b>schedule</b> 99:5 121:7 145:5 147:10 151:22 185:4,12,17,18	66:15 67:16 68:7 101:1,7 102:12,17 133:22	<b>significant</b> 17:17 21:2 23:7 97:16	157:13
<b>scheduled</b> 107:8 185:25	<b>sets</b> 71:9	<b>silence</b> 13:17	<b>sought</b> 28:3
<b>scope</b> 115:14	<b>settles</b> 16:7 72:1	<b>Silvey</b> 21:17 22:10,22 23:21 35:20,22 36:16, 25 37:14,23 38:5,15 39:7,10 48:7,11,18 66:25 67:2,3 68:15 153:19,20 176:13,15 184:11,13	<b>sound</b> 52:17
<b>Scott</b> 49:7,14,19,20, 24	<b>shape</b> 92:8	<b>similar</b> 37:5 59:9 133:18	<b>sounded</b> 110:5
<b>scratches</b> 98:18	<b>sheet</b> 20:9,15 28:22, 24 55:23 67:7,8 83:1,7 94:19 98:19 112:8 118:9,12 125:22 129:21 130:14 134:18 163:11	<b>simple</b> 15:6 118:16	<b>source</b> 103:10,13 104:10
<b>screen</b> 15:7 30:16 53:6 154:1	<b>sheets</b> 34:12,20 35:8 136:11,12,13	<b>simpler</b> 145:7	<b>South</b> 12:19
<b>seasonal</b> 23:11,14 171:25 172:17	<b>Shemwell</b> 13:11,12 44:8,9 48:9,12,21 50:25 51:1 52:15,23 54:2 75:11 76:16 85:17 88:7 89:13,15, 20,22 90:21 91:2,4,9, 13,15,24 92:1,3,15,19, 23 93:1 105:21,24 106:1,5,16 117:17,24 123:8,16 149:19 155:18 157:5 166:21, 22 170:21 174:12 179:10 180:7,20,23 183:13,20,24 184:20	<b>simplified</b> 121:13	<b>space</b> 169:22,25 170:1
<b>seated</b> 116:11 165:3 180:18	<b>shift</b> 120:23	<b>simply</b> 21:19 110:15	<b>speak</b> 31:25 33:1 103:23 128:15
<b>Section</b> 28:4	<b>short</b> 160:17	<b>single</b> 148:12	<b>speaking</b> 40:18 62:6
<b>sees</b> 175:9	<b>shortly</b> 76:15	<b>sir</b> 12:21 26:9,20 53:13 54:3,11,24 57:24 58:21 62:13 92:23 103:21 160:25	<b>specific</b> 18:20 31:17 36:17 37:16 38:8 45:25 63:4 64:3,7,8,10 66:18 108:20,24 109:8,12 111:9,10 115:3 124:16 128:5 131:25 144:6,16 163:3,9 185:5
<b>select</b> 24:2	<b>show</b> 78:12 89:12 92:6 96:22 99:12 106:10 147:1 149:13, 24 167:4	<b>sit</b> 130:10	<b>specifically</b> 29:11 36:11 45:22 51:21 113:1 123:4 125:12 139:13
<b>selling</b> 44:23	<b>showed</b> 175:15	<b>sits</b> 19:14	<b>specifics</b> 168:19
<b>semi-annual</b> 159:4	<b>showing</b> 58:20 92:8	<b>sitting</b> 13:7,14	<b>specimen</b> 20:9,14 59:22 83:1 94:19 125:22 127:4 129:21 130:2,14 132:25 134:18
<b>sending</b> 73:17	<b>shown</b> 28:20 34:24 53:6 78:9	<b>skip</b> 145:25	<b>speculate</b> 71:11
<b>senior</b> 181:14	<b>shows</b> 47:25 92:9 106:9 145:14 152:9	<b>slight</b> 41:5	<b>speculation</b> 83:17
<b>sense</b> 24:3 43:2,7 124:14	<b>side</b> 121:16	<b>slope</b> 118:16,18	<b>speech</b> 43:6
<b>sentence</b> 15:15 62:9 65:7 138:11 165:22,23 182:3,5,11 183:8	<b>signals</b> 52:18	<b>slopes</b> 118:13,15	<b>spent</b> 128:2
<b>Seoung</b> 35:10 46:8 86:14,22 87:2 167:11		<b>slowly</b> 103:23	<b>spike</b> 122:4,6,7
<b>separate</b> 12:11 37:3		<b>small</b> 122:18	<b>Spire</b> 12:5,7,16,18 13:21,22 26:12,14 27:3,4,23,24 28:2,18 29:3,17 30:11 31:8,11, 15 32:1 34:3,7,9,14 35:3,5,23 36:5,11 37:2,5,13 38:1,20 41:4,5,16,18 42:18
<b>separated</b> 106:11		<b>smaller</b> 79:6 110:1	
<b>September</b> 47:4 149:1,21 150:4		<b>smooth</b> 173:4	
<b>sequence</b> 14:5		<b>soft</b> 164:10	
<b>series</b> 124:15 151:17		<b>solely</b> 45:10	
<b>service</b> 13:3 93:17 104:15 125:14 129:12 165:13		<b>solid</b> 153:9	
<b>set</b> 12:4 29:15 30:17 53:1,2 56:6 64:17		<b>somebody's</b> 57:1	
		<b>sort</b> 20:4 44:4 72:23 85:3 97:15 126:12	



<p>43:2 51:21 53:15                      55:24 56:11 57:3                      68:25 69:10 93:6                      109:10,18 111:24,25                      112:2,5,7,12,14,16                      123:10 127:9 132:22                      136:20 143:14,16,21,                      25 149:25 152:14,22                      155:23 157:6 160:5,10                      161:14,25 167:4,24                      170:8 171:3 172:12                      174:14,23 175:1                      178:25 179:11 184:8</p> <p><b>Spire's</b> 12:5,7 27:22                      28:2,8,14,16 29:13,21                      31:21,24 32:7,9,23                      33:23 34:5,17 37:10,                      24 40:11,23 41:1                      42:13 46:13 56:17                      58:2 105:4 109:10                      111:12 113:20,24                      120:15 122:15,23                      125:3 144:14 146:16                      156:14 160:1 162:6                      168:21 169:14 170:17,                      24 171:14 172:25                      173:11</p> <p><b>spits</b> 110:18</p> <p><b>split</b> 69:8</p> <p><b>spot</b> 162:24</p> <p><b>SPP</b> 46:5</p> <p><b>spreadsheet</b> 147:13                      153:3</p> <p><b>squares</b> 42:5,8,10,12,                      13</p> <p><b>St</b> 12:20 49:19 167:25</p> <p><b>stability</b> 28:17</p> <p><b>stabilization</b> 14:17                      28:3 29:10 45:22                      122:23</p> <p><b>staff</b> 12:25 13:3,24                      14:5,19 15:12 16:21                      17:22 18:6 19:7,14                      20:5,8,9 22:8,19 23:8                      25:21 27:17 28:21                      31:16,18,19 32:11,12,                      13 34:21 35:1,4,9</p>	<p>36:25 37:1,4,8,11,15                      40:1,3 41:7 42:17                      44:13 46:23 47:20                      48:16 54:4 56:9,15                      58:2,19,20 59:12                      66:21 68:2,25 69:14                      70:7 71:17 72:8,15,24                      73:15,20 75:25 76:11,                      17 77:2,25 78:1 84:4,                      8,18 85:9 88:11 94:19                      97:5 107:5 109:2,7                      110:7,8,10,16 116:3                      119:23 125:6 126:4                      127:20 134:14,20                      135:9,12 136:6 137:14                      138:21 139:20 140:9                      143:15,25 144:5                      146:1,7,8 150:12                      155:23 159:18 160:22                      164:19 167:1 171:13,                      19 173:2 179:13                      180:11 184:5</p> <p><b>staff's</b> 15:11,20 17:23                      21:18 23:2 27:11,14                      29:8,16 30:2 31:21                      32:3,16,20,22 33:8                      34:7 35:6 39:16 40:9,                      11 41:9 42:5,7,12                      44:1,13,15,25 45:9,19,                      20 46:1,16 47:3,17                      48:2 55:10 56:7,12,14,                      16,18 57:19 59:11                      67:6,21 68:9,24 70:18                      71:6,14 72:4 76:23,25                      77:6,23 78:8,14,18,22,                      25 79:6 86:5 88:2,3                      94:23 95:2 102:2                      108:17,19 109:2,17                      110:4 117:14 122:13                      123:20 125:3 137:20                      138:16 140:3,5,11,14,                      15,20 141:4,13 144:9,                      14 147:3 151:14                      156:14 157:1 158:5,20                      160:1 161:8,15,24                      162:6,17,20 163:2,16                      166:17 168:3 169:4                      181:23</p> <p><b>staffs</b> 17:2</p> <p><b>Stahlman</b> 17:21                      35:11 37:18 40:6 57:3</p>	<p>58:2,19,23 59:16 60:6                      68:21,23 99:6,15,17                      102:5 103:17 104:10                      107:20 116:4,8,14,17,                      18 117:25 119:10                      122:19 123:8,15 129:2                      131:20 143:4 148:18,                      19 159:22 161:11                      164:16 172:7 174:10,                      17</p> <p><b>Stahlman's</b> 58:11                      59:6 69:24 82:25 99:5                      102:6,9</p> <p><b>stake</b> 139:18</p> <p><b>stand</b> 35:13 49:7</p> <p><b>standard</b> 168:16                      177:1</p> <p><b>standpoint</b> 124:5</p> <p><b>stands</b> 145:12</p> <p><b>start</b> 14:10 51:14                      71:23 73:1 99:24                      117:16 145:1 150:19                      158:9</p> <p><b>started</b> 22:17 46:3                      70:14 121:19,21</p> <p><b>starting</b> 65:1 69:2                      80:22 98:18 101:14,                      16,19 159:21</p> <p><b>starts</b> 99:11 165:22                      177:11</p> <p><b>state</b> 25:6 49:17                      51:22,23 53:15 68:13                      86:12 116:6 152:10                      154:5 164:23 169:4                      180:15</p> <p><b>state's</b> 80:15</p> <p><b>stated</b> 22:22 29:21                      31:7 87:23 90:14                      146:10</p> <p><b>statement</b> 14:12                      21:15 25:21 34:14                      44:7 62:24 63:3,23                      64:14 66:5,12,16                      92:25 119:18 143:14,                      21 177:14</p>	<p><b>statements</b> 14:10</p> <p><b>states</b> 34:14 37:5                      118:7 119:10 129:1                      132:21,22 134:11</p> <p><b>station</b> 59:15</p> <p><b>statute</b> 28:5,15 126:7                      133:17</p> <p><b>statutory</b> 36:9</p> <p><b>stay</b> 76:20</p> <p><b>stayed</b> 139:2</p> <p><b>stays</b> 118:23</p> <p><b>step</b> 98:14,15 99:23                      101:1,7 102:24 103:1,                      4 114:18 115:24                      164:17 180:6</p> <p><b>stepped</b> 65:2</p> <p><b>steps</b> 94:2,4 97:6                      98:8 100:6 102:23                      109:21</p> <p><b>stick</b> 41:19</p> <p><b>stock</b> 81:16</p> <p><b>stood</b> 14:14</p> <p><b>Street</b> 12:20 13:4                      49:19</p> <p><b>strike</b> 105:11 177:23                      182:21 183:9</p> <p><b>strong</b> 40:24 47:23</p> <p><b>structure</b> 35:25 80:24                      81:1,8,12</p> <p><b>struggled</b> 163:4</p> <p><b>stuff</b> 97:14 115:11</p> <p><b>stump</b> 43:12</p> <p><b>subject</b> 73:13 174:25                      179:1</p> <p><b>subjective</b> 97:17</p> <p><b>submits</b> 34:21</p> <p><b>submitted</b> 29:3,17                      84:7 94:12</p> <p><b>subscript</b> 30:20</p>
---	--	---	--

<p><b>subsection</b> 80:22</p> <p><b>subsequent</b> 136:12, 15 137:7 164:13</p> <p><b>substantially</b> 133:10</p> <p><b>subtract</b> 59:14,18 60:7,8 169:7,12</p> <p><b>subtracted</b> 167:11 170:19</p> <p><b>subtracting</b> 146:19 150:15 161:20</p> <p><b>subtraction</b> 152:13</p> <p><b>sudden</b> 71:18,23</p> <p><b>sufficient</b> 131:19</p> <p><b>suggest</b> 21:23 24:16 40:6 82:10 83:24</p> <p><b>suggested</b> 14:5</p> <p><b>suggesting</b> 25:1 48:1 72:15</p> <p><b>suggests</b> 16:19</p> <p><b>sum</b> 101:21 146:21 150:20 152:19 156:16, 23 157:2 159:3 172:1</p> <p><b>summary</b> 39:22</p> <p><b>summed</b> 171:9</p> <p><b>summer</b> 72:2</p> <p><b>sums</b> 152:17</p> <p><b>supposed</b> 16:19 17:18 18:1 83:25</p> <p><b>Surely</b> 132:17</p> <p><b>surface</b> 22:15</p> <p><b>surprisingly</b> 46:11</p> <p><b>surrebuttal</b> 70:13 71:18 89:17,18 93:22 119:3,4,11</p> <p><b>suspect</b> 131:20 172:18</p> <p><b>sustain</b> 83:19</p> <p><b>swear</b> 86:12,17 116:7 164:24</p>	<p><b>swings</b> 70:25 73:2 77:22</p> <p><b>switching</b> 28:11 152:15</p> <p><b>sworn</b> 49:9,10,15 86:11,18,23 116:10,15 165:2,7 180:17,22</p> <p><b>swung</b> 135:25</p> <p><b>system</b> 52:17</p> <hr/> <p style="text-align: center;"><b>T</b></p> <hr/> <p><b>table</b> 106:9 163:10</p> <p><b>takes</b> 16:21 157:21,22 174:19</p> <p><b>taking</b> 22:9 31:15 68:1 150:14 158:19</p> <p><b>talk</b> 80:18 94:8 124:4 126:12 134:12 135:8, 18 148:1,7 175:5</p> <p><b>talked</b> 56:4 58:16 84:15 96:25 125:20 128:8 137:14 157:12 171:22 172:7 175:13</p> <p><b>talking</b> 31:7 33:1 38:24 39:23 41:6 59:24 65:7 67:12 79:15 83:7 84:3 92:1 106:14 115:10 119:6 124:1 171:8 172:7 174:6 177:10 178:18</p> <p><b>talks</b> 71:17 81:15 179:23</p> <p><b>tariff</b> 15:6 16:11 17:9, 14,15,19 18:7 20:9,14 21:8,19 23:25 24:8 26:6,8 27:3,4 28:22,24 29:9,14,16 30:3,15,17 31:11,25 34:4,6,12,17, 20,22,24 35:8 36:21, 25 37:1,3,4,12 40:4 41:5 42:14,16 43:15, 24 44:11,12 45:20 46:19 48:8 53:11,19, 20 58:12,22,24 59:4, 22,23,25 60:1,24</p>	<p>62:21 63:9 64:8,9,10, 12 65:13,17,22 66:8,9, 19 67:7,8,25 68:1,11, 14 69:15 74:13,24 82:9 83:1,7 84:2,11 85:6,7 94:16,19 98:19 103:12 108:7 109:11 111:20,25 112:7 113:13 118:9,12,22,23 123:1 125:22 127:4, 16,20 128:3 129:21, 24,25 130:3,14 131:2 132:8,25 133:9,15 134:2,14,18,20 135:16 136:13 139:6 141:3 150:18 154:5 163:4, 11,12,16 165:14 174:3</p> <p><b>tariff's</b> 42:6,8</p> <p><b>tariffs</b> 29:22 36:11,13 37:5 41:3,13 85:9,10 113:2 127:10 128:9, 12,18 129:4,7,22 136:4,8,12</p> <p><b>taught</b> 46:6</p> <p><b>tax</b> 127:12</p> <p><b>tear</b> 149:15</p> <p><b>technical</b> 67:13</p> <p><b>tedious</b> 91:25</p> <p><b>tells</b> 39:1</p> <p><b>temperature</b> 30:5,10, 12 32:19,22 33:25 40:13 45:4 101:9 151:11 162:22 167:10, 13,15,17,25 168:6,9, 12 169:5,10,11,16,23 170:2 175:15 177:13 178:4 179:21</p> <p><b>temperatures</b> 146:9</p> <p><b>ten</b> 153:10,12</p> <p><b>tender</b> 50:15 87:21 117:9 166:14</p> <p><b>tendered</b> 50:17</p> <p><b>term</b> 32:23 46:20 92:13 164:10</p>	<p><b>terms</b> 17:16 38:7,12 94:9 96:19 122:20 185:16</p> <p><b>territory</b> 167:21</p> <p><b>test</b> 31:9,16 47:10,11, 12 48:16 55:25 65:11, 14 89:24 90:13,16 96:4 101:2 102:21</p> <p><b>testified</b> 49:15 86:23 93:13 116:15 165:7 180:22</p> <p><b>testify</b> 46:2 94:20</p> <p><b>testimony</b> 17:21 19:8 20:7,12 34:16 35:9 43:3 46:11 47:8 49:21, 22,25 50:1,4,7 54:8,10 57:2 58:1,11,23 62:7, 15 63:24 64:6 68:21 69:24 70:4 78:2 80:12, 14 83:6 87:4,7,11,14, 23,24 89:3,17 90:19, 23 93:22 94:3,12 99:6, 19 106:3,17,19,20 111:7 114:14 116:19, 20,24 117:18 118:2,8 119:11 121:8,14 125:20,21 126:11,15, 22 128:8,10 129:1,5, 23 130:20 132:2 134:12,15,17 135:13 136:17 137:22 140:24 141:19,22 142:20 143:11 145:4,8 151:22 165:17,20 167:12,23 168:14 170:11 173:6 177:4,8 179:22 180:25 181:10,15,18 183:3,17</p> <p><b>theory</b> 75:7 111:12</p> <p><b>therefrom</b> 158:14</p> <p><b>therm</b> 133:7,22</p> <p><b>therms</b> 20:23 47:12</p> <p><b>thing</b> 24:17 25:16,23 39:24 40:2 41:20 74:16 81:21 85:3 96:20 97:15 132:25 147:12 157:14</p>
--	---	--	--

<p><b>things</b> 14:7 18:2,8,17, 25 19:19 22:14 24:11 38:2 42:19 66:8 68:3 74:4 96:14,20 135:10 157:10 161:4 185:6</p> <p><b>thinking</b> 17:25 125:7</p> <p><b>thirty</b> 182:1</p> <p><b>Thompson</b> 58:18 127:23,25</p> <p><b>thought</b> 24:20 40:1 43:5,19 77:23 84:5 134:24 135:25</p> <p><b>threshold</b> 177:25 178:21</p> <p><b>throw</b> 41:20</p> <p><b>tie</b> 39:24</p> <p><b>tied</b> 41:11</p> <p><b>tightly</b> 39:24</p> <p><b>time</b> 12:4 14:18,23 16:8 17:6 20:20 22:2, 21 23:18 37:6 38:25 44:16,18 46:25 49:6 50:5,13 72:16,18 76:22 77:8 84:6,10 89:9 98:3 100:8 110:12 111:6 114:17 115:5 126:1 131:9,19 153:20 161:18 162:14 171:10 172:13,15 173:4,24 182:14,25</p> <p><b>times</b> 30:22 77:11 93:22</p> <p><b>title</b> 132:21</p> <p><b>Tmax</b> 168:9</p> <p><b>Tmin</b> 168:9</p> <p><b>today</b> 12:3,10,12 13:19 15:5 16:15 27:19 44:11 50:7 52:17 72:22 84:3 87:14 117:2 127:24 133:13 148:10 166:8 183:15 185:16,22</p> <p><b>told</b> 113:21 130:19</p>	<p><b>top</b> 47:9 64:15 66:5 89:23 112:1 170:12</p> <p><b>topic</b> 35:16 76:20</p> <p><b>total</b> 15:10 19:22,24 23:5 32:2 33:7 43:25 60:7 76:2,4 79:14 82:18 96:5 114:15,19, 21,23,24 115:1,5,20 120:9 121:23 123:16, 21 124:1,6,22 131:9 136:15 137:24 138:6, 9,12,16,20 139:1,3 150:9 155:25 160:11 163:5,6 174:23</p> <p><b>touched</b> 172:8</p> <p><b>tough</b> 110:20</p> <p><b>track</b> 92:4</p> <p><b>tracks</b> 91:21 95:7</p> <p><b>transcript</b> 56:24,25 57:6 58:1 82:25 84:1 127:19 128:3 135:21 148:11 149:3 184:24</p> <p><b>translated</b> 157:24</p> <p><b>transparent</b> 73:16</p> <p><b>traversed</b> 23:13</p> <p><b>treated</b> 24:10</p> <p><b>treating</b> 109:11</p> <p><b>trees</b> 15:1</p> <p><b>trick</b> 150:18</p> <p><b>true</b> 18:25 19:14 45:5 50:10 57:14 63:1,5 72:19 74:20,21,22 76:22 87:17 117:5 166:10 183:17</p> <p><b>true-up</b> 127:9,12 135:14</p> <p><b>trust</b> 149:15</p> <p><b>turn</b> 53:12 55:13 58:5 68:20,23 74:12 89:17 121:7 141:21 145:4 170:12</p> <p><b>turns</b> 42:18,20</p>	<p><b>type</b> 96:20</p> <hr/> <p style="text-align: center;"><b>U</b></p> <hr/> <p><b>ultimate</b> 159:1</p> <p><b>ultimately</b> 42:4 52:7 159:8</p> <p><b>unclear</b> 23:25 70:5</p> <p><b>uncovered</b> 21:3</p> <p><b>understand</b> 16:22 24:23 25:8 40:9,21 42:9,24 47:9 73:4 74:8 77:6 78:4 86:6 149:3 159:25 161:23 178:2</p> <p><b>understanding</b> 43:14 56:17 69:14 72:25 74:5 75:18 95:6 104:13 105:3 157:17 158:11 162:19 167:22</p> <p><b>understands</b> 18:19</p> <p><b>understood</b> 56:11 77:8 84:12</p> <p><b>University</b> 88:24</p> <p><b>unknown</b> 175:21</p> <p><b>unlike</b> 34:7</p> <p><b>unrealistic</b> 147:9</p> <p><b>unresolved</b> 24:17</p> <p><b>unveiled</b> 135:17</p> <p><b>update</b> 18:22 65:25 110:16 119:12</p> <p><b>updated</b> 66:10 71:19 72:11 76:8 77:14,18, 19 162:10</p> <p><b>updates</b> 65:22</p> <p><b>updating</b> 18:2 65:20</p> <p><b>ups</b> 114:11 157:22</p> <p><b>upward</b> 29:17 133:21</p> <p><b>usage</b> 14:22 20:25 21:2 28:10 29:7 33:12, 16 40:19 41:7,10 43:16 45:2,4,11,17</p>	<p>95:8 113:17,25 126:21 130:23 131:2,7 133:13 137:16 169:22</p> <p><b>usages</b> 36:22</p> <p><b>usefulness</b> 113:22</p> <p><b>Utilities</b> 34:3</p> <p><b>utility</b> 22:1</p> <p><b>utilized</b> 70:8</p> <p><b>utilizing</b> 181:25</p> <hr/> <p style="text-align: center;"><b>V</b></p> <hr/> <p><b>vague</b> 34:12,21</p> <p><b>valid</b> 33:14 122:13</p> <p><b>validity</b> 33:19</p> <p><b>values</b> 119:21 124:25 125:12 144:7,17 145:14 161:17,22 163:3 173:3</p> <p><b>variable</b> 74:21,23 75:1,6 105:10,12,14, 15,16 108:5 120:7,8</p> <p><b>variables</b> 89:1 157:3</p> <p><b>variance</b> 110:1</p> <p><b>variation</b> 19:16 21:2 29:1 45:11 126:21 130:23 131:2,7,23</p> <p><b>variations</b> 20:1 28:7, 10 45:6,7,13 76:3,12 158:19</p> <p><b>varies</b> 156:12 182:24</p> <p><b>vary</b> 138:6,11 169:18 176:4</p> <p><b>varying</b> 19:15</p> <p><b>vast</b> 133:18</p> <p><b>verify</b> 47:7 90:3,5</p> <p><b>versus</b> 19:23 23:5 52:10 90:6,13 122:5 156:20 167:2</p> <p><b>vertical</b> 118:17</p>
---	---	---	---

<b>view</b> 16:9 68:24	35:14 39:3 40:13,25	<b>whirl</b> 98:17	167:11 168:8,19 177:4
<b>viewing</b> 69:15	44:1,16,17,25 45:6,9, 10,12,13,19,21,23,24	<b>widely</b> 15:16	<b>Won's</b> 46:10 47:8 106:2,17 117:18,21 167:23 168:14 179:22
<b>Virginia</b> 118:9,12,22, 25	46:25 47:1,10 51:11, 20,23 52:1,5,9 59:9, 11,13,15 67:19 69:6, 10,11,15,16 71:15,20 72:1,4,7 88:18,25 89:6,8 90:6,7,8,14 91:11,19 92:21 93:25 94:2,4,6,24,25 95:1,8, 14 101:3 102:16 104:14,15,16 110:13, 14,17 113:4,10 119:22 122:20,22 123:2 126:9,13,20 130:21,22 134:1,9 135:1 136:24 137:15,21 138:17 141:4 143:16,17,22,23 144:1,6,9 145:13,17 146:10,19 163:2 167:24 168:3 172:19 175:22 182:25	<b>wind</b> 164:7	<b>word</b> 16:12,17 17:19 32:8 33:2,3 42:18 43:21 45:1 54:9 55:15, 22 59:16,19 60:8,15 64:19,21 75:19 80:8 139:16 182:4,17,22
<b>volatile</b> 71:4,8 77:21 97:3,4		<b>window</b> 114:2	<b>worded</b> 36:11
<b>volatility</b> 71:12 78:25 79:7 96:20,24 97:2,7 109:15,16,20,22 122:3,9,14 147:2,3 157:13,22 172:24,25 175:6,18		<b>winter</b> 72:3 131:3,24	<b>wording</b> 24:7
<b>volumes</b> 19:1		<b>wise</b> 132:12	<b>words</b> 15:16 17:9 31:5 32:24 45:3 85:7 106:8 108:9 112:16 138:5,23 142:19,22
<b>volumetric</b> 44:22 163:24 164:1,2		<b>withdraw</b> 115:16 140:21	<b>work</b> 17:18 22:18 56:9,12,15,16,18 58:8 59:4 73:15 75:13,15 76:21 84:8 85:9 102:6, 9 110:9,11,13,15,17 121:25 123:5,6 124:7 134:14 139:21 140:7 146:25 147:15 158:17 160:21 174:9 181:12, 13
<b>W</b>		<b>witness's</b> 52:16	<b>worked</b> 46:5 88:10 145:17 152:15
<b>W-O-N</b> 86:15		<b>witnesses</b> 13:8 14:6, 8 35:10 46:16 76:23 165:11 180:11	<b>working</b> 14:20 159:21
<b>wait</b> 135:9	<b>weather-related</b> 133:12	<b>WNA</b> 47:19,20 53:5 74:15 90:6,8,14 115:20 129:16 154:5 177:25	<b>works</b> 21:25 95:6 107:10 154:10
<b>waiting</b> 72:22	<b>weatherization</b> 45:14 118:9	<b>WNAI</b> 123:4 153:1 163:23 164:3	<b>worksheet</b> 77:17
<b>walk</b> 97:24	<b>Webster</b> 46:21 54:10 55:2 60:12	<b>WNAR</b> 12:6,8 15:9 16:5,9,20 19:13 22:11, 13,16 27:3,4 28:1,23 29:9,14,22 30:1,7,11 32:5 33:11,15,20,23 34:4,6,12,20,24 35:2, 4,6,7 36:15 45:20 47:2 53:16 56:1 58:12,16, 22,24 59:4,25 62:21 63:7,19 64:4,9 65:13, 22 66:19 67:6,20 83:25 84:6,21 89:10 94:15,16,20 95:6 98:22,23 99:9,18 101:13 107:21 113:1, 6,7,12 114:16 133:9 134:2,4 139:25 148:25 149:21 157:18 158:22 160:2,14 161:24 163:16,19 171:11	<b>worksheets</b> 73:17
<b>Wang</b> 88:23	<b>week</b> 84:7,10 163:5		<b>world</b> 91:6
<b>wanted</b> 15:2 39:15 77:9 119:23 120:2 163:6,7	<b>weeks</b> 83:10 98:1	<b>Won</b> 16:25 35:10,15 46:8,9 47:7 86:6,10, 14,22,25 87:2 88:8 91:16 93:7,10 97:19 98:7 99:19 103:8 105:10 106:9 107:18 111:20 114:14 115:25 122:12 123:5 137:21	<b>worried</b> 56:5 79:16
<b>wanting</b> 65:5 106:1 137:14	<b>weighted</b> 163:24,25 164:2		<b>worse</b> 132:11 135:10
<b>warm</b> 131:3,23 132:1	<b>Weitzel</b> 16:15 21:6 34:17 49:7,8,14,17,19, 20,24 50:15 51:2,6 54:7,22 55:13,24 57:22 58:10 61:1 75:12 76:21 80:7 118:7 125:6 141:8 142:6 172:8		<b>worth</b> 136:21
<b>warmest</b> 23:10 31:20 32:14 109:4 144:8 145:15,22,24 170:16	<b>Weitzel's</b> 35:24 118:2 119:8,17 141:2,18		<b>worthwhile</b> 19:6
<b>Warren</b> 46:7,9 88:24	<b>west</b> 26:14 27:5,24 41:5,12,16,18 51:21 53:25 111:25 112:2,3, 5,16 143:14 160:5,10 162:1 168:22		<b>write</b> 163:4,12
<b>Watch</b> 149:14			<b>written</b> 42:22
<b>ways</b> 135:25			<b>wrong</b> 99:14 113:15
<b>weather</b> 14:16,22,24 15:11 19:10,11,12 20:18,19,21,25 21:3 22:1 28:7,13,22 29:1, 9,11,24,25 30:4,6,9, 12,14 31:22 32:3,17, 18,20,21,22 33:8			<b>wrote</b> 18:6 37:11

**WRVR** 153:2  
**WX** 145:9,12 146:18

---

**Y**

---

**y=mx+b** 118:16  
**year** 14:15 31:9,13,16  
45:12 47:11,12 55:25  
56:4,8 65:11,14 69:21  
70:13 72:5 73:3 76:2  
89:24 90:13,16 95:25  
96:4 100:3,13 101:2,  
16 102:21 115:5  
120:10,19 125:8  
156:1,4,6,24 157:19,  
23 158:3,4,12,25  
159:5 168:23 169:1  
172:9,10,15 174:20  
175:25 176:4 178:10,  
13 182:1,4,13,14,17

**Year-actual** 89:24

**yearly** 159:7

**years** 15:21 46:5  
73:7,8 75:13 88:12  
100:5,11 105:17  
118:14 119:13 152:2  
158:17 182:1

**yellow** 121:16 146:7

**yesterday** 181:19

---

**Z**

---

**zoom** 25:23

**zoomed** 174:5