1	Page 270 STATE OF MISSOURI				
2	PUBLIC SERVICE COMMISSION				
3					
4					
5	EVIDENTIARY HEARING				
6	April 13, 2023				
7	VOLUME VIII (Pages 270 - 586)				
8	8:33 a.m 5:37 p.m.				
9	Public Service Commission				
10	200 Madison Street, Jefferson City, Missouri 65101				
11					
12					
13	In the Matter of Union) Electric Company d/b/a Ameren) File No. ER-2022-0337 Missouri's Tariffs to Adjust) its Revenues for Electric)				
14					
15	Service)				
16					
17	JOHN T. CLARK, Presiding SENIOR REGULATORY LAW JUDGE				
18	SCOTT T. RUPP, Chairman				
19	MAIDA J. COLEMAN, Commissioner JASON R. HOLSMAN, Commissioner				
20	GLEN KOLKMEYER, Commissioner				
21					
22	Stenographically Reported By: Shelley Bartels, RPR, CCR				
23	blicticy barcers, Ren, con				
24	Job No.: 142861				
25					



1	A DDDA DANGEG	Page 271
1	APPEARANCES	
2	JERMAINE GRUBBS JENNIFER MOORE	
3	1901 Chouteau Avenue St. Louis, Missouri 63103-3003	
4	314.621.3222 Jgrubbs@ameren.com	
5	FOR: Ameren Missouri	
6	ETHAN THOMPSON 319 N. 4th Street, Suite 800	
7	St. Louis, Missouri 63102 314.231.1481	
8	Ethompson@greatriverslaw.org FOR: Sierra Club, NAACP, MCU	
9	TIMOTHY OPITZ	
10	Opitz Law Firm	
11	308 East High Street, Suite B101 Jefferson City, Missouri 65101	
	573.634.3031	
12	tim.opitz@opitzlawfirm.com FOR: MECG	
13	ANDREW J. LINHARES (Appearing via Webex)	
14	3115 S. Grand Avenue, Suite 600 St. Louis, Missouri 63118	
15	314.471.9973 andrew@renewmo.org	
16	FOR: Renew Missouri	
17	NATHAN WILLIAMS Department of Commerce & Insurance	
18	200 Madison Street, Suite 650 Jefferson City, Missouri 65102	
19	573.751.5324 nathan.williams@opc.mo.gov	
20	FOR: Office of the Public Counsel	
21	MS. DIANA M. PLESCIA Curtis, Heinz, Garrett & O'Keefe	
22	130 South Bemiston, Suite 200 St. Louis, Missouri 63105	
23	314.655.1596 dplescia@chgolaw.com	
24	FOR: MIEC	
25		



1	APPEARANCES CONTINUED	Page 272
2	JEFFREY A. KEEVIL PAUL GRAHAM	
3	Department of Economic Development 200 Madison Street, Suite 800	
4	Jefferson City, Missouri 65102 573.751.6651	
5	Jeff.keevil@psc.mo.gov Paul.graham@psc.mo.gov	
6	FOR: Staff of Missouri Public Service Commission	
7		
8		
9		
10		
11		
12		
13		
14 15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		



Page 273 1 Proceedings began at 8:33 a.m.: 2 JUDGE CLARK: Let's go ahead and go on 3 the record. Good morning. Today is April 13th 4 of 2023 and the current time is 8:33 a.m. This 5 proceeding is being held in Room 310 of the Governor 6 Office Building and there is some participation via 7 Webex. 8 This is day two of the Ameren rate case 9 This case is captioned as, In the matter of hearing. 10 Union Electric Company doing business as Ameren Missouri's tariffs to adjust its revenues for 11 electric service and that is File No. ER-2022-0337. 12 13 My name is John Clark. I'm the 14 regulatory law judge presiding over this proceeding 15 I'm going to ask counsel to enter their 16 appearance for the record starting with Ameren 17 Missouri. 18 MS. GRUBBS: Good morning. Jermaine 19 Grubbs and Jennifer Moore on behalf of Ameren 20 Missouri. 21 JUDGE CLARK: Thank you. On behalf of 22 Commission Staff. 23 MR. KEEVIL: Yes, Judge, Jeff Keevil and



Paul Graham on behalf of the Staff of the Public

24

25

Service Commission.

1	Page 274 JUDGE CLARK: Thank you. On behalf of
2	Public Counsel.
3	MR. WILLIAMS: Nathan Williams appearing
4	on behalf of the Office of the Public Counsel and the
5	public in general.
6	JUDGE CLARK: On behalf of Consumers
7	Council of Missouri. They do not appear to be here
8	yet. We will take their entry of appearance when
9	they trickle in. MIEC also does not appear to be
10	here yet. We will take their entry of appearance
11	when they get here. Midwest Energy Consumers Group.
12	MR. OPITZ: Tim Opitz for MECG.
13	JUDGE CLARK: Thank you, Mr. Opitz. On
14	behalf of Renew Missouri. Mr. Linhares had
15	previously told me that the had an obligation in
16	St. Louis. I had given him the Webex info for this
17	proceeding. He had emailed just a few minutes ago
18	indicating he was having some difficulty getting on,
19	but also indicated he had only one exhibit to enter
20	and no questions for today's witnesses.
21	On behalf of the Sierra Club, NAACP, and
22	Metropolitan Congregations United.
23	MR. THOMPSON: This is Ethan Thompson on
24	behalf of Sierra Club, NAACP, and MCU.
25	JUDGE CLARK: Thank you Mr Thompson



1	Page 275 Is there anybody I didn't call? Okay. When we left
2	off yesterday, we had just finished some of the
3	Commission questions for witness Steven Wills. And I
4	had a few questions for Mr. Wills. So Mr. Wills, if
5	you'll just go ahead and come up and take the stand.
6	I'm going to go ahead and reswear you in.
7	CHAIRMAN RUPP: Hey, Judge, this is
8	Commissioner Rupp. I just wanted to, for the court
9	reporter, acknowledge my presence.
LO	JUDGE CLARK: Thank you very much,
L1	Chairman.
L2	Would you raise your right hand and be
L3	sworn, Mr. Wills.
L4	(Witness sworn.)
L5	JUDGE CLARK: Thank you. Give me just a
L6	second.
L7	STEVEN WILLS, having been first duly sworn,
L8	testified as follows:
L9	QUESTIONS
20	BY JUDGE CLARK:
21	Q. While I get this up, I guess the first
22	question that I have is kind of stuck in my head, and
23	you're here for the testimony of Mr. Hickman. Is
24	that correct?
25	λ Vec



	Page	276
_	_	

Q.	And	if you	'll rem	nember,	he sa	id th	at i	f I
wanted to	know	about :	rate mo	derniza	ation	that	you	were
the person	n that	I need	ded to	ask abo	out th	at.	So w	hat
can you te	ell me	about	rate m	noderniz	zation	?		

2.2

A. Sure. So I think rate modernization is a term that maybe is used broadly and can mean different things to different people. But I guess I'll give you the Company's perspective on it, and that was really developed, you know, in preparation of the 2019 electric rate case where our time-of-use residential rate plans were originally approved.

In that case we had worked with Dr. Ahmad Faruqui who testified in that case who's a really well-known rate design expert who's worked on time-of-use and other types of rates for year. And I think the way that we think about rate modernization and characterized in that case and still think about it going forward is really two key elements in my mind. One is that, you know, modern technology, the modern metering technology allows us to construct rates that better reflect the cost structure of the utility.

I think historically rate designs were as cost reflective as kind of the -- the monthly meter read paradigm allowed, but with interval data and

Transcript of Proceedings Page 277 1 more granular usage information that allows us to 2 better and more accurately reflect the cost structure 3 of the utility. 4 And then the second element that we 5 thought was very important to rate modernization is 6 providing choice to customers, choice and control. 7 And that's why we have a suite, a portfolio of 8 residential rates for different customers to engage 9 with a rate that kind of meets their preferences and 10 their lifestyle, but yet is still that kind of 11 cost-reflective rate that we're looking for that is 12 enabled to be billed by today's metering technology. 13 Thank you for answering my guestion. 0. Ι

Q. Thank you for answering my question. I was curious as to whether it was a term of art or a buzz word or just something that --

14

15

16

17

18

19

20

21

2.2

23

24

- A. Yeah. I do -- I do think you'd get different -- you know, different answers or perspectives from different people in the industry, so, you know. But that's how we're thinking about it.
- Q. And then moving forward how does Ameren think that rate -- that modernized rates are going to look different from today's rates?
- A. So I think we've made a lot of the progress on the actual types of structures we need



for the residential class. I think the challenge
going forward will be to advance our customers'
knowledge and understanding of those rates, hopefully
having higher levels of adoption of some of the more
sophisticated rates over time as we give customers
more information and feedback.

2.2

I think we still need to go through the process on the nonresidential side to look at what we can do with, you know, the new meters that we've rolled out to enhance the, kind of the cost reflective, you know, price signals of our nonresidential rates, so. And you've heard -- you've heard a fair amount about that in this case, about there being the potential for a workshop on those topics. So I think the biggest space right now is to really evaluate the options for those nonresidential customers.

- Q. Now, you had said this morning that the granular data that you're able to get, I assume from the AMI meters as well as other technological changes?
- A. I think primarily the AMI meters is what I'm referring to there.
- Q. And yesterday you indicated that that granular data could get so dense that you could end



up being down looking at it to a level that was nonproductive.

2.2

A. I think I was -- I was trying to refer more to the distribution asset data. I do think that using very granular load data is useful and has a place and I think we are start -- you know, because that data, now we've got about half of our customers with it, we're starting to leverage that and we can leverage it more as we get to complete AMI roll out.

When I was talking about the density of the data, I was really talking about the -- the -- kind of the distribution asset data that's also going into the class cost of service study, so the -- you know, information, you know, about the physical components of the system out in the field and how you analyze that in a class cost of service setting.

- Q. Now, Ameren had termed Staff's approach as a novel approach. And as I understand Staff's approach is attempting to align customer classes more closely with the infrastructure most used by that customer class. Is that your understanding of Staff's approach?
- A. It may be the intent, but I don't think that's what's being achieved by the way it's being executed.



Page 280

This is -- what we're doing is class cost of service data. Or I'm sorry, class cost of service study. And by looking at what Staff is characterizing as customer-specific data, we believe that's not actually fairly representing the class cost because there are -- there are customer-specific costs, for example, that are easy to identify for a really large customer, but there are very, very comparable costs to those for, you know, communities of small -- of residential or small commercial customers.

And when you're able to do all this class-specific analysis of a large customer and pull out that data and directly assign it to those large customers, but then you take the remaining pool of assets and allocate them to all customers based off of the demands that are placed on the system that includes the demands of those large customers, we think it's introducing a bias where we're direct -- we're getting direct assignment or close to direct assignment of a lot of what is term customer-specific costs for large customers, but the -- the comparable types of facilities that are dedicated to another class that in the result of this class cost of service study ought to be borne by that class are



just getting spread across everybody.

So the -- we view the approach right now to look at this customer-specific infrastructure as introducing bias into the results of the study.

- Q. And you indicated that you think Staff had the intent to more closely align that but they missed the mark. Is Ameren moving forward with rate modernization is -- is aligning customers with that infrastructure? Would that be part of Ameren's rate modernization, or do you believe that that would always introduce bias into the equation?
- A. So I think there's a major misconception that the existing data that we're using for class cost of service doesn't give kind of the level of information that we need to do this rate modernization and I think it really does.

The important thing, and this aligning rates with the cost structure of the utility as I kind of talked about with rate modernization, is that costs are recovered in a charge type that reflects how those costs are incurred. And regardless of how, you know, the industry evolves and the equipment changes, there's really been for a century, there's no change, that there's -- there's no reason for any change to this, three really recognized cost drivers:

Page 282

Connecting customers to the system, building enough capacity to meet peak demand, and producing and delivering enough energy to meet the total energy consumption.

So every class cost of survey -- service study that this commission has probably seen for decades is an attempt to put things into customer-related costs, demand-related costs, and energy-related costs. And we have -- I mean, we've had for all of our rate cases, enough load research data to understand the classes' contributions so those demands to understand their energy and to understand, you know, what infrastructure's needed to simply provide a basic connection to the system.

You know, I think where the more granular data comes in is you can maybe use that in some of the time-of-use to which time periods are causing those with more granularity, and I think we're doing that. The AMI data's good for saying, Now, that I've identified demand-related costs or now that I've identified energy-related costs, what are the right time periods to reflect those in and how can I bill those to customers. But that's where I see that granular data being helpful, not in like trying to figure out how a transformer or a pole or a line of

conductor relates to providing service to the customer. I don't think the granular hourly usage data is really instructive at all to tell how much of the pole outside of a residential neighborhood ought to be allocated to the residential customers versus someone else for example.

- Q. Now, you indicated there were kind of three drivers of Ameren costs. Is one of those more primary than the other in setting rates?
- A. The customer, demand, and energy? No, I think they're all, you know, foundational elements of providing service to customers. And I think -- I mean, are you talking about is one of them more of the dollars or are you just saying is one of them more important? Because I think they're all -- they're all absolutely indispensable and foundational to the ability to provide service.
- Q. Well, I actually meant the one that you answered which is more important, but since you brought it up, which one would have the higher dollar amount?
- A. My -- Mr. Hickman's schedules would probably be the best way to tell. My sense is probably demand related. But there's, you know, very significant buckets of costs in all three of those



categories.

- Q. Are you aware of any jurisdiction that is taking an approach that's more like Staff's?
 - A. I'm not aware of one.
- Q. Shift for a little bit. Do you know if MISO treats wind and solar generation differently from coal and nuclear generation in rating the generation unit's capacity?
- A. I mean, all generation gets specific accreditation based on its capabilities and MISO's kind of study of its performance over time. So, I mean, I don't know that they treat it differently, but the application of the methods that they use for all generation produces a different level of accreditation of the amount of capacity that, you know, renewables get versus other resources.

You know, and I should back up. There may be some differences because of, for renewables MISO might have to do things like study geographic diversity and figure out how, you know, how renewables being spread across the system impacts it rather than just assessing kind of the performance of an individual facility. Whereas for a coal or a gas facility, they're probably looking at that individual unit's historical performance.



1 So maybe -- maybe there is a little bit of 2 a nuance to it, but in general MISO is -- is, you 3 know, using, you know, common principles to assess 4 how much capacity it -- a resource type would get 5 accredited with. And, you know, it's -- the outcome 6 might be different, like I said. You know, there 7 might be a different amount of accredited capacity 8 for a renewable versus a conventional generator. 9 When I say conventional, you know, a fossil fueled or 10 steam generator.

Q. Are natural gas peaking units treated differently from -- are natural gas peaking units treated differently in a class cost of service study from coal and nuclear units?

11

12

13

14

15

16

17

18

19

20

21

2.2

23

24

25

A. I think there are different methodologies that could do that. What the average and excess, the 4 NCP average and excess that the Company uses and that we've talked about quite a bit in this proceeding is that the fleet is viewed holistically as the suite of assets that are there to meet both the energy needs and the capacity needs of our customers. And it allocates a portion of that based off of those energy needs and a portion of that based off of those capacity needs. But it basically says the totality of this generation is what, through our

integrated resource planning process, we've built, acquired, developed to meet those -- those common needs. And the energy and the capacity needs are what drive the need for that entirety of that fleet.

We view the fleet from a construction -you know, from a resource planning perspective
holistically. We developed it holistically to meet
our customers' energy and capacity needs. And then
we allocate it based off of their relative energy and
capacity needs.

So, but specifically on the, you know, the combust -- you know, the peaking combustion turbine, it's not carved out for separate treatment from a base load unit or renewable unit or anything like that.

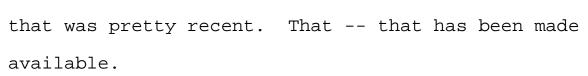
- Q. So all those are treated relatively the same?
- A. Right. The -- the whole pool is put together before it's -- the dollar pool is kind of pooled together before it's allocated out based off of those factors that are the cost-causative factors for the entirety of the generation fleet.
- Q. And that may be what one of Ameren's other witnesses said regarding looking at the fleet as a whole.

- A. Yes. That's -- I think that's what
- 2 | Mr. Hickman was talking about.
- JUDGE CLARK: Away from the questions for
- 4 | just a moment. I received an email from MIEC's
- 5 attorney indicating that they were having some
- 6 | trouble getting here today and hopefully will be here
- 7 | later, but asking if we can take Mr. Brubaker out of
- 8 order at the appropriate time, so I'll address that
- 9 when we get there.
- 10 BY JUDGE CLARK:

- 11 Q. Now, do you have -- when I was talking to
- 12 Mr. Hickman yesterday, I'd asked him some questions
- 13 | about Ms. Lange's Surrebuttal. Do you remember that?
- 14 A. May refresh my memory of what the topic in
- 15 them was.
- 16 Q. Well, what I'm going to ask at this point
- 17 | is -- it's specifically in regard to the stipulation
- 18 | agreement in ET-2018 --
- 19 A. Okay.
- 20 | 0. -- 0132.
- 21 A. I do recall that.
- 22 JUDGE CLARK: Can we get Mr. -- can we get
- 23 | Mr. Wills a copy of Ms. Lange's Surrebuttal to look
- 24 | at?
- 25 MR. WILLS: I think I -- I recall the



	Transcript of Proceedings Page 288
1	issue in the phrase. I mean, I guess I can have the
2	testimony if needed, but we can probably speak to it.
3	BY JUDGE CLARK:
4	Q. Well, I can ask you the question and you
5	can tell me if you can answer it or whether you need
6	to look at the testimony. On page 21 of Ms. Lange's
7	Surrebuttal testimony she cites a stipulation and
8	agreement in the ET-2018-0132 case in paragraph eight
9	that Ameren agrees to record customer contribution
10	values by voltage and service classification. Is
11	that correct?
12	A. Yes, that's correct. And we do have that
13	information recorded consistent with that provision.
14	Q. Which gets to the second question. So in
15	your opinion Ameren Missouri has compiled with
16	paragraph eight of the stipulation and agreement?
17	A. Yes. In my opinion it has.
18	Q. And how have they done that?
19	A. By doing just that, by collecting that
20	information.
21	Q. Has that data been shared?
22	A. I believe it was shared in a data request



Q. Is there anyplace for the Commission that

23

24

- you can point to that would show results indicating that Ameren has complied with that condition?
- A. I mean, it may be possible to introduce that data request into the record or something. I don't --
- MS. GRUBBS: We do not have a copy of it currently with us, but perhaps we could reserve -- we could reserve an exhibit and provide it later.

JUDGE CLARK: That would be great.

BY JUDGE CLARK:

- Q. And this is another question I asked yesterday. Which parties' class cost of service study in Ameren's last rate case, which is the ER-2021-0240 case was agreed to by the parties as a starting point for nonresidential rate design, for the nonresidential rate design working case?
- A. Yeah. I think the -- the issue with that question is that the working case and the class cost of service was not stipulated in an agreement. That was litigated in the case. So the -- it was really a Commission order that said we would start to have a working docket and have that initiated. And then there was also a Commission order on class cost of service, which my recollection is it did say that Ameren Missouri's class cost of service was



Page 290

- 1 reasonable for this case. They didn't specifically
- 2 | point to the -- to the working case, but, you know, I
- 3 think by, somewhat by implication if in the case that
- 4 | they were resolving they felt Ameren Missouri's was
- 5 reasonable for it, I think that would have made sense
- 6 | for it to become the basis of that working case.
- 7 Q. Okay. So you think there's good reason
- 8 | for it to become the basis, but you don't know if it
- 9 has?
- 10 A. Well, the working case hasn't been opened
- 11 | and no -- I mean, there just isn't that -- that
- 12 | formal direction I don't think exists, whether it be
- 13 | from an agreement of the parties or an order from the
- 14 | Commission. I just don't think it exists.
- 15 Q. So you haven't gotten there yet. But you
- 16 | think Ameren's would be a good starting point?
- 17 | A. I do.
- 18 Q. Should the Commission adopt the class cost
- 19 of service study in Ameren's last general rate case
- 20 | that was agreed to by the parties as a starting point
- 21 | in this case?
- 22 A. I -- I think they -- the Commission should
- 23 | adopt the class cost of service study that the
- 24 | Company presented in this case. It's more current,
- 25 | it's relevant to the revenue requirement that was

```
Page 291
 1
     filed in this case and more current cost levels and
 2
     analysis.
 3
         Ο.
                With each of these -- and you'll have to
     forgive my naivety --
 4
 5
                            Judge, was that last
                MR. KEEVIL:
 6
     question -- excuse me. Did you say the parties
 7
     agreed in the last rate case to the class cost of
 8
     service?
               I don't think that's correct.
 9
                JUDGE CLARK: The parties in the last
10
     rate case did not agree to a cost of service?
11
                MR. KEEVIL: To a class cost of service
12
     study?
             I don't --
13
                JUDGE CLARK: Yes.
14
                             I don't think they did.
                MR. KEEVIL:
15
                MR. WILLS: No. I think -- and think I
16
     said when -- you know, in my response that it was not
17
     a settled issue; it was a litigated issue in the last
18
    case.
19
                MR. KEEVIL: Yeah. I -- yeah. I would
20
     agree with that. That was -- yeah.
21
                              Thank you for clarifying
                JUDGE CLARK:
22
     that for me. I appreciate it. Again, this is -- I'm
23
    not necessarily the most technical person.
24
    BY JUDGE CLARK:
25
                Now anytime you're doing one of these
         Q.
```



class cost of service studies for another rate case, are you starting at zero? I mean, do you design it from scratch or do you start with the previous study?

- A. Methodologically we use, you know, a similar framework. We, you know, there are many, many inputs that you start from scratch to develop. There are some other inputs that you might use from case to case and restudy periodically. So no, I mean, I think our class cost of service framework is very consistent with that class cost of service. There's new inputs that are developed with more current data for, you know, for a significant amount of the input to the study.
- Q. Now, in your Direct testimony it states that customer charges are generally used to collect customer-related costs. Would you please explain what makes up customer-related costs?
- A. Sure. Customer-related costs are costs that are -- that are going to be incurred just by virtue of having -- connecting a customer to the system and being able to provide service to them at any level. So things that are -- I mean, things that are the most obvious customer-related costs are things like a meter, right. Customer has to have a meter, you know, at their house to measure their

usage.

2.2

The cost of billing a customer are customer-related costs. You have to send a bill irrespective of how much power demand the customer places on the system or how much energy they consume, you have to have a billing system and send them a bill.

But in the class cost of service framework there's a lot of discussion about the distribution system. So if you think about pole and wires, et cetera, if -- to have customers connected, you have to have some of that basic distribution infrastructure. Poles. You have to have wires. You have to have transformers. You have to have certain devices. So what the class cost of service study attempts to do is apportion that -- that there's some amount of that cost that has to exist no matter how much demand is placed on the system.

So our class cost of service, the

Company's class cost of service study looks -- it

just performs an analysis to apportion those costs

between the level of cost you have to incur just to

have enough poles and wires to connect to the

customer. Because you can't -- you know, it's a -
just by virtue of the customer being on the system,

Page 294 you have to, you know, have the infrastructure to

connect them. But then the size of that infrastructure, you have to have bigger transformers, conductor capable of carrying more current, taller poles for that higher voltage, you know, a conductor is based on demand.

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

2.2

23

24

25

So there's a study that says, you know, if all you were building is a -- is what we call a minimum system just to build infrastructure to connect the customer, that minimum system is customer related. We have to have it. And so we do a study to apportion some of those costs to the customer function.

But then we say the size of that equipment, the excess costs that are incurred because you have to build larger, taller poles and larger transformers and heavier -- heavier duty conductor is demand related. And so those are demand-related costs because they're there to meet the peak demands. So we have a detailed study that apportions costs between customer and demand related.

You know, in the NARUC rate design manual and in other -- other manuals you'll find a variety of different methods and approaches. But the distribution system is generally always viewed as

Page 295

either customer related, demand related, or some mix of the two.

2.2

I'll tell you one of the significant problems that we have with Staff's study is that they introduce what is essentially a pure energy allocator for some of that distribution equipment that the driver of the cost is either customer or demand-related characteristics.

- Q. Can you expound on why you think that's incorrect?
- A. Yeah. So, I mean, so class cost of service, we step back and say what causes -- because there's a principle that customers that cause costs to be incurred should pay for those costs. So we -- you know, the starting point of class cost of service is this classification of costs, what caused the occurrence, was it needed just to connect the customer, was it needed to meet peak demands, or is it something like fuel. You burn fuel to produce kilowatt hours. Is it based on total energy.

I'm not familiar with any rate design manual or treatise or anything like that that says the causation of the costs of the distribution system is the total kilowatt hour throughput, the total energy. So when Staff allocates those costs based

off of the total energy throughput, that's not the cost driver of that system and so it's not reflecting those costs to the customers who caused the incurrence of those costs.

2.2

Q. Thank you. Also in your Direct testimony you state that customer-related costs from the class cost of service study to the customer charge suggests that a residential customer charge that truly reflects the customer-related cost would be approximately \$25.94 per month.

Is it Ameren's position that if going by the results of the class cost of service study, then \$25.94 would be the customer charge for all residential customers?

A. I think if you strictly followed that class cost of service study, that would be. I think what we've recognized, excuse me, is that there are -- you know, there have been many other policy considerations around the customer charge that a number of parties and the Commission in the past have articulated. And so we don't recommend going to \$25, but we do recommend an increase in that direction to become more cost reflective.

But yes, the implication you've landed on is correct, that the cost study would suggest that



Page 297

that would be an appropriate customer charge for all residential customers.

Q. Does that mean that irrespective of which rate plan is selected, the customer charge should be \$25?

- A. In -- in that theoretical world where you absolutely strictly follow costs, yes.
- Q. Well, I guess that brings me to -- if that's the case, I'm not really sure I understand why Ameren is assigning different customer charges to different time-of-use rates.
- A. Sure. It comes back to those other policy considerations that I just alluded to. Excuse me. So there's been, you know, a lot of testimony over many cases and many years, and customer charge is always a, you know, pretty heavily litigated topic. And parties tend to say that a high customer charge gives customers less control over their bill. There's some -- there's some truth in that.

What we think is appropriate is to provide customers control over their bill, but still in a way that aligns it with costs. So I think, you know, there's a balancing of those interests of providing control over your bill, but also in a manner that doesn't end up shifting costs onto other customers.



But if you look at our different rate plans, some of them are already more closely aligned with cost. Like our Ultimate Savers rate plan that has a demand charge on it, that demand charge is closer to a fixed. I mean, it's not -- it's not an absolute fixed charge because variations in demand will impact the customer's bill. But demand is a more stable measurement, so there's a certain amount of fixed, kind of fixed cost recovery that's kind of inherently assured in that demand charge. So it's already achieving some of the, you know, some of the fixed cost recovery that could be done by a customer charge.

So what we're saying is, you know, if there is this interest in giving customers more control, let's give them more control on the rate design that gives them the most control over their bill, their -- you know, the -- that rate plan. If a customer is interested in managing their usage, it gives them more control than any other rate.

So what we've tried to do is balance these competing perspectives, right, of a purely cost-based rate versus the policy concerns that people have raised about -- and I -- you know, honestly, I think there's -- you know, it's a fairly thoughtful and



- 1 innovative way in my opinion about how to balance 2 those interests, right, is -- is that if the concern 3 with the higher customer charge is to give customers the opportunity to control their bill but we have 4 5 different rate plans that are kind of designed to give customers a different level of control over 6 7 their bill, why don't we focus the control your bill 8 policy customer charge on those rate plans that are 9 designed for that, for that purpose.
 - Q. If the customer charge were to be the same across all -- all of those residential rate plans, would time-of-use rates still work?
 - A. Yes.

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

- Q. In Ms. Lange's Rebuttal she states that Ameren used the minimum-size approach as opposed to the weighted-hour method used by Staff for customer charge, which Staff says is more consistent with a modern grid. What's your response to that?
- A. I do want to just clarify with you. I don't think the weighted-hour method was related -- unless I'm mistaken -- was related to the customer charge. I think it was related to, and maybe there's something in the testimony you're pointing -- you could point to. I think the weighted hours -- the weighted -- what -- what did you call it, the

Transcript of Proceedings Page 300 1 weighted-hours method is what I was really referring 2 to. 3 You know, Staff says it's a modern method, 4 but the Company views it as an energy allocator for 5 costs that are not driven by energy. So I don't know 6 what -- what modern development tells Staff that 7 distribution costs are based off of, you know, energy 8 in every hour. I mean, the load on a mild weekend in 9 October has absolutely no bearing on the level of 10 distribution costs that the company incurs and yet that load is influential in allocating the cost when 11 12 you use a weighted-hours method. 13 And I'm straying a little bit afield of 14 your question because I think you asked it about the 15 customer charge, but I don't think that weighted --16 unless I'm mistaken, I don't think that 17 weighted-hours method is related to the customer charge; I think it was related to the allocation of 18 19 distribution, what we would call demand-related 20 costs. 21 JUDGE CLARK: Well, can we get a copy of 22

Ms. Lange's Rebuttal testimony? I'd just like to take a look at that.

MS. MOORE: Your Honor, I'm going to pull that up right now and bring it over to Mr. Wills if

23

24

- 1 | that's okay with you.
- 2 JUDGE CLARK: That is -- that is just
- 3 | fine with me. Thank you.
- 4 MR. WILLS: Okay. I have the testimony
- 5 | now. Is there a page that I should be looking to?
- 6 BY JUDGE CLARK:
- 7 Q. Page 51 please.
- 8 A. Okay.

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

- Q. And I think we're just looking at that last -- the start of that last paragraph on page 51 that runs onto page 52. And I think it says, Ameren Missouri's study remains unacceptably deficient.
- A. Yes, I see that. And, you know, failure to address customer-specific infrastructure, I mean, I think I discussed that a little bit earlier, that analyzing customer-specific infrastructure isn't -- or not doing that was not a failure on our part. We believe that doing it is a failure on Staff's part because it introduces that bias.

This is a class cost of service study and if you don't treat the same infrastructure for different classes equivalently, if you've analyzed customer specific on the large customers but then allocated, you know, class specific infrastructure of a small customer class based on load metrics that



Page 302

- 1 | include all customers, we think you double count and
- 2 | bias the results.
- But this -- yeah. This does -- I don't
- 4 | think -- I don't see this paragraph here as relating
- 5 to the customer charge determination. I -- I believe
- 6 | it relates to the allocation of distribution costs.
- 7 Q. Now, you indicated that roughly two-thirds
- 8 of Ameren customers have AMI meters. Is that
- 9 | correct?
- 10 A. Roughly, that's correct.
- 11 Q. Do you have an exact percentage on that?
- 12 A. My Surrebuttal testimony had one of the
- 13 | more recent statistics I have on it. I don't have it
- 14 | committed to memory. I may be able to find it, but,
- 15 | if you'd like me to try.
- 16 Q. But you believe that's in your
- 17 | Surrebuttal?
- 18 A. Yes, I believe it is.
- 19 O. Yeah. If you could take a second and find
- 20 | it, I'd appreciate it.
- 21 A. Or it might be in my -- I do think it was
- 22 | Surrebuttal. Maybe I'm mistaken. It may be in my
- 23 Rebuttal. Okay. I think I found it. Page 9 of my
- 24 Rebuttal.
- 25 As of today, and I think Rebuttal was



	Transcript of Proceedings
1	Page 303 filed so today would have been February of this
2	month [sic] 795,261 customers have AMI meter.
3	And so that's of our, you know, 1.25
4	roughly million total customers. So that percentage
5	is and this is still I'm trying to see if I
6	could find a precise customer count number to do a
7	precise calculation but I think I'll just have to
8	use an approximation for total customers.
9	That's 795,261 whoops, I typed that wrong. It was
10	about 64 percent at that time.
11	Q. And that's current as of February of this
12	year?
13	A. Right. And I had projected in here later,
14	like on that page, that by July we expected to
15	have 955,000 meters deployed or approximately 77
16	percent by July of 2023 when rates would take effect.
17	Q. By the end of year, by December 31st,
18	what's your expected deployment?
19	A. I have that here too I think. 87 percent.

- What's Ameren's current education process Q. for its residential customers before they receive an AMI meter?
- So before they get an AMI meter they get Α. a 30-day, like a -- I think it's a 30-day advanced mailer that it just talks about the meter exchange



20

21

22

23

24

Page 304

process. But I -- if I recall correctly, I haven't looked at that piece very recently, but my

recollection is that it just talks about one of the benefits of that meter will be that it introduces new rate options.

But then shortly after they get that meter they receive a mailing that, it's called a -- I think it's a benefits mailer. It describes the benefits of their meter and it introduces that there are on-peak, off-peak rates is what -- is how we frame them to customers for them to understand on-peak times and off-peak times. And it also tells them that there's, you know, for more detailed information there's information on our website which has some -- some pretty substantial graphs about how the -- how the rates work and FAQs about how the rates work.

But then there's -- and I'm going off of memory, but I think at four and five months they get another -- they get more -- more additional information where it says, After you've had this meter for six months, so you're coming up to that point, you will be -- if you don't choose a rate plan, you will be placed on the Evening/Morning Savers rate. And in one of those four or five month mailers it will show them for the data that's

Page 305

accumulated for the several months they've had the

AMI meter what their bill was on their existing rate

and what it would have been had they been on the

Evening/Morning Savers rate.

2.2

And it does not present advanced rate options directly to them because we think that limited amount of data, that few months, is probably not the right amount of data for most of the customers to be choosing an advanced rate. But for those customers who are very interested and if we tell them advanced rates exist and you can go to our website for more information about -- about that.

So it's this kind of staged, you know.

We -- we introduce that the rates exist. We tell

them a little bit more about it. We show them -
then we show them bill comparison of them on the

legacy rate versus the new default rate. And then we

direct them right now to the web to get more

information about the advanced rates.

And again, this gets to, you know, some of the concerns that have been articulated I think in the case that we don't want to take four months' worth of data where a customer may not have had a summer yet, a summer of usage, they may not have had all the seasons, and tell them a rate like the Smart

Page 306

1 Savers or the Ultimate Savers is -- is going to do

2 | this to your bill when they don't have a full year's

3 | worth of data. But if they are interested enough to

4 | go see, Hey, how would I have done on this rate for

5 | four months, it is available on the web. They can

6 log into their account and go up and compare their

bills over that time period on the different rate

8 options.

7

9

10

11

12

13

14

15

16

17

18

19

20

21

2.2

23

24

25

And then again, there's -- there's, you know, pretty substantial information the website.

Our call center is equipped with -- with information to answer questions for those customers as they call in. So that's -- that's, at a high level, kind of the process.

- Q. So if I my understanding's correct, at five months they receive information that basically informs them about two of the time -- or two of the rate plans?
- A. It gives them specific information about two of them and informs them that the others exist and that they can seek out that additional information.
- Q. How long has the residential Evening/Morning Saver plan be effective?
 - A. We're coming up right on two years I



1 believe. So I'm trying -- let me just -- was 2 Or it was 2019 rate case, but it was it 2021. 3 settled in 2020 and then it took about a year to deploy. So I believe it was May of 2021, sometime 4 5 around then that we started putting -- placing 6 customers on the Evening/Morning Savers rate. 7 about a little less than two years ago.

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

- Q. Do you know during the summer period what days and times Ameren experiences its peak load?
- A. Yeah. It's -- it's very weather dependent so it's going to be -- it's usually a weekday, although it could happen on a weekend if it was unusually hot on the weekend, more so than -- than happened on a weekday. But it real -- historically we always know it looking backwards, but we also know that it's on a very hot day, it's usually on a weekday. That's, you know, looking forward that's about as much as we know about when it will occur. Looking backwards it's very easy to identify.
 - Q. Is there any data that would indicate that a particular time of day?
 - A. Yes. So it's -- it's pretty consistent that our peak load is usually set at the hour from 4:00 from 5:00 p.m., but plus or minus two hours around that is possible. But it's almost -- it's



2.2

Page 308 generally the hour from 4:00 to 5:00 p.m. In a given
year it could slip by an hour, maybe two if there was
just a particularly unusual weather pattern that
occurred

That's really how those peak periods for the Ultimate Savers and the Smart Savers are set around that idea, that 3:00 to 7:00 p.m. are the highest load hours and the load hours where our peak load is most likely to occur.

- Q. Now, given that this has been deployed for a bit or been effective for a bit, has Ameren analyzed how residential customer usage on the Evening/Morning Saver plan has changed in comparison to the Anytime rate?
- A. No. We haven't done a retrospective analysis of that, but we did provide in testimony in prior cases from Dr. Faruqui, and I replicated that in some of the testimony here, what Dr. Faruqui's experience with the rates predicts that would be. So we have that information in my testimony, kind of a predictive impact that is based off of Dr. Faruqui's detailed analysis and study of hundreds of other time-of-use rate plans.
- Q. Have those customers reduced their usage during peak usage times?



- A. I mean, again, we haven't done a retrospective analysis to prove it. Our expectation is that they would have but just slightly.
- Q. And, I'm sorry. I said peak usage; I meant peak load, but I think you understood.
 - A. Yeah.

2.2

- Q. Now, with Staff's proposal they wanted customers to be able to transition onto plans I believe a month within the next billing cycle after AMI meter installation. Does that sound correct?
 - A. That's my understanding, yes.
- Q. How would that change customer education to encompass the shortened time frame?
- A. I think we're have to redesign it entirely because obviously telling them for the first time about it two weeks after they get their meter would give them very little advance notice and we certainly couldn't present them with any billing comparison of their bill on the old rate versus the new rate they would be assigned to.

And you really obviously couldn't stage as an education sequence from meter installation to the four-month mailer to the five -- you know, to the different time periods. So I think we would have to -- have to rework the communication strategy. And

Page 310

- 1 | it couldn't rely on giving them any bill comparison
- 2 information before their rate switch because the
- 3 | meter data just wouldn't exist to do so.
- 4 Q. Now, the Commission ordered certain load
- 5 data and I believe that was filed by Staff on -- in
- 6 response to the Commission's April 4th order. Are
- 7 | you familiar with that?
- 8 A. Yes, I am.
- 9 Q. And I'm assuming that was prepared by
- 10 | Staff. Correct?
- 11 A. That was prepared by Staff. You know, the
- 12 order said Staff or the Company. So the Company was
- 13 | in the process of also preparing, but I do believe
- 14 | that the data that we were pulling was very
- 15 | consistent with Staff, so we didn't feel it was
- 16 | necessary to make a second filing.
- 17 Q. And you indicated you have had an
- 18 | opportunity to look at it?
- 19 A. Yeah. I saw it when it was filed, you
- 20 know, a week or -- a week and a half ago, whenever
- 21 | that happened.
- Q. When you say consistent with Ameren's, are
- 23 | you essentially saying that you believe Staff's
- 24 | filing is correct?
- 25 A. I -- I believe so. I didn't validate



	Transcript of Proceedings Page 311	
1	every single number, but I have no reason to doubt	
2	that it's correct.	
3	Q. Would you like to look at it?	
4	A. No. I've looked at it. I mean, like I	
5	said, I feel comfortable representing that it's	
6	materially correct. I didn't look at, you know, down	
7	to the kilowatt hour if we agree, but in broad	
8	strokes it's sufficient I think for the purpose that	
9	we're talking about here for sure. And I don't have	
10	any reason to expect that it's not factually correct.	
11	JUDGE CLARK: Thank you. I believe	
12	that's all the questions I have for you for,	
13	Mr. Wills.	
14	I know this is thinking back to yesterday	
15	for many of you, but are there any cross-examination	
16	questions based upon either questions from the	
17	Commission or questions from myself? Mr. Williams.	
18	Anybody else?	
19	MR. KEEVIL: Yes.	
20	JUDGE CLARK: And Staff. Let's look at	
21	the give me just a second to pull the order. I	

22

23

24

the -- give me just a second to pull the order. believe it's, for Ameren witnesses, it's Public Counsel prior to Staff. Does that sound correct? MR. KEEVIL: Yes.

Okay. So, Mr. Williams, go 25 JUDGE CLARK:



- 1 | ahead and ask your questions.
- 2 RECROSS-EXAMINATION
- 3 BY MR. WILLIAMS:

6

7

8

9

10

11

12

13

14

15

21

2.2

23

24

- Q. Good morning, Mr. Wills.
- 5 A. Morning.
 - Q. There's been quite a bit of testimony and discussion about data granularity. What is the granularity capability of AMI as you currently have it deployed?
 - A. We have load data from 15-minute intervals

 I believe from it. So every 15 minutes it records
 the energy consumption of the customers with AMI
 meters.
 - Q. And how many 15-minute intervals can be stored in an AMI meter before it's downloaded?
- A. I don't know that I have an exact number.

 I'm not a meter technician, but I believe -- I mean,

 if you're interested in a broad-strokes number, I

 can --
- Q. Sure. Broad stroke's fine.
 - A. I think it's somewhere between 45 and 60 days, something like that. I don't want to ascribe too much precision; I'm not a meter -- metering technology person, but I have -- I've heard those numbers and I think it's in that range.



	Transcript of Freedomings
1	Page 313 Q. And has data crunching capability improved
2	since 1992?
3	A. I think probably so.
4	MR. WILLIAMS: No further questions.
5	Thank you.
6	JUDGE CLARK: Staff. Staff.
7	MR. KEEVIL: Sorry, Judge. Yeah.
8	RECROSS-EXAMINATION
9	BY MR. KEEVIL:
10	Q. Mr. Wills, we're handing you a, I believe
11	it's Mr. Hickman's work paper or from Mr. Hickman's
12	work paper that shows the certain allocation
13	percentages in the Ameren study. Does that look
14	familiar to you? Oh, yeah, good point. The work
15	paper is Mr. Hickman's. The highlighting in yellow
16	over there on the side has been added by Staff to
17	A. Okay.
18	Q calculate the percentages.
19	A. In the format, it looks like Mr. Hickman's
20	work paper. I
21	Q. Okay.
22	A mean, whether I whether it matches
23	identically, I don't know.
24	I do see the additions that you're talking
25	about



about --

- Q. Okay.
- 2 A. -- that are not associated with it.
- Q. Now, you -- I assume you will agree that
 in the Ameren CCOS study, 60 percent of poles are
 customer related, allocated based on customer-related
- 6 | allocator?

15

16

17

18

19

- 7 A. I -- I haven't looked at that number 8 recently. I mean, I don't independently know that.
- 9 Q. Let me ask. It's on that sheet that 10 you've been handed.
- 11 A. So I see a 60 percent number in yellow
 12 that was added to Mr. Hickman's work paper. I
 13 haven't -- I don't know what the calculation of that
 14 is.
 - Q. Would you like to take a moment and do the calculation based on the work paper numbers that you have, double check the 60 percent?
 - A. That calculator gives me a little frustration. Do you mind if I use my phone's calculator instead?
- 21 Q. Sure.
- A. So I see that the numbers there calculate
 to 59.7 percent. I'm trying to make sure that I
 understand exactly -- that I refresh my memory of
 exactly what the -- the data that's reflected in here



- is. Whether that's rate base number or a revenue requirement number, I'm trying to orient myself.
- 3 It's Mr. Hickman's schedule that I haven't looked at 4 in a little while.

2.2

- Okay. It looks like it's a rate-based number, so. It says it's gross plant in service.

 But I see that of the number on here of the poles, 60 percent is allocated to customer function.
- Q. Okay. And similarly, in the Ameren study 57 percent of conductors and devices are customer related. Is that correct? Overhead conductors and devices, I'm sorry.

JUDGE CLARK: Would somebody clarify to me also what the term "device" means as it's being used?

MR. WILLS: There are a number of devices on the system. I don't know that I can exhaustively list them, but things like switches and lightning arrestors and reclosers that are like fuse -- there's a variety of types of things that, you know, are kind of accessories I guess you would say to the -- to the conductor that helps with the delivery of power or the -- or to secure the safety of the system or whatever.

JUDGE CLARK: Thank you.



	Transcript of Proceedings	
1	Page 316 MR. WILLS: Yes. I see the 57.3 percent	
2	is what I calculated.	
3	BY MR. KEEVIL:	
4	Q. Okay. Now, the minimum size of the system	
5	for the study is at primary voltage. Correct?	
6	A. I've heard Staff make that claim, and	
7	Mr. Hickman is the expert on it. I I don't know	
8	that I can articulate exactly the things that	
9	Mr. Hickman would be able to articulate about the	
10	details of the minimum size.	
11	Q. Okay. Well, let me ask you this: How	
12	many residential customers are served at primary	
13	voltage?	
14	A. Very few, if any.	
15	Q. Okay. And similar question for the SGS	
16	customers, how many of them are served at primary	
17	voltage?	
18	A. Served directly. I mean, for both	
19	residential and SGS I would say very few of them are	
20	served directly and that they almost they all use	
21	the primary voltage system, but they're not served at	
22	that voltage specifically.	
23	Q. Okay.	
24	Judge, I would I don't have copies of	



this, I apologize, but I would like to mark that

1	Page 317 Hickman work paper that Mr. Wills has been speaking
2	from as Exhibit, I think I'm up to 181, and offer
3	that. I will get copies, additional copies if you
4	want additional copies at the at our break.
5	JUDGE CLARK: Well, let me ask this
6	question first. Is there any party that needs to
7	look at this prior to me admitting it onto the
8	record?
9	MS. GRUBBS: Counsel would. And just to
10	clarify, it's not just a work paper; it sounds like
11	there were additions to it by Staff.
12	JUDGE CLARK: Would you like to take a
13	look at it?
14	MS. GRUBBS: Yes, please.
15	MR. KEEVIL: Sarah, go ahead and get it
16	from Steve.
17	JUDGE CLARK: Because I want everybody to
18	have a copy, but I also want everybody to be able to
19	fairly object at this point.
20	MR. KEEVIL: Sure.
21	JUDGE CLARK: Is there anybody else who
22	would like to look at that? And what are we calling
23	that?
24	MR. KEEVIL: I would call it Hickman,
25	Hickman plant work paper or.



1	Page 318 MS. GRUBBS: Annotated by Staff perhaps?
2	MR. KEEVIL: Annotated I'm okay with
3	that.
4	JUDGE CLARK: Did you say load work
5	paper?
6	MR. KEEVIL: Plant.
7	JUDGE CLARK: Plant, thank you.
8	Are there any objections to Exhibit
9	Staff Exhibit 181 which is titled Hickman Plant Work
LO	Paper Annotated by Staff? I see and hear none. That
L1	will be admitted onto the hearing record.
L2	(Staff Exhibit 181 was received into
L3	evidence.)
L4	JUDGE CLARK: Go ahead, Staff.
L5	BY MR. KEEVIL:
L6	Q. Now, Mr. Hickman [sic], would you like to
L7	verify the your counsel correctly pointed out that
L8	this was annotated by Staff. Would you like to
L9	correctly or to verify that the percentages shown
20	on that in the yellow highlighting which are the
21	Staff annotations are correct or are you willing to
22	accept those as correct?
23	A. May I ask my counsel if she prefers me to
24	go through the exercise?
25	JUDGE CLARK: And just for the record



- 1 | you're asking Mr. Wills, not Mr. Hickman.
- MR. KEEVIL: Thank you, Judge.
- 3 MR. WILLS: Yeah. I -- the spot checks
- that we did, you know, tied out. I don't -- I don't
 have any reason to dispute the numbers that are
- 6 there.
- 7 MR. KEEVIL: Okay. Thank you.
- Judge, I think that's all the questions I
- 9 have for Mr. Wills, but I did want to go back because
- 10 | in your questioning of Mr. Wills at the very end you
- 11 referred to the load data that Staff filed in
- 12 response to the Commission's April 4th order. I was
- 13 just going to suggest or remind you that that
- 14 | technically, since it was filed I think as a response
- 15 | to an order, it was not filed as testimony, it's not
- 16 part of the record. Do you want to admit that as an
- 17 exhibit? And I would -- I mean, I can move that it
- 18 be admitted as Staff's next Exhibit 182 if you want
- 19 to. Because if you're going to use it in your order
- 20 or something, you'll obviously need for it to be part
- 21 of the record. So how would you like to handle that?
- JUDGE CLARK: It's my intent that it does
- 23 become part of the record, that it does be entered
- 24 assuming that it survives any objections. Is this
- 25 | the appropriate witness to do that, or would that be

- 1 better under Ms. Lange? 2 MR. KEEVIL: It would probably be better 3 under Ms. Lange since she -- technically it came from 4 Staff rather than from Ameren. I -- just since you 5 brought it up with Mr. Wills, I thought I'd mention 6 it. 7 I'm going to ask at this JUDGE CLARK: 8 point, and you don't have -- nobody has to answer 9 this right now, but at this point are there any 10 objections to that? 11 MS. GRUBBS: Pardon me? For it to be 12 submitted through Ms. Lange when she testifying? 13 JUDGE CLARK: Just scratch what I said. We'll cross it when we come to Ms. Lange. 14 15 inappropriate of me to ask right now if you have any 16 objections, so we'll just move on. 17 MR. KEEVIL: Thank you. I have no 18 further questions, Judge. Thank you. 19 JUDGE CLARK: Any redirect from Ameren at 20 this point? 21 MS. GRUBBS: Yes. And I'll try to be
- 22 brief, your Honor.
- 23 REDIRECT EXAMINATION
- 24 BY MS. GRUBBS:
- 25 Mr. Wills, do you recall questioning from Q.



- Staff counsel yesterday regarding the 1992 NARUC manual's excerpt on marginal cost studies?
 - A. Yes, I do.

2

3

4

5

20

21

22

23

24

25

- Q. Does Ameren Missouri conduct a marginal class cost of service study?
- 6 No, we don't. And I -- and to be clear, I Α. 7 wasn't saying that Staff is conducting a marginal 8 class cost of service either. I don't think anyone 9 in the state does, or I'm not even familiar with 10 anywhere in -- any jurisdictions where -- where that 11 is being done. But the -- the excerpt of my 12 testimony that Mr. Keevil had me read where I talked 13 about marginal cost, you know, implications in 14 Staff's study wasn't to suggest that Staff's study is 15 a marginal-cost study. My -- my implication was that 16 they're kind of using marginal cost influenced 17 thought to try to do an embedded-cost study and it's a mismatch, you know, kind of, of those principles is 18 19 the point -- is the that I was trying to make.

So, you know, I do recognize that marginal cost studies exist and they can be done validly. I just think there was some cross-pollination of concepts there that's influencing an embedded-cost study that doesn't need to be there.

Q. And do you recall questioning by Staff

- counsel yesterday regarding the benefits of the proposed rate switching tracker and the benefits of 3 the TOU rates being related?
 - Yes, I do. Α.

2

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

22

23

24

- So how are the benefits of the tracker O. proposed and the benefits of the TOU rates and tracker related?
- Α. Sure. So the TOU track -- the rate switching tracker that we've proposed is intended to align the Company's incentives to encourage more adoption of those rates. So to the extent that those rates are viewed by the Commission or viewed by us or anyone as to providing benefits, which we believe they do, the rate switching tracker can amplify those benefits by getting more participation, you know, on those rates, so create additional benefits.
 - And do you recall questioning by Staff Ο. counsel yesterday regarding the regulatory lag discussed in the charge-ahead order and the regulatory lag for TOU rates?
- I do. 21 Α.
 - O. So from your perspective, are the source of regulatory lag and then the proposed tracker different between the EV charge-ahead context and the TOU rate switching?



Page 323

A. Yes. The -- the charge-ahead tracker that I used as an example of the Commission's kind of policy considerations for getting trackers when a program that could be beneficial to customers but financially detrimental to the utility was an example of exactly -- was intended to be just an example of that. It's an analogy about a circumstance where the Commission sees a benefit of aligning incentives.

Rut the two mechanisms are entirely, you know, distinct from each other. The tracker in -- in the charge-ahead case is recovering program costs. It has nothing to do with changes in usage. The reason changes in usage came into play in that is that we recognized that that program could produce positive regulatory lag for the company, and we agreed that that regulatory lag was enough benefit to us that we wouldn't seek to -- to put the kind of deferred cost under that program into rate base. But there was nothing being tracked with respect to changes in revenues; there was being tracked program costs, program costs for future recovery.

The -- the rate switching tracker, like again, it was only a policy analogy that I was using bringing in charge-ahead. There's no direct interaction between these trackers. The rate



- erosion from existing revenues that give the Company an opportunity to recover its revenue requirement when customers switch to a time-of-use rate and save money and where the cost savings are either -- either passed through the FAC to customers and so the company doesn't have offsetting cost reductions or the cost reductions are in the future with -- associated with a voided future investment.
 - Q. And do you recall your discussion with Chairman Rupp yesterday regarding more data needed for a direction forward and breaking the cycle of disputes?
 - A. I do.

- Q. From your perspective will providing the requested granular distribution data help the parties move forward?
- A. I really don't think that it's going to make a meaningful difference in kind of breaking that cycle of disputes unless and until the Commission addresses the methodological concerns. So I think those -- that the data disputes are really kind of a symptom, but the underlying cause is -- is just the significant methodological disagreements that we have.

I think the discussion I was just having with the judge kind of illuminated some of those and the record is kind of pretty complete on some of those. I think the methodological disputes are what is underlying this.

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

To the extent though that more data is needed or if it's -- if it is needed, I think it's important that we collect the correct data. know, I think there's been a lot of discussion over the last day and round of testimony of what we call the Vandas study. I think the Vandas study is the right data to -- to properly allocate costs based on cost causation. And if there were going to be efforts to collect data -- you know, there have been concerns raised about the age of the Vandas study, and I think, you know, a similar effort could be made to refreshing that study and making sure for everyone that it's current and that there's no questions about whether changes in the system since that -- since it was conducted.

But to me that's the type of data that would be most useful to collect. Again, I think we had a good conversation already about, you know, our concerns with going into customer-specific data and how it may introduce bias into the results. So I



Page 326

would just urge the Commission to weigh in, you know, on the methodological issues before considering what is the data that ought to be collected.

Just one or two quick other thoughts. I mean, whatever data is collected I think there's been discussion, should it be provided for the working docket going forward. You know, I mean, that working docket, I know -- we don't know the timeline of it, but I believe it probably would start relatively soon and that data collection is going to take time. So I don't know that any of that data is -- I think -- is going to be there at the outset of that -- of that working docket.

know, I think I -- and I very much appreciate

Chairman Rupp's interest in having more data. I just

want to make sure that we're thinking about getting

the right data and also recognizing that, you know,

there -- that there are limits to the kind of the

resources of the company's personnel, and so we need

to make sure that we're targeting the stuff that's

going to have the greatest benefit to customers and

to accurate and reasonable studies rather than

casting a very wide net that is going to, you know,

produce maybe a lot of data that's not useful to the

1 process where there is, you know, a lot of 2 significant amount of data that is helpful and could 3 instruct the Commission. So I think we really just 4 need to be focused on getting the right pieces. 5 Those are all of my MS. GRUBBS: 6 questions. Thank you. 7 Thank you. I noticed that JUDGE CLARK: 8 MIEC's attorney was able to make it here. Would you 9 enter your appearance for the record. 10 MS. PLESCIA: Certainly. Diana Plescia, 11 Law firm, Curtis Heinz, Garrett & O'Keefe for MIEC. 12 JUDGE CLARK: And if I remember right, 13 you didn't have any questions for this witness. 14 I think I texted MS. PLESCIA: No. No. 15 you I didn't have any questions for Mr. Wills or 16 Mr. Marke, at least not at this point. Thank you. 17 JUDGE CLARK: Thank you very much. 18 MR. WILLS: So are you done with me? 19 JUDGE CLARK: You may step down, 20 Mr. Wills; I'm sorry. 21 MR. WILLS: No, no problem. 22 JUDGE CLARK: One of the commissioners 23 has a prior obligation at about 11:30, so it's my 24 intent -- well, what I would like to do is break 25 about 11:15 for lunch. And that means we, depending



```
Page 328
 1
     on where we are, we may break till 12:30 or 1:00.
 2
                With that in mind I'd like to go ahead
 3
     and take a 15-minute break now rather than do that
 4
             So why don't we -- it's now 9:46. Why don't
     later.
 5
    we come back at roughly 10:01. Any -- is there
     anything I need to take up prior to that? And then
 6
 7
    we'll start -- we'll start and -- we'll start when we
 8
     get back at 10:01 with OPC's or Public Counsel's
 9
     first witness. Let's go off the record.
10
                (Off the record.)
11
                JUDGE CLARK: Let's go back on the
12
              Ameren Missouri, do you have any more
     record.
13
    witnesses for this issue at this time?
14
                MS. GRUBBS:
                             No, sir.
15
                JUDGE CLARK:
                              Thank you.
16
                Public Counsel, you may call your first
17
    witness.
18
                MR. WILLIAMS: Dr. Geoff Marke.
19
                JUDGE CLARK: Dr. Marke, would you please
20
     raise your hand and be sworn.
21
                (Witness sworn.)
2.2
                JUDGE CLARK: Please be seated. Public
23
     Counsel.
     GEOFF MARKE, having been first duly sworn,
24
25
     testified as follows:
```



- DIRECT EXAMINATION BY MR. WILLIAMS:
- 2 Q. Would you please state and spell your
- $3 \mid name.$

- 4 A. Geoff, G-e-o-f-f, Marke, M-a-r-k-e.
- 5 Q. Dr. Marke, did you prepare and cause to be
- 6 | prefiled Direct testimony and Surrebuttal testimony,
- 7 | the Direct being prefiled on January 10th of this
- 8 | year and the Surrebuttal being filed on March 13th of
- 9 this year that have been marked for identification as
- 10 | Exhibits 200C and 201C respectively?
- 11 A. Yes.
- 12 Q. And would you have any changes to either
- 13 of those exhibits for them to be your testimony here
- 14 today?
- 15 A. No.
- 16 Q. Are they, in fact, your testimony here
- 17 | today?
- 18 A. They are.
- 19 MR. WILLIAMS: With that I offer
- 20 | Exhibits 200C and 201C.
- 21 JUDGE CLARK: Are you also offering the
- 22 | public versions?
- MR. WILLIAMS: Yes. I mean, sure.
- JUDGE CLARK: I quess it doesn't matter.
- MR. WILLIAMS: That was my thought. I



- Transcript of Proceedings 1 mean, 20C are the ones for the Commission. The 2 public ones are for public viewing. 3 JUDGE CLARK: All right. Is there any 4 objection to admitting 200C and 201C, the Direct and 5 Surrebuttal of Geoff Marke onto the hearing record? I see and hear no objections. Those will be admitted 6 7 on to the hearing record. (OPC Exhibits 200C and 201C were received 8 9 into evidence.) 10 JUDGE CLARK: Go ahead. MR. WILLIAMS: I tender Dr. Marke for 11 12 examination. 13 JUDGE CLARK: And for Public Counsel witnesses for first order of cross-examination I have 14 15 the Commission Staff. Just briefly, Judge. 16 MR. KEEVIL: 17 CROSS-EXAMINATION 18 BY MR. KEEVIL: 19
- Good morning, Dr. Marke. Are you familiar Ο. 20 with the -- with -- did you anticipate in Ameren last 21 Missouri rate case?
- 22 Α. I did.
- 23 And are you familiar with the order in Ο. 24 that case that ordered a rate modernization workshop?
- 25 Α. Yes, I am.



- Q. Has that workshop ever taken place?
- 2 A. It has not materialized today.
 - Q. Now, conceptually, would it make sense for that rate modernization workshop to conduct one or more class cost of service studies in the workshop?
 - A. I believe so.
 - Q. As part of that workshop process, relevant data can be placed into the record rather than buried in data requests and discovery conferences. Is that your understanding?
- 11 A. Yes.

3

4

5

6

7

8

9

10

12

- Q. Is that -- is that a good thing?
- 13 A. No. No. We -- you know, ideally you want
 14 that data to be as transparent to stakeholders as
 15 possible.
- Q. Okay. So you would think it would be a good thing that -- if the data was available?
 - A. I think I misunderstood the question.
- 19 Q. I think you did, yeah. Let me just -- let 20 me say it --
- 21 A. Sure.
- 22 Q. -- again.
- As part of that workshop process, relevant
 data can be placed into the record rather than buried
 in data requests and discovery conferences.



1	Page 332
2	Q. And would you believe that's a good thing?
3	_
	A. Oh, absolutely.
4	Q. Okay. Now, if you would design time-of-
5	use rates, would you consider only average embedded
6	costs, or would you want information on certain
7	marginal costs?
8	A. I think I would want as much information
9	as I could have available to make an informed
10	decision.
11	MR. KEEVIL: Okay. Thank you. That's all
12	I have, Judge.
13	JUDGE CLARK: Any cross-examination from
14	MIEC?
15	MS. PLESCIA: No questions. Thank you,
16	your Honor.
17	JUDGE CLARK: Any cross-examinations from
18	MECG?
19	MR. OPITZ: No, thank you, your Honor.
20	JUDGE CLARK: Any cross-examination from
21	Sierra Club, NAACP and MCU?
22	MR. THOMPSON: No questions, your Honor.
23	JUDGE CLARK: Any cross-examination on
24	behalf of Renew, being that Mr. Linhares is
25	participating via Webex? Okay. I have not heard



		Page 333
1	from him.	Any cross-examination from Consumers
2	Council of	Missouri? They are also not here. Any
3	cross-exam:	ination from Ameren?
4		MS. GRUBBS: Yes, your Honor.
5		JUDGE CLARK: Go ahead.
6		CROSS-EXAMINATION
7	BY MS. GRUI	BBS:
8	Q.	Regarding class cost of service,
9	Dr. Marke,	you agree that class cost of service
10	studies re	ly on a host of simplifying assumptions in
11	order to p	roduce workable results. Right?
12	A.	I do.
13	Q.	And you've been involved in the Ameren
14	Missouri ge	eneral rate cases for the last ten years
15	probably.	Right?
16	A.	Yes.
17	Q.	Would you agree that Ameren Missouri's
18	class cost	of service methodologies have been
19	relatively	consistent over that ten-year period?
20	A.	I would.
21	Q.	At if I could point you to your
22	Surrebuttal	l testimony, sir.
23	A.	Sure.
24	Q.	And specifically page 26.
25	A.	I'm there.



Page 334

- Q. So I was just generally going to look at lines 12 through 14, but you describe the various parties' class cost of service studies and recommended -- recommendations at this point quite, quote, a mess. Is that right?
 - A. That's correct.
 - Q. You agree that the results of Staff's study in this case versus the other parties' studies are materially different. Correct?
 - A. Yes.

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

- Q. And the difference between the other parties' class cost of service study and Staff's study results or Staff's study result from the significant changes in approach that Staff is proposing in this case?
 - A. Those are the -- that is the primary difference.
- Q. And you don't disagree with Company witness Thomas Hickman that the allocator used by Staff for distribution assets is, in effect, an energy allocator?
- A. That's a good question. My review of Staff's methodology, it's been a while, but I don't know if I would characterize it as a straight energy allocator.

		Transcript of Proceedings	
	Q. So	you would disagree with Company with	Page 335 ess
	Thomas Hickman	n that the allocator used by Staff is	an
	energy allocat	tor applied to distribution assets?	
	A. I o	don't think I can say at this moment.	I
	think I'd need	d to look back at it.	
	Q. Do	you recall being deposed on Friday,	
	March 17th of	2023?	
	A. I o	do.	
	Q. And	d it was with regard or you were	
deposed with regard to this case. Is that right?			
	A. Tha	at's correct.	
	Q. Oka	ay. And I have a copy of the full	
	transcript, bu	ut do you recall the following exchang	ge,

- Q. Okay. And I have a copy of the full transcript, but do you recall the following exchange, that counsel for Ameren asked, Do you have any reasons to doubt that Mr. Hickman is correct, that the allocator used by Staff as an energy allocator applied to distribution investments. And your answer being, That -- that I don't disagree with.
- A. If that's what the transcript says, that's what I said.
- Q. And do you recall during -- or at the conclusion of your deposition, counsels agreeing that even if you hadn't signed the errata or signature sheet for your deposition, it would be deemed signed?
 - A. Yes.

2.2



Q. Do you remember that?

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

Do you believe the cost driver for distribution investments like poles, meters, and conductor to be total energy consumption?

I think historically that was a reasonable Α. way of looking at things. I'll tell you this, Staff's methodology has challenged my assumptions on a lot of that. In short, the -- what we're experiencing here when we talk about rate modernization and rate -- whether it's rate design changes, I think what we're finding, at least in the cursory data that I've seen with Evergy and to a certain extent with Empire as well, is a lot of stuff that's challenging our assumptions about how customers are using their electric bills. of that might be COVID specific, that we're looking at a data that maybe represents an outlier to how things are going, but -- but I think that's a healthy thing.

I mean, so what you've got are two separate things going on. We've got a methodology. The NARUC manual, it's been around since '92. It's been moving forward with certain assumptions and methodologies about how we conduct a class cost of service study running in contrast with what's going



	Transcript of Proceedings
1	Page 33 on in the market. And what do I mean by that. Coal
2	plants for example. Coal plants being, you know,
3	under the NARUC manual I would sit there and say that
4	that's very much a base-load plant. And we're
5	getting closer to the point where those plants aren't
6	necessarily operating in that manner all the time.
7	That's not to disparage, you know, the '92
8	manual. I I think that still offers a good
9	framework. But to suggest that's the only way of
10	looking at things I think well, I think my opinion
11	on that's changing as the evidence changes with it.
12	Q. And you're aware that the class cost of

- service studies presented both by Staff and the Company are embedded, so they --
- 15 Uh-huh. Α.

13

14

18

19

20

21

2.2

23

24

- -- rely on historical costs. 16 Correct? Q.
- 17 I am, yeah. Α.
 - And do you recall, I think we've already 0. established you recall being deposed on March 17th of this year in this case?
 - I do. Α.
 - So do you recall the following exchange, O. Ameren's counsel asked, Do you believe that the cost driver for distribution investments, examples, poles, conductors to be total energy consumption.



1 the cost driver for those investments, those 2 distribution assets. And your answer was, No. 3 Do you recall that exchange? If that's what the transcript says. 4 Α. So based on the historical information and 5 O. the embedded-cost studies, you don't believe that the 6 7 cost driver for those investments, distribution 8 investments to be total energy consumption. 9 correct? 10 Α. Correct. 11 So I believe Staff counsel was asking you 0. 12 some questions, but I want to make sure I understand. 13 Do you think it would save potential time if the mess 14 as you called it of diverging class cost of service 15 studies is cleaned up with a bit of guidance from the 16 Commission on what methodologies are reasonable before that working docket commences? 17 18 Α. I'll tell you what -- what changed my mind 19 on that is I believe in my -- my deposition I -- I 20 said, yes, it -- you know, that getting some guidance from the Commission would be helpful. 21 22 I think it was Mr. Opitz' opening 23 yesterday that really challenged that. And I think 24 Commissioner -- Chairman Rupp has asked Mr. Opitz



whether or not guidance would -- you know, if you

Page 339

went with a certain thing, would, you know, this be set in stone; would -- would commercial industrial customers always argue for average and excess. And I -- I struggle with absolutes, especially in the world that we operate today.

Mr. Opitz gave the example of, you know, what if we were deregulated. I think that's an extreme example. I think what you're seeing right now that's challenging my assumptions is different load shapes, different end users, the proliferation of distributive energy resources. Now, I don't think that's stuff that's necessarily going to have a profound impact if we were to meet next month or the summer over this rate case, but -- but to dismiss that out of hand. And that -- that would be my concern with having the Commission give their blessing to one methodology that was produced 30 years ago and saying that's what we should do.

I'll take it a step further, and I think it's misleading to suggest that the industry standard is somehow average and excess. We've talked a lot about bias confirmation. I think what you're seeing there -- and I am familiar with a lot of states and methodologies that are utilized there. I think what you're seeing primarily who files class cost of

service studies outside of the company. In some states -- I mean, we're -- we have a luxury here with the Public Service Commission staff devoting as much as time as they do with class cost of service studies and working towards what I think is alignment in how the PSC is putting together rate modernization and the guidance that we have been given on time-of-use rates. In some states they don't even have staff that produces a class cost of service study, end stop.

What you do see are commercial and industrial customers that have a very vested financial interest in producing a class cost of service study with what I would characterize as a specific lens, a specific perspective on how the -- the cost of service should be allocated. You know, I think because of that you're getting a biased sample when -- when we're generalizing about what takes place, you know, across the area.

What you have seen in the last five years is you've seen NARUC take an active interest in rate modernization, produce several White Papers that I think align with Staff's methodologies. You've seen respected institutions like the Regulatory Assistance Project move forward with that I think. And all of



modernization of our grid and the customers that we

Page 341 that's necessary. I mean, all of that is absolutely necessary when we take in consideration our changing

4 serve.

So I think in my deposition I gave an answer that was largely predicated on are we going to make any progress if we are agreeing to disagree when we get into that. Having Commission guidance on that would certainly minimize that if the Commission were to say, We're using this methodology and nothing else, so I agree with that. I mean, it would minimize conflict if they said, We're only going to do one thing and that's the only way we're going to look at this.

I would recommend highly against that.

Just, I mean, when the facts change, your opinion should change. When rate structures and the cost of service changes, we should have a methodology that adapts and moved towards that. So I've modified my answer I guess from my deposition a couple weeks ago.

Q. Well, has OPC changed its position then on -- well, so does OPC support Staff's proposed revenue increase allocation which is based on its direct class cost of service results as presented in their position statement?

Page 342

1	A. So I can't speak for OPC. I would have to
2	get, you know, further dialogue with Mr. Poston on
3	this. Our position in our in my Surrebuttal
4	testimony, you know, that recognized that there's
5	there's some tension between the groups that have
6	filed class cost of service studies, and our overall
7	recommendation was effectively an equal percentage
8	increase across the board. And that was largely due
9	to the overall size of Ameren Missouri's rate
10	increase.

- Q. So just so I'm clear, in Staff's position statement -- have you reviewed Staff's position statement?
 - A. I have not, no.

11

12

13

14

15

16

17

18

19

20

21

2.2

23

24

- Q. So you're not aware that they are not recommending an equal percentage allocation across classes, that instead they are recommending that the LGS class should receive an initial increase in its revenue responsibility of approximately 3.75 and the LPS and SPS classes a 7 and a half percent increase. Then the remaining increase be allocated equally across all nonlighting classes?
- A. And, Ms. Grubbs, what I would say is that, you know, Public Counsel always operates from the assumption that we represent all classes. We're not



- 1 | just a residential consumer advocate; we're looking
- 2 at large power, small general, all of it. And the
- 3 | feedback that I received was, in totality again,
- 4 | against the rate increase that was being requested.
- 5 We had requested that it be an equal increase across
- 6 | the board, across classes, with the exception of
- 7 | company-owned lighting.
- 8 Q. So just so I'm clear, you haven't changed 9 your position?
- 10 A. We have not.
- 11 Q. Okay. With regard to the customer charge.
- 12 A. Yes.
- 13 Q. In your Surrebuttal testimony you describe
 14 that from a customer's perspective, costs should be
 15 avoidable so that if a customer chooses not to
 16 purchase a good or service, the customer has no
 17 residual obligation to pay some portion of the cost
 18 to provide that good or service. Do you recall that
 19 generally?
- 20 A. I do.

21

22

23

24

25

Q. So once a customer makes a decision to connect to the grid and take electric service, from a customer charge perspective, things like the cost of the meter, the service line, the poles, the transformer, the postage for mailed bills, that won't



- change based on the amount of energy the customer
- 2 consumes or the timing of when they consume that
- 3 | energy, will it?
- 4 A. No.
- 5 Q. And Ameren Missouri has an obligation to
- 6 | serve any new customers that meet the eligibility
- 7 | requirements that as set out in Ameren Missouri's
- 8 | tariffs. Right?
- 9 A. Yes.
- 10 Q. So if the customer requesting service
- 11 doesn't pay the cost to connect their residence to
- 12 | service, that cost is going to be borne by all
- 13 | customers. Correct?
- 14 A. Yes.
- 15 Q. And keeping the customer charge low by
- 16 | shifting some of the customer-related costs to the
- 17 | energy charge could hamper or undermine
- 18 | electrification efforts such as adoption of EVs,
- 19 | could it not?
- 20 A. For that niche issue, and I -- I would
- 21 | caution -- I guess I don't believe I can give yes/no
- 22 | answer. I guess I would say yes with qualifications.
- 23 Q. So your answer would be it could, but
- 24 | you'd have caveats to that?
- 25 A. Oh, yeah.



- Q. Okay.
- 2 A. Yeah.
- MS. GRUBBS: Those are my questions.
- 4 | Thank you for your time, sir.
- DR. MARKE: Thank you.
- 6 JUDGE CLARK: Any questions from the
- 7 | Commission? I hear none. I've got a few questions
- 8 for you.

1

10

11

12

13

14

15

16

17

18

19

20

21

2.2

23

24

25

9 QUESTIONS

BY JUDGE CLARK:

- Q. Setting aside what the actual proposed customer charges are, setting aside those numbers, what's OPC or what's Public Counsel's position on having different customer charges for different —for the different residential class rate plans such as being proposed by Ameren?
- A. It's a good question. So in general we take a pretty strong position on the customer charge and there's been a couple different answers regarding that. You know, give customer control over their bills, more in line with cost causation. I'm going on throw out a third one that could help illustrate our position and how that relates to multiple different customer charges, and that would be economic regulators. Like the whole process of being



Page 346 here today, it's economic regulation. I mean, that's
the impetus behind this. Now, since then there might
be other policy considerations that have moved

be other policy considerations that have mo forward and other things, but effectively what we're talking about is a natural monopoly.

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

And what this -- as I deem this whole process is it's a proxy for the market. We're trying to illuminate that as much as possible. There's a risk and reward that's inherent in just about every decision that we're talking about, whether that's Ameren's investments or how we design rates and the company's exposure to fluctuations in their revenue But it's a proxy for the market. recovery.

Every other company that operates out there in the free market has to face those inherent difficulties and risks. We deal with that. And through the ROE, through earned opportunities for the utility to be -- not only be made whole, but to make a profit.

What we have seen over the number of years here is just an erosion of what I would characterize as risks or risk shifting. Every -- every acronym surcharge that you have on there presents more certainty for the customer -- or for the company. Trackers, decoupling mechanisms, PISA, all this.

the customer charge equates to that as well.

And the illustration that I gave if you think about it, we wouldn't charge you \$20 to just go into Gerbes and have the ability to go ahead and buy food, but that's effectively what that customer charge is doing right now. I recognize that it shouldn't be zero and that there's good policy reasons for, you know, making sure our utilities are healthy. And believe me, they're healthy. But the idea that it should -- it should mirror or try to mimic marginal cost and what's taking place within that market as much as possible is a priority, at least from my perspective.

So with that in mind, ultimately I don't think it matters that much. I think you can make a compelling case for different numbers. But given -- moving forward with -- with billions of dollars of investment for MiA and demand-side management programs, for the whole concept of time-of-use rates -- rates in trying to enable customers having more control. Well, by increasing that customer charge based off of one perspective of a methodology, you're diminishing that price signal. You're diminishing that ability to control that and ultimately undermining what I believe is the effort

that the Commission has put forward and really the underlining impetus behind this huge investment of AMI technology to begin with.

1

2

3

4

5

6

7

20

21

22

23

24

25

- Q. I'm going to ask a compound question here, but I think it's -- it's appropriate as it's done.

 And that is what do you think the pros and cons of having a different -- different customer charges are?
- 8 So the cons are potentially customer 9 confusion over it. I would say that's prob -- in 10 practice, it's probably fairly minimal. I think most customers are probably oblivious to exactly what 11 12 they're being priced because they're not being 13 charged it on the moment of consumption. Again, 14 giving the Gerbes example. If I go there and I buy a 15 gallon of milk, I know how much I'm paying. With my 16 electric bill I'm not getting that for a month later. 17 And that requires -- there's a bit of a 18 disjointedness in the actual consumption and when I 19 actually see that price signal.

So I'm a cooperative customer right now and I can tell you that we've got a very high customer charge. And that customer charge -- talking to my family, you know, my wife -- because we were Ameren customers a little -- long -- you know, not too long ago and we had to -- as you imagine, I'm a



Page 349

very conscious of how much energy we consume. Spent a lot of time with MiA and everything else. So we've got an insulated home. It's energy efficient. So when my wife asked me that same proposition, like, Do we need to be on top of this, financially, no. We're going to end up paying the same amount whether or not you keep those lights on or not because we've got such a high customer charge.

And that's going to -- so our efforts in terms of conversation, our efforts in terms of controlling our bill, well, it'll be more stable. So that's what you're getting with a fixed cost being embedded and being pushed out to that. And I believe that runs counter to a lot of other policy directives.

And I know -- you had asked Mr. Wills some questions that he had struggled with in terms of, well, if your study said this, why's Ameren proposing this, something different. And in part it's -- it goes back to those Bonbright principles that a lot of times contradict each other. How do you, you know, enable customer control but make sure the company's made whole. How do you -- and it's a juggling act, and it's one that's constantly evolving. It will be one that will constantly be argued with long after

Page 350
I'm gone, if we're still operating under this -- this
paradigm.

So pros, Ms. Grubbs makes a good one in terms of like EV consumption. If I'm a customer that's using a lot of energy, if I've got an electric space -- or if I've got a heat pump, if I've got an EV car that's being generated there, I'll pay less ultimately.

Now, I'm struggling here a little bit because the other element to this is that time-of-use element, right. So I say I'm paying less. Obviously it's going to depend on when I'm using that consumption. But all things being equal if I'm shifting costs from fixed to variable, I'll have more consistency and probably -- I mean, if you're conscious of it, probably a perverse incentive to probably use more than you otherwise would.

Q. You used an analogy of going into a grocery store. And I know that I've thought about this and I've often thought about, you know, the idea of no customer charge as the idea of renting a car and thinking that all you have to pay for is the gas rather than the rental of the car itself. And I realize that's an imperfect analogy.

What are you getting for your customer

gain from that?

charge?	And this kind of goes to the benefits, b	Page 351 ut
I'm just	trying to clarify a little more. What d	0
you say y	you have a high customer charge. What's	your

A. So I'm going to answer that, like, in two
parts because and both parts are somewhat very
different. The first part that I'm going to answer
is just the nature of embedded versus marginal cost
structures that we operate in here and how that is,
because this is an natural monopoly and there are
lumpy investments, it's huge capital dollars that
we're putting in there that need to be recovered
over over many years, maybe even generations. It
requires more of an adherence to accounting
principles to make sure that a company is made whole,
that they don't that they are financially sound,
that we're able to move forward with things.

That -- that same principle does not apply necessarily to Gerbes. That same principle does not necessarily apply to a pizza restaurant that is dependent on those customers coming in and making those costs. You still have -- they have still have to cover their fixed costs, but if they don't, they go out of business and that's the market at work here.

Page	352

We -- what I would characterize what we do here with utility regulation is a balancing act between those two. And that customer charge, this is the second part of this, is -- is a way to mitigate that, in part. The additional, the second part of this is what do you get out of this. You -- you can -- I could sit here with a straight face and say that there are -- there are costs within that distribution allocator that are fixed that should be recovered there. But it's a judgment call.

You know, my testimony goes into this and quotes Bonbright directly on this specific issue. I think he used the word that, you know, analysts essentially fudge these numbers, you know, because it isn't a clear direction. That's -- that's just how it is.

But the benefits from it from a customer standpoint, it goes back to what I said earlier. If I've got more fixed costs, if I've got -- it's a -- if I was just paying a straight hundred dollar say customer charge that covered and made sure the company was being made whole, it would be a buffet-style pricing signal that -- where I could definitely consume as much energy as I wanted and that would effectively have a feedback loop in

1 encouraging further investment and further build up. 2 So each one of these issues builds off of the next. So, you know, I think I've got examples, 3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

probably not in this testimony but in the past I've done sort of a flowchart of a revenue requirement. And moving that revenue requirement the next day to be in the cost allocation, how you divvy up that pie, how big is the pie, how you divvy up that pie, and then effectively how you're pricing that. But how you're pricing that's going to influence the future revenue requirement. So if we're pricing things in such a way to encourage consumption or to ensure greater recovery, depending on how you look at it, that can have the unintended impact of increasing consumption and increasing future investment moving Pricing matters I guess is the long short forward. I'm trying to get a lot in there. of it. I can --I'll stop there.

- Are you aware of any other jurisdictions Ο. that have different customer charges for different residential rate plans?
- Α. It wouldn't surprise me. I -- not off the top of my head. Let me think for a second. We might have already had some here in Missouri.
- 25 I'm looking over at Sarah here, but -- she Yeah.



- said Ameren. I'm thinking even Evergy had -- had different customer charges for space-heating customers versus -- I mean, if we really go back, I'm sure that's been the case. I mean, we've had, you know, rate designs that have encouraged consumption like space heating for the declining block. You know, really in the '50s and '60s, I mean, that was designed to -- you -- with the proliferation of air conditioners and everything else, it was very much a, I guess what we would characterize as a promotional rate now, but I wouldn't be surprised.
 - So here in Missouri we have.
 - Q. And you indicated that, at least in regard to one of the things that Ameren asked you, that -- that since that deposition your assumptions have been challenged in regard to certain things. Has the proposition of having different customer charges for different time-of-use rates challenged your assumptions in any way there?
 - A. I have not given it a lot of thought. My knee-jerk reaction is to support a low customer charge, not a zero customer charge, but a low customer charge. I can hold more than one competing idea in my head, so I can see a rationale where you can -- you can justify having a different customer



charge for a customer that might be more aligned with
that. I guess I don't have a real strong opinion.

I think from -- and one of the Bonbright principles really is to simplicity and getting that issue across. With that in mind, my recommendation to the Commission today would be to keep the customer -- residential customer charge uniform across the board.

I'll throw out one more caveat that might add some to that. I might have a different opinion on that if this was Evergy that was fully deployed with AMI meters and, you know, has done a number of studies on this. Ameren isn't as far along in that process; two-thirds I think is where we're at in terms of full deployment. So there's room, you know, for -- for working towards something.

- Q. Speaking of AMI, Staff has proposed moving towards time-of-use rates within a month of switching to AMI. How would customer education have to change to accommodate that?
- A. It's a good question. I've been in a fair amount of customer education time-of-use workshops, conferences, meetings with all of the companies.

 Ultimately I don't think the concept is that difficult to understand. We had time-of-use pricing

	Transcript of Proceedings Page 356
1	with telephones before, day/night versions. This
2	isn't I think even a lot of customers incorrectly
3	assume they are actually being charged different
4	based off of, you know, the time of day.
5	I am sympathetic to the Company's
6	considerations in terms of what they need to do on
7	their IT side, what they need to do in terms of
8	educating customers in making that happen. I've got
9	no reason to doubt those assumptions. But like
10	anything, I think it's a matter if you want to throw
11	money at it, you can make it happen.
12	In terms of the education within a month,
13	so the big concerns you're going to have here are
14	the vast majority of their customers already have it.
15	Really the concern comes down here, your Honor, how
16	big the differentials are going to be. That's it. I
17	mean, it probably won't have too big of an impact if
18	the differentials are fairly small. Customers
19	probably won't even be aware of it. If the
20	Commission elects to go with something with a greater
21	delta, then the risk increases potentially. The

So I'm not sure I answered your question really well. A month seems quick.

payoff increases; the reward increases as well.

22

23

24

25

Q. At the same time OPC or Public Counsel

Page 357

- indicated it did not oppose a month lead-in time. Is that correct?
 - Α. That's correct.

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

- But it sounds like from what you're saying Ο. that you don't really support a shortened lead-in time either?
- I don't think we have a real strong Α. opinion on that. I -- I'm going off of my gut reaction here. I haven't been tasked with actually trying to roll one of these out on the IT side. think, you know, having spoken with Ameren about it, I think that makes sense, but I absolutely understand where Staff is coming from in terms of we are sitting on issues, we're -- we're dragging our feet. intuitively this isn't that difficult of a concept to get across. I really agree with that.

Again, the issue comes down to those differentials. And then really what you're being exposed to is if it -- well, it depends on how it -how it's designed. How -- say 10 percent of the customers that might see a real profound impact on their bills negatively, you know, probably more than that with -- with a number that's better. I have -and I'm saying that based off of other utilities' load shapes that I've looked at. I don't know -- I



can't speak right off the top of my head with Ameren,
which again, you know, kind of points the way of why
data's important and hopefully that this future rate
design docket, if we intend to move forward with
that, can help expose a little bit more.

- Q. If Public Counsel had to propose a lead-in time that they could support, what lead-in time would Counsel Public choose?
- A. Well, I'll split the difference. I'll say three months.
- Q. And kind of going back to an earlier question, what changes would need to be made to customer education to accommodate a three-month lead-in time?
- A. So I spoke with a utility executive about this not too long ago and he was of the opinion that it only took 90 days, 90 days to go ahead. And anything more than that is improperly working up customers, maybe negatively. But 90 days was effectively what you needed to do.

And that would start with an email campaign, bill inserts, billboards, any number of things. And we can -- I think reasonable minds can kind of dis -- agree to disagree as to what the proper venue for that information is.

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

Page	359

Where you've seen it, full deployment of time-of-use rates and I go back to this, like two-thirds of their customers already have time-of-use rates, so really it just comes down to the differentials and how big that is. So it would be -- I think it's going to be a challenge anytime you do something first.

So if we are talking about a big, large differential and you're moving that forward, that's going to be a challenge in conveying that information, but -- because it's their first time really doing it. Not to say, like, they haven't put out information, but -- and I think Chairman Rupp used this as example, that he just got information like a week ago about his AMI and how that's going to be impacted. I would imagine that rolling it out across the board would require more of a universal, a general education plan, and that might not -- I --I -- now that I'm saying this out loud, I can see where there could be lot of confusion over this. Because if you're an Ameren customer in Jefferson City, you might not get that meter until later this So if you're getting information on that timeof-use rates, there's going to be a delay.

LEXITAS"

That's

JUDGE CLARK:

Okay.

Thank you.

- all the questions I have for you. Is there any recross based upon bench questions? Staff.
- 3 MR. KEEVIL: Yeah, very briefly.

RECROSS-EXAMINATION

BY MR. KEEVIL:

4

5

6

7

8

9

10

11

12

13

- Q. Dr. Marke, there was extensive discussion there between you and the judge about customer charges. Are you aware that Staff's concern with Ameren's proposal in this case is that the Ultimate Saver rate would be marketed as a low-cost option for customers concerned with the size of their customer charge?
 - A. I am aware of that.
 - Q. Now, do you agree with Staff's concern?
- I am. And -- and as I understand Staff's 15 Α. 16 concern, it's framing it as this is cost savings. 17 And this was a similar issue that had come up in Arizona is my understanding when they tried to roll 18 19 out time-of-use rates in terms of their marketing, 20 and this really extends even to the name of it, 21 Ultimate Savers, and this concept. And in the last 22 rate case, admittedly not a good one, I put out a 23 suggestion for, you know, Red or Blue or calling 24 those sort of savers as something neutral. But the 25 framing it as something that's a really, really good



Transcript of Proceedings
Page 36' savings rates, right, you know, is somehow misleading
or could create more problems than not. I think it's
a valid concern.
Q. You also mentioned in discussions with the
judge early on about one of the or I guess the
primary focus of what we do here is economic
regulation in an attempt to mimic the market, I think
you used that phrase. Are you aware of Ameren's
proposal in this case for their time-of-use tracker
mechanism?
A. I am.
Q. And how would you say that fits in
vis-a-vis your discussion of the market and mimicking
a market?
A. This is one of those issues where I just
want to throw my hands up in the air and sit there.
At what point are we at what point do we just sit
there and say, Would it just be easier, if we're
going to advocate all risk onto ratepayers, why don't
we just run it as a State entity like Nebraska and

move forward with that.

What gives me heartburn about this is the General Assembly moved forward with planned and service accounting SB 526 or 62 and giving the option. You could do PISA or you could do



1 decoupling, but not both. We actually had one 2 utility that went the decoupling route and then said, 3 No, we're not going to do that; we're going to go back to PISA. And that's how a huge boon for the 4 5 utilities. Look no further than their earnings 6 statements over the last few years across it; it's a 7 straight line up. That's regulatory certainty. That's cost recovery. That's -- and it's all 8 9 designed to encourage investment and so forth. 10 But it has diminished the concept of 11 regulatory lag. It has diminished a lot of the 12 historical mechanisms that we've relied on, 13 regulators have relied on, stakeholders have relied 14 on to go ahead and provide that proxy for the market. A tracking mechanism sounds innocuous. 15 Ιt 16 sounds like something, Oh, we're just going to track 17 how much they've lost or gained; it's no big deal. 18 But the assumption behind it is that they're going to 19 get that recovery back. And that's how their 20 investors are going to look at that. That's how -that's embedded in that. 21 22 Now, can a future Commission say, No.

Now, can a future Commission say, No.

They could. My experience is that if it's being tracked, it almost universally does get recovered on to -- so my -- my objection to it is twofold. One,

23

24

1 it diminishes that economic regulation principle by2 again shifting risk.

And two -- I can't remember my second one now, but yeah. It's -- it is -- oh. I -- ultimately then those customers are going to end up paying those costs anyway. So Ultimate Savers, parenthetical, for now, you know. It might be a more, you know, apt description of that rate design.

And I'll throw a third one in there right now. We don't know. We really, we don't know. You could very well, you know, get into a situation where customers end up paying, you know, a lot more. And I'm telling you as a consumer advocate, given the option between that risk of consumers potentially paying more and not, I'll take it, because I don't want to further erode the regulatory principles that we've been operating under in this state for the past hundred years.

- Q. Somewhat related to that I think, under time-of-use rates is it possible that we would -- because of the shifting of the usage, we'd actually see more consumption?
- MS. GRUBBS: Objection; this is beyond the scope.
- MR. KEEVIL: He was talking about the



1	Page 364 perverse incentive earlier in response to the judge
2	and he was
3	JUDGE CLARK: Mr. Keevil, what's the
4	question?
5	MR. KEEVIL: I was going to ask him
6	well, the first question was is it possible that we
7	could use more you would have more consumption
8	under time-of-use rates than because of the
9	shifting in usage. And I think he said yes. And
10	then the follow-up question is just going to be, ask
11	him to explain that.
12	JUDGE CLARK: I think Ameren's saying
13	that's outside the scope of bench questions. Is that
14	correct?
15	MS. GRUBBS: That's correct.
16	MR. KEEVIL: But you talked about in
17	response to your questioning, he was talking about
18	what he termed the perverse incentive under time-
19	of-use rates I believe.
20	JUDGE CLARK: I don't remember that.
21	MR. KEEVIL: Okay.
22	JUDGE CLARK: I'm going to sustain the
23	objection.
24	MR. KEEVIL: Okay. I think that's all I
25	have then.



	Page 365
1	JUDGE CLARK: Thank you. Any further
2	cross based upon bench questions? Any redirect?
3	MR. WILLIAMS: No, thank you.
4	JUDGE CLARK: Okay. Dr. Marke, you may
5	step down.
6	DR. MARKE: Thank you.
7	JUDGE CLARK: Next up I have Consumer
8	Council's witness Hutchinson. Both Hutchinson's
9	Direct and Rebuttal were admitted onto the hearing
LO	record yesterday and so that witness will not be
L1	taking the stand. So next up I have MIEC's Witness
L2	Brubaker.
L3	Mr. Brubaker, would you raise your right
L4	hand and be sworn.
L5	(Witness sworn.)
L6	JUDGE CLARK: Please be seated and would
L7	you please say and spell your name for the record.
L8	MR. BRUBAKER: First name is Maurice,
L9	M-a-u-r-i-c-e, last name Brubaker, B as in boy
20	r-u-b-a-k-e-r.
21	JUDGE CLARK: Thank you. I'm going to
22	say I'm aware that there is a Staff motion to strike
23	this testimony that's still outstanding, isn't there?
24	MR. KEEVIL: No. That was Bowden I
25	think.



1	JUDGE CLARK: You're correct. I
2	apologize. Go ahead.
3	MR. KEEVIL: Judge, I might also say
4	regarding that motion, if the stipulation which was
5	filed earlier and we're going to have the
6	presentation on tomorrow yeah, tomorrow. If the
7	stipulation is approved, then that motion goes away.
8	JUDGE CLARK: It's moot.
9	MR. KEEVIL: Yeah.
10	JUDGE CLARK: And I kind of thought that
11	might be the case, but I wasn't going to inquire
12	about it at this point.
13	Okay. MIEC.
14	MS. PLESCIA: Thank you, your Honor.
15	MAURICE BRUBAKER, having been first duly sworn,
16	testified as follows:
17	DIRECT EXAMINATION BY MS. PLESCIA:
18	Q. Mr. Brubaker, by whom are you employed, in
19	what and in what capacity?
20	A. With the firm of Brubaker & Associates,
21	and my current title is president.
22	Q. Okay. And did you cause to be filed in
23	this case Direct, Rebuttal, and Surrebuttal
24	testimony?
25	A. I did.



- Transcript of Proceedings Page 367 1 And those will be designated as Q. 2 Exhibits 350, 351 and 352. Do you have any changes 3 or corrections to that testimony? 4 I do not. Α. 5 If I were to ask you the questions that O. are set forth in those testimonies, would your 6 7 answers today be the same? 8 Α. They would. 9 MS. PLESCIA: Okay. Then I'd go ahead --10
 - go ahead and like to request to have the exhibits admitted into the record at this time, 350 for Direct, 351 Rebuttal, and 352 Surrebuttal. And if those could be admitted, I would tended Mr. Brubaker for cross.

11

12

13

14

15

16

17

- JUDGE CLARK: And I don't believe I have an exhibit list from you. Is that correct?
- MS. PLESCIA: I thought we had turned one in, but I will get that done right away.
- 19 JUDGE CLARK: You may have. Let me look. 20 Was that done today?
- 21 MS. PLESCIA: I think it would have, if 2.2 done. I -- my legal assistant, I saw some emails 23 from her a couple days ago, so. But I'll make sure 24 that that gets into the record immediately.
- 25 I don't see it. JUDGE CLARK: Okay.



ı	D. Ooo
1	Page 368 That doesn't mean I didn't miss it. Would you go
2	over those exhibit numbers again please?
3	MS. PLESCIA: Sure. 350 for Rebuttal
4	I'm sorry, for Direct, and 351 for Rebuttal, and 352
5	for Surrebuttal.
6	JUDGE CLARK: Are there any objections to
7	admitting Exhibits 350, 351, and 352 onto the
8	hearing record? I see and hear no objections.
9	Exhibits 350, 351, and 352 are admitted onto the
10	hearing record.
11	(MIEC Exhibits 350, 351, and 352 were
12	received into evidence.)
13	JUDGE CLARK: Please go ahead, MIEC.
14	MR. OPITZ: Do you mean MECG?
15	MS. PLESCIA: No questions for
16	JUDGE CLARK: Did you tender your
17	witness?
18	MS. PLESCIA: I'm sorry, I thought I did.
19	JUDGE CLARK: You may have.
20	MS. PLESCIA: Yeah. I tender the witness
21	for cross-examination.
22	JUDGE CLARK: I apologize. I got off
23	track for a second. Okay. I have the first
24	questions for this witness from MECG.
25	CROSS-EXAMINATION



BY MR. OPITZ:

1

2

4

5

6

13

14

15

16

17

18

19

20

21

- Q. Good morning, Mr. Brubaker.
- 3 A. Good morning.
 - Q. In the revenue allocation recommendations in your Direct testimony, those were not based on a particular revenue requirement, were they?
- A. No. It was -- it was neutral. It was
 based on how I would adjust rates at current levels
 before an increase to move toward cost and then
 overlaid with an average of whatever the increase is
 that the Commission would find appropriate for
 Ameren.
 - Q. And now that we do have a -- I'll say a file revenue requirement stipulation, do you have -- have you done any calculations that would show what your recommendation -- what the impact of your recommendation would be for each class?
 - A. I have made those calculations, yes.
 - Q. Can you tell me, I guess first off, on an overall, if it were allocated on an equal percent basis, what would the increase be based on the revenue requirement stipulation?
- MR. KEEVIL: Judge, I'm going to object to that. I think to the extent that this is attempting to change position, which it sounds like it is, I



	Da 070
1	Page 370 think it's totally inappropriate and contrary to the
2	commission rules on testimony. And secondly, I think
3	it's obviously friendly cross coming from one
4	industrial intervenor to the other industrial
5	intervenor's witness.
6	MR. OPITZ: Your Honor, I
7	JUDGE CLARK: Mr. Opitz, first, before
8	you and I'm going to give you an opportunity to
9	respond. Before you respond, would you repeat the
10	question for me?
11	MR. OPITZ: I guess that particular
12	question isn't important, so I'll withdraw that
13	question.
14	BY MR. OPITZ:
15	Q. I'll say, Mr. Brubaker, under your
16	recommendation now that we know the revenue
17	requirement, what would be the increase for
18	residential class
19	A. Based
20	Q on a percentage basis?
21	A on my recommendation of moving 50
22	percent toward cost of service and using an
23	overall 5.14 percent which I think is approximately
24	correct, might be a little bit off on a decimal
25	point, but based on an overall average of 5.14



		Transcript of Proceedings
1	percent to	move 50 percent toward cost of service
2	would incr	ease the residential rates by an average
3	of 6.7 per	cent.
4	Q.	How about the SGS class?
5	Α.	5.6 percent.
6	Q.	The LGS class?
7	Α.	3.2 percent.
8	Q.	And I guess the SP SPS class?
9	Α.	I have the two combined, so they would
10	both be 3.	2 percent.
11	Q.	LPS class?
12	Α.	1.7 percent.
13	Q.	Ameren lighting class?
14	Α.	3.9 percent.
15	Q.	And customer lighting class?
16	Α.	14 14 excuse me. 14.2 percent.
17	Q.	Are there any classes that I missed?
18	Α.	There are not.
19		MR. OPITZ: Okay. That's all the
20	questions	I have, your Honor.
21		JUDGE CLARK: Sierra Club, NAACP, and
22	MCU?	
23		Mr. THOMPSON: No questions, your Honor.
24		JUDGE CLARK: Thank you. IS renew
25	Missouri o	n?



1	Page 372 MR. LINHARES: Yes. No questions. Thank
2	you, Judge.
3	JUDGE CLARK: Consumers Council of
4	Missouri which is not present. Public Counsel?
5	MR. WILLIAMS: No, thank you.
6	JUDGE CLARK: Commission Staff?
7	CROSS-EXAMINATION
8	BY MR. KEEVIL:
9	Q. Excuse me. Mr. Brubaker Mr. Bru
LO	there we go, mic's working now. Introducing the new
L1	recommendations that you provided today in response
L2	to Mr. Opitz' question, did you use the same
L3	rate-based values used in Ameren Missouri's revenue
L4	requirement Direct testimony, or did you adjust rate
L5	based values to correspond to the stipulation?
L6	A. I adjusted the filed cost of service study
L7	by Ameren, so. And then I adjusted the revenue
L8	increase to match the stipulation.
L9	Q. But did you adjust the rate-base values
20	underlying the study based on the stipulation?
21	Because the stipulation changes the rate Ameren's
22	rate base, does it not?
23	A. To some extent, yes, but it does so
24	somewhat proportionately. And so I my approach
25	which I outlaid in my Direct testimony was to scale



Page 373

- up or down based on what the overall average increase awarded to Ameren is. So I think it proportionately
- captures all those changes in the underlying values
 of rate base, expenses, and so forth.
 - Q. If those costs were evenly distributed across classes, would there even be a need for a CCOS?
- 8 A. No, but they're not. And that's not -9 wasn't the question that you asked me. You asked
 10 me --
- 11 Q. I agree they're not.
- 12 A. Okay.

5

6

7

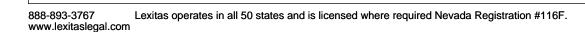
19

20

21

- Q. In producing the -- excuse me. In
 producing the new recommendations that you provided
 in response to Mr. Opitz, did you use the same
 expense values used in Ameren Missouri's revenue
 requirement direct, or did you adjust the expense
 values to correspond to the stipulation?
 - A. As in the case of rate-base values, no new cost of service study was produced that would articulate differences line by line.
 - Q. Okay.
- A. What I did is what I recommended in Direct testimony which was to proportionately adjust it.

 And I think that's reasonable given the -- the nature





- of the stipulation and the changes in revenue requirements between the Company filing and the stipulation filing.
 - Q. What were the changes between the Company filing and the stipulation values?
- 6 They're laid out in the stipulation. Α. 7 think every -- everybody's looked at that. If you 8 want me to have a memory test on exactly what they 9 were, I would fail that test, but I will tell that 10 there were changes across the board in many 11 categories. And none of those changes caused me to 12 think that the results of the cost study would change 13 materially in relation to -- from one class to the 14 other.
 - Q. Was there an accounting of the changes made between the direct filing and the stipulation?
 - A. I don't know what you mean when you ask is --
 - Q. Well, let me -- let me rephrase that.
 Would you agree that the stipulation is a black box settlement?
 - A. In many respects, yes.
- MR. KEEVIL: Thank you. Nothing further.
- JUDGE CLARK: Any cross-examination from
- 25 | Ameren Missouri?

4

5

15

16

17

18

19

20

21



	Page 375
1	MS. GRUBBS: Yes, just briefly. Thank
2	you.
3	CROSS-EXAMINATION
4	BY MS. GRUBBS:
5	Q. Mr. Brubaker, do you believe that the cost
6	driver for distribution investments like poles,
7	meters, and conductor to be total energy or timing of
8	energy consumption?
9	A. No. Has relatively little, if anything,
10	to do with energy consumption. It has to do with the
11	demands placed on the system which dictate the size
12	of the cables, wires, and everything else, and the
13	number of customers served which defines how
14	extensive the network is. So it's basically only
15	customers and demand. Energy flow has nothing to do
16	with it from a cost-of-service perspective.
17	Q. And just to clarify, you recommend the 4
18	NCP average and excess method for production
19	allocation. Correct?
20	A. Correct.
21	Q. But you don't recommend that same
22	allocation for distribution assets. Correct?
23	A. Correct. They're driven by many different
24	factors.
25	MS. GRUBBS: Okay. Thank you. I just



	Transcript of Proceedings
1	Page 376 wanted to clarify that from your position statement
2	or your entity's position statement. Thank you.
3	JUDGE CLARK: Are there any Commission
4	questions for this witness? I hear none.
5	CHAIRMAN RUPP: No questions, Judge.
6	Thank you.
7	JUDGE CLARK: Thank you.
8	QUESTIONS
9	BY JUDGE CLARK:
10	Q. I only have one question for you that I
11	can think of. It's really more of a clarifying
12	question. You indicated that this was that your
13	adjustments were predicated on a 50 percent revenue
14	neutral shift for the residential class. Is that
15	correct?
16	A. Yes, Judge, for all classes. To move 50
17	percent of where we are toward the goal of cost of
18	service.
19	Q. Okay. So 50 percent revenue neutral shift
20	across all classes?
21	A. Correct.
22	Q. And if I understand, and you may not know,
23	but if I understand correctly, MECG's position is
24	somewhat different. Correct?



I believe it is, yes.

24

25

Α.

	D
1	Q. Do you know how
2	A. Somewhat.
3	Q it's different?
4	A. I think not much. Well, I'm not going to
5	speak for Mr. Chriss. He has a different approach to
6	it. The concept of moving toward cost of service is
7	the same, but he gets there in a different way.
8	JUDGE CLARK: Okay. Thank you.
9	MR. BRUBAKER: Thank you, Judge.
10	JUDGE CLARK: And you may step down.
11	MS. PLESCIA: Excuse me, sir.
12	JUDGE CLARK: Oh, I'm sorry. I
13	apologize. You have there is redirect.
14	MS. PLESCIA: I have a couple questions
15	on redirect if that's okay.
16	JUDGE CLARK: Thank you for stopping me.
17	Any redirect from
18	MR. WILLIAMS: Judge, I think I have a
19	question or two on recross after Commission
20	questions.
21	JUDGE CLARK: Okay. I just skipped over
22	all kinds of stuff. All right. Are there any are
23	there any recross questions based upon bench
24	questions? Go ahead Mr. Williams.
25	RECROSS-EXAMINATION



- BY MR. WILLIAMS:
- Q. Mr. Brubaker, in response to a Commission
- 3 | question you said that your recommendation is to
- 4 | move 50 percent to I think it's probably class cost
- 5 of service?

- 6 A. Yes, yes. Toward class cost of service.
- 7 Q. Whose class cost of service are you
- 8 referring to? Yours?
- 9 A. I was using Ameren's in that example.
- 10 MR. WILLIAMS: No further questions.
- MR. BRUBAKER: Which is very similar to
- 12 | mine, if I might footnote that.
- 13 BY MR. WILLIAMS:
- Q. Well, you are referring to a particular
- 15 | class cost --
- 16 A. Yes.
- 17 | 0. -- of service --
- 18 A. Correct.
- 19 | 0. -- are you not?
- 20 A. Correct.
- 21 | MR. WILLIAMS: Thank you. No further
- 22 | questions.
- JUDGE CLARK: Any other recross based upon
- 24 | Commission questions for this witness? Redirect?
- MS. PLESCIA: Yes, thank you.



REDIRECT EXAMINATION

2 BY MS. PLESCIA:

- 3 Q. Mr. Brubaker, you received some questions
- 4 regarding the revenue settlement that the parties
- 5 have proposed and that the Commission will be
- 6 | considering. And I want to approach you with a
- 7 document regarding that issue. Mr. Brubaker, I'm
- 8 | going to hand you a document which will become, we're
- 9 | going to see if we can get it admitted as 354. And I
- 10 | wonder if you could go ahead and describe this
- 11 | document, explain if you recognize that --
- 12 JUDGE CLARK: I'm going to ask you to go
- 13 | somewhere near a microphone.
- MS. PLESCIA: Oh, I'm sorry. Sure.
- 15 JUDGE CLARK: Because it's being
- 16 | broadcast, I want everybody to hear --
- MS. PLESCIA: Oh, sure.
- 18 | JUDGE CLARK: -- your question.
- 19 BY MS. PLESCIA:
- 20 O. I would like, Maurice, Mr. Brubaker, if
- 21 you could go ahead and describe the document
- 22 | identified and describe it for us?
- 23 A. Certainly. This is the document that I
- 24 | prepared that enabled me to respond to Mr. Opitz's
- 25 | question. And overall the objective is to move 50



Transcript of Proceedings
Page 380 percent of where we are now toward toward cost of
service. The cost of service is based on Ameren
Missouri's cost of service study.
So the first column on this schedule are
the percentage increases to get the cost service
under Ameren's proposed rate increase, the 11.6
percent based on Ameren's cost of service study.
The column two simply calculates the
percentage increase for each class in relation to the
overall 11.6 percent. So that says that the
residential class would require 1.6 times the average
increase of 11.6 percent to get to cost of service.
LPS, for example, would require a slight decrease in
revenues to get to that to that point.
So then in column three, we calibrate
those increases to recognize that the settlement
increase is smaller than the overall increase that
was proposed by scaling it down. So that's simply

column two, which is the relative percentage changes, times the overall increase of roughly 5.14 percent.

Then the final column, column four, is where we determine how much the increase would be over current rates based on the settlement and based on the overall increase awarded, if it's 5.14 percent, to move 50 percent of the way toward cost of service from where we are now.

So that's -- the footnote explains the formula where it's basically, for every class, it's the average increase plus 50 percent of the difference between the average increase and where the class is now, which is column three. So that's how we get to 6.7 for the residential class. It's essentially 5.14 percent -- 14 percent the average; that's the average component. And then to get 50 percent of the way toward cost of service, we know from columns three and four that the increase to get to cost of service is 8.22 percent for the residential class versus the average of 5.14.

So that difference times 50 percent, I don't mentally have that quite in my mind yet, but that difference times 50 percent added to the average of 5.14 gives you 8.22 percent. Or -- yes. I'm sorry. Gives you column four which is 6.7 percent, the average plus half the difference. So if we did that twice, we'd be at cost of service only because of the impact that -- going out all the way would be 8.22 percent for residential. Going halfway is 6.7 percent for residential. If we went all the way for LPS, it would be a decrease of 1.7 percent. Generally don't recommended that when we have an



	Page 382
1	overall increase. So 1.7 percent gets LPS after
2	halfway there. Same same is true for all of the
3	other individual customer classes.
4	MS. PLESCIA: I don't have any further
5	questions for Mr. Brubaker. I would like to add that
6	this exhibit be marked again as 354 and that it be
7	admitted into the record.
8	JUDGE CLARK: Is there a 353 that I
9	missed?
LO	MS. PLESCIA: That would be
L1	well, 350 you're right, Judge. It's actually 353.
L2	JUDGE CLARK: And what would you call
L3	this?
L4	MS. PLESCIA: I would call it Brubaker
L5	Hearing Exhibit Revenue Settlement Proposed Spread.
L6	MR. KEEVIL: Judge, I have I have a
L7	question related I guess to what Mr. Williams
L8	asked earlier and as Mr. Brubaker was explaining
L9	Exhibit 353. I didn't really this has to be
20	this has to have been based on an underlying CCOS.
21	Right?
22	MR. BRUBAKER: Yeah. The percentage
23	increases in column one are based on Ameren's
24	MR. KEEVIL: Ameren's CCOS.
2.5	MR. BRUBAKER: filed class cost of



1 service study. 2 And then I scaled it in column two to 3 get -- to adjust for the difference between the 4 stipulation revenue increase and the filed revenue 5 request. 6 MR. KEEVIL: Okay. 7 JUDGE CLARK: Are there any objections to 8 admitting Exhibit 353 onto the hearing record? 9 hear and see none. Exhibit 353 the Revenue 10 Settlement Spread -- Brubaker's Revenue Settlement 11 Spread will be admitted onto the hearing record. 12 (MIEC Exhibit 353 was received into 13 evidence.) 14 Thank you. MR. PLESCIA: I have no 15 further questions. JUDGE CLARK: And I believe that was 16 17 redirect. Correct? 18 MS. PLESCIA: Correct. 19 The next witness -- and JUDGE CLARK: 20 I -- MIEC doesn't have any other witnesses? 21 No. MS. PLESCIA: Thank you, your Honor. 2.2 JUDGE CLARK: The next witness I have --23 and you may step down, Mr. Brubaker. I'm sorry; I 24 forgot.

MR. BRUBAKER: I didn't mean to jump the



MIEC's witness and we're getting ready to start

record.

1	Page 385 Staff's witness witnesses. Staff, you may call
2	your first witness.
3	MR. KEEVIL: Yes. Staff would call Sarah
4	Lange to the stand, Judge.
5	JUDGE CLARK: Is it Lange or Lange?
6	MR. KEEVIL: Lange.
7	JUDGE CLARK: I apologize. Ms. Lange,
8	would you raise your right hand and be sworn.
9	(Witness sworn.)
10	JUDGE CLARK: Please be seated. And if
11	you could state and spell your name for the record.
12	MS. LANGE: Sarah Linne Kliethermes,
13	L-i-n-n-e, K-l-i-e-t-h-e-r-m-e-s, Lange, L-a-n-g-e.
14	SARAH LANGE, having been first duly sworn,
15	testified as follows:
16	DIRECT EXAMINATION BY MR. KEEVIL:
17	Q. Ms. Lange, by whom are you employed and in
18	what capacity?
19	A. I'm employed by the Staff of the Missouri
20	Public Service Commission in the tariff rate design
21	department. My current title is economist.
22	Q. All right. Did you cause excuse me.
23	Did you cause to be prepared and filed in this case
24	Direct testimony, Rebuttal testimony, and Surrebuttal
25	testimony?



	Transcript of Proceedings
Α.	Page 386 I did. As well as prepared information
that was	submitted by a pleading.
Q.	That's correct. Yeah. That was the Staff
response	to April 4th order I believe. Is that what
you're re	eferring to?
Α.	Yes. That's my recollection of the name.
Q.	And going back to the testimony?
	JUDGE CLARK: I'm sorry, did you say you
prepared	that?

MS. LANGE: I prepared the contents attached to the pleading.

MR. KEEVIL: The graphs attached to the pleading, Judge.

14 BY MR. KEEVIL:

2.2

Q. Going back to the testimony, the Direct testimony just for the record has been marked as Exhibit 136, Rebuttal testimony has been marked Exhibit 137, and Surrebuttal testimony has been marked Exhibit 138.

Now, Ms. Lange, do you have any corrections or changes you need to make to any of those pieces of testimony?

A. I do. Mr. Wills' Surrebuttal brought my attention to an error that I had -- in the language that I ultimately included in my Rebuttal testimony,



Page 387

- 1 | I had edited it to a point that it became inaccurate.
- 2 | So at page 55, lines 3 to 7, it currently reads,
- 3 Ameren Missouri requests increasing the customer
- 4 charges for most residential customer rate plans to
- 5 | \$13. Is this reasonable.
- 6 Answer, No. Ameren Missouri bases this
- 7 request on finding the cost for rebuilding every inch
- 8 of its distribution system at primary voltage,
- 9 | including every device, and then deciding each
- 10 customer in each class should pay the same share of
- 11 | that total.
- 12 That answer beginning at line 5 should be
- 13 | corrected to state, No. Ameren Missouri bases this
- 14 request on approximating the costs for every inch of
- 15 | its distribution system at primary voltage, including
- 16 | every device, and then dividing each cus -- and then
- 17 deciding each customer in each class should pay the
- 18 | same share of that total.
- 19 O. All right. That was in the Rebuttal
- 20 | testimony?
- 21 A. Yes. At page 55.
- 22 Q. All right. Are there any other
- 23 | corrections you need to make?
- A. Not that I'm aware of.
- 25 Q. All right. Are the answers contained in

1	Page 38 each of those pieces of testimony true and correct to
2	the best of your information, knowledge, and belief?
3	A. Yes.
4	Q. And if I were to ask you the questions
5	contained therein, would your answers be the same
6	here today?
7	A. Yes.
8	MR. KEEVIL: Judge, I would offer
9	Exhibits 136, the Direct testimony of Sarah Lange;
10	Exhibit 137, the Rebuttal testimony; and Exhibit 138,
11	the Surrebuttal testimony into the record.
12	JUDGE CLARK: Are there any objections to
13	admitting Exhibits 136, 137 and 138 onto the hearing
14	record? I see and hear none. Exhibits 136, 137 and
15	138 ara admitted on to the hearing record.
16	(Staff's Exhibits 136, 137, and 138 were
17	received into evidence.)
18	MR. KEEVIL: Thank you. Now, Judge,
19	based on our discussion this morning, it was my
20	understanding that you were going to have questions
21	for Ms. Lange on the Staff response to April 4th
22	order regarding load data, primarily on the
23	attachments to that filing and that we were at that
24	time going to offer it into the evidentiary record.
25	Is that still the plan? Or do you want me to go



- ahead and offer it I guess is my question?

 JUDGE CLARK: I will leave that to you.

 MR. KEEVIL: Let me go ahead and offer it

 then. I think I'm up to Exhibit 182.
 - BY MR. KEEVIL:

2.2

- Q. Ms. Lange, you said you prepared the graphs which are attached to the Staff response to April 4th order regarding load data in this case?
 - A. Yes. And to be clear, I prepared those graphs based on Ameren Missouri's load research data that was provided as a direct work paper which I did the requested calculations that were in the Commission's order directing a filing. And then I reduced that information to the graphs that were presented.
 - Q. And going back, what information from Ameren was it based on?
 - A. It is based on the -- the hourly load research results for the indicated period, and I will defer now to what is on there. I forget if it was test year or test year's updated at the -- at the generation voltage at the class levels indicated.
 - MR. KEEVIL: Okay. Judge, I would go ahead and offer Exhibit 182 or whatever I said. I think it's 182.



	Page 390
1	JUDGE CLARK: Any objections to admitting
2	Exhibit 182 onto the hearing record?
3	MR. KEEVIL: And, Judge, that was also
4	prefiled obviously, not as testimony but it is filed
5	in EFIS. So I don't have extra copies, but it's
6	there electronically.
7	JUDGE CLARK: Okay. And I have a copy on
8	me. Has everybody had an opportunity to see that,
9	those graphs?
10	MR. KEEVIL: Yeah. It was filed over a
11	week ago, so everyone it was served on all the
12	parties at that time.
13	JUDGE CLARK: And just for information on
14	this record, these this load data was requested by
15	the Commission that thought it was critical to any
16	evaluation of class cost of service. So with that in
17	mind, if I didn't say it, Exhibit 182 is admitted
18	onto the hearing record.
19	(Staff's Exhibit 182 was received into
20	evidence.)
21	MR. KEEVIL: Thank you, Judge. I would
22	tender Ms. Lange for cross-examination.
23	JUDGE CLARK: And in order of cross as a
24	have it, I have Public Counsel.
25	MR. WILLIAMS: Thank you.



CROSS-EXAMINATION

2 BY MR. WILLIAMS:

0.

make sense issue.

Concern.

1

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

2.2

23

24

25

- Q. Ms. Lange, what's Staff's primary issue with Ameren Missouri's class cost of service study?
- A. Can I seek clarity on if you're asking biggest dollar value difference or biggest concern?
- A. There are -- there are two main ones. I guess if I have to pick one, it's the way that the mismatch between the treatment of low-to-no-cost generating resources costs and low-to-no-cost generating resource revenue. That's the biggest -- that's the -- that's the most glaring, I think, any objective reviewer would say, Oh, geez, that doesn't

But there are, of course, other issues, but that's -- that's the one I just can't wrap my head around how they chose to deal with it.

- Q. What's the secondary concern?
- A. So failing to make -- I guess acting on outdated data in the distribution system when we see things that just clearly don't make sense, not -- not taking a moment to think, Why are we allocating, you know. If I were Mr. Hickman and I found that 2 percent of overhead conductors are secondary, but I



	Transport of Deceasedings
4	Transcript of Proceedings Page 392
1	believed that 10 percent of poles are secondary, I
2	think I would have to stop and say, One of those
3	numbers has to be wrong. They could both be wrong,
4	but I think that just just failing to do that sort
5	of reasonableness check is a big issue as well as not
6	making similar allocations for customers served above
7	secondary as are done for customers served at
8	secondary.
9	I mean, the literal differences are all
10	outlined in my Rebuttal testimony, but those are the
11	ones that, you know, I just think plainly are
12	problematic. As well as not accounting for the
13	demand-carrying capacity of the primary distribution
14	plant. That's just a that's just a shortcoming
15	you can't overcome.
16	JUDGE CLARK: Can I ask you to clarify
17	that, because I just don't understand that. I mean,
18	I don't understand it at all.
19	MS. LANGE: The primary issue?
20	JUDGE CLARK: Yeah. What you said your
21	major concern was in regard to distribution.
22	MS. LANGE: Okay. So the issue with the

MS. LANGE: Okay. So the issue with the minimum distribution plant, and this is something we only learned in 2019. In 2019 we became aware that when Ameren does a minimum plant study of its

23

24

distribution system, it is considering conductors that operate at 12.4 kV. I think I'm getting my units right there; I always have to stop and think of my triangle, so I apologize if I attach the wrong unit there.

But they are saying that the primary distribution system, which is as you drive along the highway, you know, the -- the wires that you see on a pole that are going, you know -- well, I'm trying to -- let me break this down as easy as I can.

The large primary customers and the small primary customers are typically served at primary voltages. So if you think of the sort of big customer that would be served by those classes, that is a primary voltage customer, okay. So do you have a rough idea in your head of that size? So what we learned in 2019 through some DR responses is that when Ameren says, We're allocating out the cost of the distribution system existing, they are doing that at the cost of the poles and wires you would serve — use to serve one of those customers. And now, you use those poles and wires for a lot of other things to be sure.

But when -- in the past when Ameren represented that they had done a minimum size study,



- 1 we thought that meant minimum size study. And a 2 minimum size study is a customer served at, you 3 know, 110, 220 volts. It's a household. garage. It's a -- it's a customer. When we learned 4 5 that they were actually using, you know, these very 6 large components that you would expect to serve 7 thousands of those customers, that's when we said, We can't do this this way. 8 This doesn't make sense 9 anymore.
- 10 And so that's that issue. It is how do 11 we take this system that is designed and built not to 12 serve a single customer, not to serve a single 13 household, a single small business, but is instead 14 designed to be a bulk electric transfer system, how 15 do we say what part of that should be billed to every 16 customer by virtue of that customer existing. That's 17 when we started asking questions.
 - JUDGE CLARK: Thank you for that explanation. I'm sorry to interrupt, Mr. Williams.

No problem.

MR. WILLIAMS:

21 BY MR. WILLIAMS:

18

19

20

22

23

24

- Q. Does that concern exist in the Vandas study that Ameren Missouri relied on for doing its class cost of service study in this case?
- A. So the Vandas study purports to break down



1	Page 395 four four accounts, 364, 365, 366, and 367. The
2	Vandas study, isolated from Mr. Hickman's work paper,
3	you know, as those results were presented, pasted
4	into Mr. Hickman's work paper
5	Q. May I interrupt you first
6	A. Sure.
7	Q before you go on?
8	What are those accounts related to?
9	A. I'm sorry. 364 is distribution, poles,
10	towers, fixtures. 365 is distribution, overhead
11	conductor. 366 is distribution, underground
12	conduit. 367 is underground conductors. And I
13	should say 365 and 367 are conductors and devices.
14	Q. Thank you. If you'd like to continue
15	A. I'll try.
16	Q your response to the prior question.
17	A. So when we talk about the Vandas study,
18	you know, not only is it not filed in the case, what
19	is in Mr. Hickman's main CCOS work paper is different
20	than how Mr. Hickman implemented that study or
21	implemented those results in apportioning out the
22	pieces or the those how he apportioned out
23	those accounts into those different voltage buckets.
24	So if you go back to the Vandas study
25	that's provided in his in the work paper that he



Г	David 200
1	Page 396 doesn't you know, that he then scales these
2	percents, I discussed that in my Rebuttal testimony,
3	but it says, you know, as of 2009 assets adjusted
4	for 1994 data, you know, make up the number, we
5	believe that 5 percent of the assets in Account 26
6	or 365 are operating at secondary and 40 percent of
7	them are operating at primary and the rest of them
8	are operating at HV. And again, I'm making up the
9	numbers there, but hopefully that answers your
10	question and provides some clarity on what the Vandas
11	study does.
12	MR. WILLIAMS: Thank you.
13	JUDGE CLARK: Any cross-examination from
14	MIEC?
15	MS. PLESCIA: No questions. Thanks, your
16	Honor.
17	JUDGE CLARK: Any cross-examination from
18	MECG?
19	MR. OPITZ: No, thank you, judge.
20	JUDGE CLARK: Sierra Club, NAACP, and
21	MCU?
22	MR. THOMPSON: No questions, your Honor.
23	JUDGE CLARK: Renew Missouri?
24	MR. LINHARES: No questions. Thank you,
25	Judge?



1	Page 397 JUDGE CLARK: CCMO is not here. Ameren?
2	MS. GRUBBS: Yes. Thank you, your Honor.
3	CROSS-EXAMINATION
4	BY MS. GRUBBS:
5	Q. Ms. Lange, if you would please turn to
6	your Surrebuttal testimony, and I am specifically
7	going to ask about page 20 of that.
8	A. I'm there.
9	Q. Great. So at line 16, that table that you
10	have there, that is described in your testimony as
11	showing the advance per customer value across the
12	different customer classes. Right? For example, if
13	we look at
14	A. I believe it's customer advances and
15	deposits. It is whatever it was when Mr. Hickman
16	labeled it in his in his work paper.
17	Q. So just to clarify, at line 14 where it
18	describes that the advance per customer value as
19	indicated below and then you have your table, that
20	should be deposits as well as advances?
21	A. It is whatever Mr. Hickman included in his
22	table. I think the sentence before that has the full
23	term. I'll defer to whichever of those is the more
24	accurate, as I believe I indicated in my deposition.
25	MS. GRUBBS: Thank you. Those are all my



- 1 questions, your Honor, at this time.
- 2 JUDGE CLARK: Thank you. Any Commission
- 3 | questions? I hear none.
- 4 COMMISSIONER HOLSMAN: No questions,
- 5 Judge.
- 6 JUDGE CLARK: Thank you, Commissioner
- 7 | Holsman.
- 8 QUESTIONS
- 9 BY JUDGE CLARK:
- Q. Before we delve into other stuff, what you just explained to me about using customer

 infrastructure not designed under the minimum use to serve one customer, but as you said, serve thousands, so it sounds like the study does kind of an overreach there.
- 16 If what you're trying to do is find the Α. 17 minimum system that would exist if all customers were the smallest size a customer reasonably would be, 18 19 which I think is what the minimum distribution system 20 sounds like it's trying to do, using a primary 21 voltage is not a reasonable place to start. 2.2 it's -- I guess it's an overreach in the extent that 23 it's not what a rationale utility would ever do and 24 it's not a reasonable exercise an analyst would take 25 to take to estimate something in lieu of -- because



Page 399

sometimes in ratemaking we have to say, We know this isn't how you would do it, but we're going to make some assumptions to come up with what a relative cost ought to be. It's not a reasonable way to do either of those things.

1

2

3

4

5

6

7

8

9

19

20

21

22

23

24

25

- Q. And that leads me to two additional questions. What would you cite to as a source for the -- for the idea that it is unreasonable to use that primary voltage?
- 10 I believe in my Rebuttal testimony I went Α. into quite some detail pulling from the NARUC manual 11 12 that it's not reasonable. I would say that more 13 recent publications such as the RAP manual, 14 Regulatory Assistance Project manual, say that 15 minimum distribution system is a bad idea to begin 16 That it's not a question of how you do it; with. 17 it's a question of it's just not an appropriate thing 18 to do.

And, in fact, that's been the trend.

Missouri has moved away from minimum distribution,
certainly for customer charges. We've been using the
basic customer approach for quite a while now in
Missouri. And there's -- there's really not a reason
to continue to artifact of that in distribution
allocation either.

- Q. And why is the minimum distribution study inappropriate?
- A. So why is it an inappropriate study to do or is why is the way that Ameren did it inappropriate?
 - O. The first.

- A. It's an inappropriate study to do if you don't have the data to do it reasonably. So if you think about it, the minimum distribution study is asking if we were just running extension cords from everybody's, you know, from all of our power plants to all of our end-use customers, what would the cost of that be. That's effectively what -- you know, and if you want to take it in, into specific utility terms, if we were running the smallest pole we run and the smallest conductor we run, what would that cost be.
 - Q. And that would be what Mr. Wills was talking about when he indicated the system minus demand?
 - A. Well, except the problem with that is -sort of. But what Mr. Wills, the way his testimony
 was presented in the context of the Ameren study was
 incredibly misleading. So as we just said, that
 demand that would be served by what Ameren used as

Page 401

the minimum system far exceeds what 90 percent of the customers on the system can physically take.

2.2

If you ran a primary voltage line into a Subway restaurant, you'd have a fire, you know.

That's -- so what NARUC talks about is if you're going to do a minimum distribution system, you have to account for the demand that is served by the minimum distribution system. And so when it says that, what it's assuming is that you're using effectively what a service line would be for a residential or an SGS customer, and a small residential or SGS customer at that. Because that is the smallest level of infrastructure that you can use to serve a customer's load.

But what Ameren does is because services are recorded in one account and overhead conductors and devices are recorded to a different account, which that's fine, but what it does because of that is it sizes its minimum at far above the minimum. So, in other words, adjusting for demand, you would end up with a negative number.

Q. One of Staff's complaints about the way

Ameren did their class cost of service study was that

it didn't comply with the NARUC manual that they say

authorizes it or promotes it should I say. Is that

the major reason that Staff believes that it doesn't comply with the NARUC manual?

A. There are multiple failures. And to be clear, there's no statute or other requirement that, for a distribution study, you're in strict accordance with the NARUC manual. But what we did is we said, Is what Ameren is doing making sense. The answer was no. And it was, Well, is there some other entity out there that is -- it's in the NARUC manual that says it makes sense. And the answer to that was no.

If you'll -- if you'll give me a moment, I can give you a more specific -- looks like it's at page 34 of my Rebuttal testimony where I kind of walk through where NARUC has -- the manual contains specific instructions on how you would apply, you know, these factors when you're doing a minimum distribution system study that Ameren didn't do. And the reason I had to go back to NARUC instead of using something more recent like RAP is the RAP manual simply says, Don't do a minimum distribution study.

- Q. Has Staff attempted to quantify what I'm -- what I'm, for lack of better terminology, the degree of overreach?
- A. So, yes. So we have -- what I've done in my Rebuttal testimony at page 52, so I say, You can't



Page 403

1 fix -- you can't fix everything Ameren's done wrong 2 essentially, but if you address the ones that we can 3 address, that you'll end up with these CCOS results. And so at page 52 at line 10 I provide a chart where 4 5 I have taken the Ameren results and adjusted the production and distribution allocators to correct for 6 7 those examples that I lay out in my testimony. 8 under those results you get, if you look at the 9 bottom line of that table, it's all on row ten, but 10 this is right next to the number ten, it'll say, 11 Under, paren, over contribution, paren, Staff

So this is taking the results and correcting them for those very significant issues. And when we do that, the party -- the classes all fall within that 10 percent band that would indicate to Staff that results are as close as we can expect in a CCOS study. And you don't tinker with results that are within 10 percent of correct has been Staff's policy for at least the last 30 years.

12

13

14

15

16

17

18

19

20

21

22

23

24

25

percent.

Q. Okay. Let's get away from Ameren's class cost of service study.

Now, Ameren's termed Staff's approach as novel. And I'm going to ask you a question that I've asked several of the other witnesses which is what is

modern rate design?

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

2.2

23

24

25

A. I think that in the year 2023 modern rate design is actually getting around to doing what we've been talking about in detail since 2017 and conceptually for a long time before that. And that was a somewhat vague answer while I try to find the cite back for where I tried to lay this out in my testimony.

So we had an EW case, a working docket case to deal with distributed generation a number of years ago. And in that filing Staff laid out its recommendation of the steps to take to modernize rate structures and rate design. I'm hoping it is at page 60 of my Rebuttal testimony based on the table of contents I just looked at. But essentially it is the concept of you have -- across classes you end up with customer charges that collect customer costs, facility's charges that collect facility's costs. And then what you probably end up doing is having -these may be combined on a bill, these may be combined on a tariff, but where you're studying over time energy costs and demand costs and using those to come up with a time-based rate. And it is not at page 60 as I had hoped.

But that's foundation of it is is those



Transcript of Proceedings Page 405 1 are -- those are the costs -- those are the rate 2 elements that you're trying to cost out across 3 classes. 4 But you believe that's in your Rebuttal 5 testimony? 6 Α. That's what I'm checking, if it's in my 7 Rebuttal or my Surrebuttal. It was in this EW case, 8 you know, quite a while ago, but I'm looking for my 9 specific -- sorry. I have some -- when I printed it, I put things -- I told it to do short edge instead of 10 11 long edge or long edge instead of short edge and I'm 12 paying the price. Page 38 of my Surrebuttal. Again, 13 I apologize; I have a lot of papers. It would be 14 silly if I put it in direct, but I'm wondering if 15 that's what I did. 16 MR. KEEVIL: There's a section on rate 17 modernization on page 38 of your Surrebuttal. 18 MS. LANGE: That wasn't it. 19 MR. KEEVIL: Okay. 20 That's what I thought was it. MS. LANGE: 21 I apologize, Judge. I'm confident I can provide 2.2 an exact citation of that, but that -- what I just 23 described are essentially what those -- what those

elements are.



24



Page 406

- Q. But it is in your testimony in this case?
- A. I am confident it's my testimony in this case. I am just struggling to find it right now.

2.2

- Q. Okay. Well let's move on. Would you say that rate modern -- that what Staff's attempting to do in this case is rate modernization?
- A. Staff is attempting two things. We're attempting to get the information that we need to develop those sorts of rates, and we're also through the TOU overlay for C&I customers, attempting to get that information about how those rates might impact them into the hands of customers. So I think what we're doing in this case is we're laying the groundwork that's going to be needed to make good choices as time goes on.
- Q. Now, bear with me just a second. In your -- in your Direct testimony you're asked, For the purpose of this case, should the relationship between these elements within the rate schedule be maintained. Yes, the inclusion of -- and to get to the part that kind of stuck out to me. For the current non TOU SGS, LGS, SPS, and LPS rate schedules Staff recommends minimization of intraclass revenue responsibility change for the nonresidential, nonlighting classes in order to mitigate unexpected



- bill volatility as Staff's recommended time-of-use overlay is introduced.
 - And I'm kind of left wondering why -- why would we do something that is going to introduce volatility into the business classes?
 - A. We are not intending to introduce volatility. And if I could, maybe clarify something my counsel said in opening statement.
 - O. Please.

A. So in opening statement we indicated that given the revenue requirement stipulation that was agreed to, that we are not opposed in this case to going with an equal percent across the -- across the board increase to the rate class revenue responsibility. And that would be coupled with introduction of this overlay.

We so feel that getting this time-of-use overlay out there and onto customer bills, getting them that information about their usage, getting Staff and all of the parties' relevant billing determinant information, we feel like that can take a priority over, you know, bringing these -- these relatively minor differences in class cost of service results -- again, bearing in mind, CCOS, if you think it's accurate within 10 percent, you're wrong -- that

- we think that prioritizing getting that CCOS overlay out there makes a lot more sense than tinkering with class revenue responsibility or with the rate design recommendations that Mr. Chriss has brought out.
 - Q. Thank you. If you're trying to mitigate unexpected bill volatility, where would that volatility come from then?
- A. Could you direct me to where you are reading that from?
 - Q. Page 39 of your Direct testimony.
- 11 A. Page 39. Okay. I just wanted to make 12 sure I didn't --
 - Q. Starting with line 9.

A. So we're recommending minimizing revenue responsibility changes to mitigate unexpected bill volatility. So in other words, if you just followed CCOS the way that Mr. Brubaker and others say of saying we take our CCOS results and we apply X percent of what we think the change is, I don't think this is the case to do that. I think that that would introduce too much bill volatility.

And so instead of trying to go all the way to CCOS results, I'm saying -- at this time I said, We make some movement, but we focus on getting this time-of-use information out there. And at this

- point, given the overall responsibility -- or I'm
 sorry, given the overall revenue requirement
 increase, I'm saying, Fine, we'll just kick that out
 the window and we'll focus on rate design and getting
 this overlay out there.
 - So I apologize if my answer was both lengthy and unclear either in written or spoken form.
 - Q. No. It is clarifying to me on a lot of things. And if I misunderstand this, please correct me. My understanding from Staff's approach in this case and their class cost of service study, this is an attempt to more closely align the infrastructure, the utility infrastructure to the class that is most using that infrastructure. Is that correct?
 - A. It is correct, but it's important to understand this is only an interim step. And if I may, explain what I mean by that.
 - O. Please.

A. So for the last 130 years, class cost of service has been taking monthly bill data at best and handwritten records in many cases and trying to reduce that without a spreadsheet, without computers into a reasonable bill or into reasonable rate elements to charge customers. So when analysts talk about customer-related, demand-related,



Page 410

energy-related cost types, that's silly. No -- no cost that we allocate is purely any one of those, other than maybe meters, and any analyst who will tell you otherwise is wrong. They're -- many are a mix. Many are none of those.

2.2

So what Staff is wanting to do is to get the data to do a ground-up study. To say, What is the cost of serving a customer with these characteristics, regardless of what rate schedule they're served under.

So we want to, you know, not in this case, but what we hope to do through rate modernization and through future cases as that data becomes available is to look at what are the actual costs of serving customers of a given size, a given voltage, a given, you know, various sets of characteristics that could be considered in a good workshop. What are those characteristics and how do we build those into revenue responsibility.

So to say these are the classes, let's come up with revenue requirements for each classes and then let's come up with rate elements to recover those within the classes is really where we're missing some of the similarities and differences that exist across classes. Because none of the classes

are as homogenous as a CCOS makes them appear to be.

And that's a big driver of the weighted energy

allocator use for distribution that has been very

misrepresented by witnesses in this case.

2.2

- Q. You indicated that Staff has been trying to get information to do this. Is this the information that Ameren says they either don't have or can't get?
- A. To a large extent. And I think that this is something that would appropriately be considered in a rate modernization workshop. I think that if we use that workshop as an opportunity to involve the Commission in the calculation of a few CCOS studies, because in my opinion the best way to do a CCOS study is to do three or four of them and see where you have consensus and see where you have divergence and use that to inform your costings. I think that the -- a good collaborative approach in a workshop environment that can involve Commission input.

But what we've really struggled with with Ameren, and to be blunt with some other utilities as well, is we don't know the universe of what information exists. So if we ask a general data request, we're told, Well, we don't have that; ask something more specific. And then when we're told,



1 you know, Well, here's a more specific data request.
2 We're told, Well, that's too specific; that's not

2.2

what you really want.

- I think that a workshop environment with an open, robust exchange of information is a good way to ferret this out and get results that are reasonable from any perspective.
- Q. And that would be the supposed upcoming rate modernization?
- A. I think that that is limited to nonresidential rate structure. I would suggest it should be broadened to all rate structures and all rate classes.
- Q. I want to step back to something you said there that kind of caught me. You said that you like the idea of doing several class cost of service studies and seeing where there's consensus. Is there any areas where Staff's class cost of service and Ameren's class cost of service are in consensus?
- A. Well, so the two studies in this case are starting with different revenue requirements, which is an area that would be cured if we're starting with a new CCOS in a new docket. But just to maybe understand what may be a misconception, in a class cost study for a vertically-integrated utility, you

	Page 41
1	allocate distribution costs, you allocate production
2	costs and energy costs and revenues, and you allocate
3	sometimes some billing and some class-specific
4	customer costs. And then everything else is just
5	grossed up off of those costs.
6	So to say that we allocated two different
7	things differently, honestly in the range of CCOS
8	studies, our results aren't that different. You
9	know, we're following the same trend of what classes
10	are overall higher, what classes are overall lower.
11	That said, Staff's is far more in line with what
12	Mr. Hickman has presented as averages than Ameren's
13	is.
14	But, but outside of those two areas, you
15	know, those are really the only two areas where
16	where decisions are made about how to allocate. At
17	this time everything else is virtually grossed up.
18	And I would encourage you to take a look at page 9 of
19	my Direct testimony. So at page 9 of class cost of
20	service Direct testimony I have a chart,
21	Functionalized Ameren Missouri Cost of Service.
22	Q. I see it. It's the above and below line?
23	A. Yes. And so if you look at Production,
24	there's a lot of costs there, but there's also



25

that's the above the line, but there's also a lot of

offsetting revenues, that's the green below the line.

So Transmission, I did overlook

Transmission. What I said, At this time Staff and the Company both allocate that on a 12 CP. That is consistent to how we allocate that.

And then there's Distribution. And those -- those are big buckets of costs to be sure, but if you look at this Other and General, that's a nontrivial amount of cost that gets allocated out.

And that is -- that's simply done by grossing up how everything else was allocated.

And so, you know, when -- when we have little disagreements on billions of dollars, it appears as a very big disagreement.

- Q. The class cost of service approach that Staff is doing this time, is the first time that Staff has attempted to do a class cost of service study this way?
- A. So every case we're responsive to the data available in that case. For Production what we're doing here is very, very similar to what we did in the Empire case, which we used the hundred highest hours to allocate the nonvariable cost -- or the -- sorry. In Empire we used the hundred highest hours approach for the portion of the production capacity

2.2

that we used the RA hours approach in this case.	So	
under NARUC that falls under the same methodology	of	
identification.		

We're doing the same thing with renewable and low variable cost resources in this case that we've done in at least the last -- for sure the last Evergy cases and the last Empire cases; it may have been before that. And really all of this is an outgrowth of the detailed BIP method that we've been doing since about 2014.

So, you know, we -- for production, no, this isn't -- you know, is it literally the same exact allocation. No. But if you go if you go back to what Staff was doing in 1985 which is the last time TOU made its way up to the appellate -- or I'm sorry, the last time the cost allocation made its way up to the Supreme -- or the appellate courts, what we're doing in this case looks a heck of a lot like the Staff TOU, that's what it was called in that case, the TOU method. Capacity utilization method is another name for it. We're not breaking new ground unfortunately to the extent that it's represented we are on the production side.

On the distribution side, I can say without hyperbole having done -- having been involved



Page 415

either as an attorney or a staff person in Staff's CCOSs since about 2007, we're doing now what we thought we were doing in 2007. We've learned things since then that the information we're getting from Ameren isn't what we thought it was, and so we're responding to that.

2.2

Now, there are two exceptions to that.

One of those is in treatment of distribution
generation. So what I mean by that is community
solar and landfill gas is generation that's cited on
the distribution system. Were that recorded in a
production plant account, the transformers and
switches associated with that generation would be
recorded in the account with it. Because it is not,
it's recorded in a mass asset account, we have done a
separate allocation to deal with that.

And, you know, I said two things, but I think really that's the only thing that we're doing different that isn't what we thought we were doing historically. We've learned some things about contents of service accounts. We've learned some things about the Vandas study. We've learned some things about what is in a minimum study as Ameren represents it.

Q. Given what you've said and what I've



- looked at, just to give you kind of an overview of
 what I see, it looks like Staff is requesting a lot
 of what Ameren's termed granular information with the
 idea of being able to more closely align customer --
 - A. No. So Capacity Utilization is the name of a historic production allocation study.

what did you calling it -- capacity utilization?

O. Uh-huh.

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

2.2

23

24

- A. This is the customer specific -- what I think you're referring to is what has been called the customer specific infrastructure issue.
- Q. Thank you. That is a much better term and I think I can remember that. The customer specific infrastructure?
 - A. Uh-huh.
- Q. Is that correct? So I'm looking at this and it looks like Staff is requesting all this granular information that they don't have in order to better do this. And it looks like you've indicated that they're -- on the other hand here you have recently discovered that the -- that some assumptions that Staff made about how Ameren was conducting its study were, in fact, wrong. And so this appears to be somewhat of a response to that to kind of reign it in a little bit.



1	But the problem, the thing I'm having
2	difficulty getting over at this point is you called
3	it an intermediate step and it it looks to me more
4	like fumbling in a direction in the dark without some
5	necessary data, kind of knowing which direction
б	you're going but not really having the data to do
7	this. So I guess the question I'm left with from
8	that overview is why would why would we do this
9	now? Why wouldn't we do why wouldn't the
10	Commission order Ameren to give you the data you want
11	and then do this next rate case?
12	A. I
13	Q. Why are we doing it in this rate case?
14	A. So to be blunt, while I disagree with
15	fumbling; I think we've done a little better than
16	fumbling, I
17	Q. Not the best choice of word, sure, I'll
18	give you that. But you understood what I meant?
19	A. I do. And I don't entirely object to
20	that. I would submit the rate what I would
21	suggest, and I haven't discussed this with my
22	counsel, so I'll be prepared to be yelled at. You

could order what we've asked for under the data

retention and hold it in abeyance if you will.

say, Ameren, file this information by the next rate

23

24

case unless you adequately address these concerns through the fair exchange of information at a rate modernization workshop.

2.2

And I have -- you know, this isn't -- this is nothing new and groundbreaking, but I have, you know, the things that I think are bare minimums that we would need to facilitate that workshop, and I think that that's the sort of information, I believe it's largely contained in my position -- in Staff's position statements and it's all outlined in my testimony, but I think it's maybe in some more user-friendly language here.

But I think that if the Commission --

- Q. When you say here, what are you referring to?
- A. I'm referring to a thing I printed out over lunch that my counsel hasn't looked at.

But I think that if something like this were ordered for Ameren to have available at the rate modernization workshop, that works for me. And if there are things in here that Ameren says, Well, this isn't really what you want, here's what you want instead, we love hearing that kind of thing. You know, we don't know what we don't know, so we've had to -- I liken it to if you walk into a McDonald's and

	Transcript of Proceedings
1	Page 420 you have to order by Value Meal number but there's no
2	menu, you know. So I say, you know, Hey,
3	Mr. Hickman, give me a Number 5.
4	Oh, you don't want Number 5.
5	Okay. Well, then can I have a Number 4.
6	No. No. No Number 4's.
7	You know, well, tell me what you have and
8	I can work with you on seeing what meets our needs.
9	So so, again, this has not been reviewed by my
10	counsel, so my apologies, Mr. Keevil, but this is
11	what I would view as the bare minimum what we would
12	need to have a reasonable exploration of how these
13	costs are allocated to customers and to classes.
14	Q. Thank you. Well, unfortunately you're on
15	the witness stand, so what would that minimum
16	information be?
17	A. I think you could, putting my Staff
18	counsel hat from a decade ago back on, I think if
19	you'd like to, you could instruct this to be marked
20	as an exhibit. And I doubt that my counsel would
21	object to its admission.
22	Q. I don't think anybody's seen it yet.

- 23 | That's the difficulty there and I want --
- 24 A. Sure.
- 25 Q. -- everybody to have an opportunity to



look at it before we do that.

2.2

A. Well, I can represent -- I can describe it in a way that I think will -- so I could read it in if you'd like, but this is, I believe, one of -- I believe the -- so the cost by account data request that I've submitted to Ameren, it's the table from that. And it is the -- the second page of this is I think almost verbatim from my position statement; it just didn't have times in it. And so this has -- this has language like, Beginning immediately and in its next rate case and that sort of thing.

But to be clear for what I'm suggesting the purpose of this would be, in lieu of the, Beginning immediately and in the next rate case language, it would be, This is what we would want to see to facilitate a rate modernization workshop.

- Q. I'll leave it to your counsel if they want to try and enter in -- it in. I'm not going to order it; I think that would be inappropriate, but if you do want to just tell me what you -- what the information is you believe you need, we can start there.
- A. So, sure. And again, this is going to sound more exhaustive than it is.
 - Q. And this is the minimal information.



Correct?

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. Yes. And to be clear, this is I think -I think it would be good to have an embedded cost
view on these, and I think it would be good to have a
marginal cost view on these.

So what I'm describing is a table. And so going across the top, we have a row that is -- or a column that is type of information and then we have Account 360, 361, 362 all the way through 370.

And so the intent would for each of these accounts, what would Ameren typically record for the cost of a mile of HV overhead line. What would Ameren typically record for the cost of a mile of HV underground line. And that -- that, What would Ameren record, will be the same throughout all of Cost of a mile of primary overhead line. Cost of a mile of primary underground line. of a mile per secondary overhead line for approximate 270 to 600 volt service, three phase. Cost of a mile of secondary underground line for approximate 270 to 600 volt service. Oh, sorry. That -- one was overhead and this one's underground three phase. Each of those again, but for single Each of those again at three phase but phase. for 110 to 240 volt service, overhead. Each of those again but for 110, 240 volt service single phase underground and overhead single phase.

cost of adding a customer served overhead at 120, 208 volts. I don't think that should have said 208; I think that should say 240 volts. Cost of adding a customer served overhead at 120, 240 volts. Cost of adding a customer served overhead at 277, 480 volts. Cost of adding customer served overhead at 4 kV. Cost of adding a customer served overhead at 12 kV. Cost of adding a customer served overhead at 13.2 kV. Cost of adding a customer served overhead at 13.2 kV. Cost of adding a customer served overhead at 13.8 kV. Cost of adding a customer served overhead at 25 kV. And then each of those again but for underground.

Q. Thank you.

A. And then the second page of that, I won't read it because that one is from the position statement, but it is -- I think -- I think it's in the position statement as, Here's what you need for a rate modernization workshop.

MR. KEEVIL: Judge, I'm somewhat at a loss here, but the -- let me ask -- if I could ask

Ms. Lange a question or two and then offer to introduce this as an exhibit, just to make things clear. Because I think that's going to be a lot



1	Page 424 clearer than having to read it in the transcript,
2	especially if it's taken from the position statements
3	anyway.
4	JUDGE CLARK: Any objections to
5	Mr. Keevil asking a few questions?
6	MS. GRUBBS: Well, I guess it can't wait
7	until redirect?
8	JUDGE CLARK: I think it would be fine
9	for it to wait until redirect.
10	I'll remind you when we get there.
11	BY JUDGE CLARK:
12	Q. Okay. Let's move on to a different
13	subject for a bit. On page 52 of your Rebuttal
14	testimony you indicate there is a table. And on
15	lines 9 to 10
16	A. If you'll give me one moment, I'm trying
17	to find my Rebuttal. Sorry. Okay. I'm sorry. What
18	page?
19	Q. 52.
20	A. Yeah.
21	Q. You indicate with the table on lines 9
22	and 10 that the reduction and return based on Staff's
23	revenue requirement reduces the class contribution
24	percentage to where Staff, as an alternative, would
25	agree to equal percentage increases to all the



	Transcript of Proceedings
1	Page 425 classes other than customer-owned lighting. Is that
2	correct?
3	A. I am not seeing that on my Rebuttal at
4	page 52, but I think that that is an accurate
5	statement.
6	Q. I'm sorry if I have the page incorrect.
7	Let me see if I can find that.
8	A. Perhaps if you just ask your next
9	question, I may be able to answer it without the
LO	reference.
L1	Q. Now, the stipulation as put forth by the
L2	party agrees to \$140 million revenue requirement.

party agrees to \$140 million revenue requirement.

And I guess my question, and you may need the table for this, is how would it change the percentages on line 9 and 10 of that table? So you may need to find the table anyway.

13

14

15

16

17

18

19

20

21

2.2

23

24

- A. Okay. So the table, yes, that is the table being referred to there, just the language I didn't catch.
- JUDGE CLARK: And I'm picking up some background noise from the Webex if somebody's got it not muted, you might want to mute.
- MS. LANGE: So unfortunately you cannot adjust the results of a CCOS in that matter with any expectation of accuracy. The premise of a CCOS is



- 1 | that rate base and expenses are allocated differently
- 2 | to classes, so you can't just sort of lob off a
- 3 | percent similar to the exercise Mr. Brubaker
- 4 | attempted to achieve reasonable results. It's --
- 5 | it's just not how you can use percentages.
- 6 BY JUDGE CLARK:
- 7 Q. Now, you had indicated you did think it
- 8 | was correct that Staff would agree to an equal
- 9 | percentage increase in all classes other than
- 10 | customer-owned lighting. Correct?
- 11 A. Yes.
- 12 Q. Is that still Staff's position as an
- 13 | alternative?
- 14 A. So it's Staff's position so that we can
- 15 ensure minimization of customer volatility for our
- 16 | recommended C&I rate structures. You know, depending
- 17 on the robustness of the rate modernization docket,
- 18 | it might not be a bad idea I guess in general. But
- 19 | really we're recommending that in order to -- to take
- 20 away that concern about customers being impacted by
- 21 | the time-of-use overlay for C&I customers.
- 22 Q. So is that a yes?
- A. I'm sorry, can you -- I don't mean to be a
- 24 pain. Could you restate the exact --
- Q. With the exception of customer lighting,

- is Staff still okay with equal percentage increase?
- 2 A. Yes.

2.2

- Q. Now, you were here for -- there were some bench questions Mr. Hickman on the 4 NCP method. Do you remember those?
 - A. Yes.
- Q. Do you remember how Mr. Hickman answered those questions?
- A. A lot of discussion has happened since then. If the premise is do I think that the A&E 4 NCP is a reasonable allocator to use for Ameren Missouri's production fleet in this case, the answer is no, I don't.
 - Q. I think I asked five questions and one was, you know, has Ameren used the 4 NCP method for the last decade. Does the 4 NCP methodology include any consideration for renewable generation plant characteristics that are different from base load generation. Does the 4 NCP methodology include any considerations or use of AMI data that can differentiate between rate class energy consumptions during the hours of the day. And that appears to be my last question.
- A. Yes. And those are actually really good questions. And in general I think I disagree with



Mr. Hickman's answers to those.

So I -- I would say that calling the A&E 4 NCP a traditional method is kind of like calling the Dave Matthews Band a traditional band. You know, they were popular in the '90s and you've got a couple people who are really loyal following right now, but that doesn't mean that's all that's on the radio. You know, it -- Missouri's never really been an A&E state. I agree with Mr. Marke's characterization that some groups come forward with those.

But it's important to understand that you do get very different results in various cases with an A&E 4 NCP, an A&E 4 CP, an A&E 1 CP, an A&E 12 NCP. I mean, there are all sorts of different flavors of A&E studies. And various ones have been used. Various BIP methods, Base Intermediate Peak methods have been used. You know, the average in peak or the peak in average, depending on who you're talking to, has been commonly thrown around.

But going back to 1985, I can tell you that the Commission has never affirmatively said in an Ameren order, Golly, gee, we think this A&E study was great. There have been a couple studies where they said, Well, this A&P study didn't make sense, so we're going to use the only thing that's left. But I

Page 429

am not aware of an Ameren case for the Commission where they have said, We think this is the right way to do it.

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

There have been cases, I believe three at most since 1985 -- so in 2010-0036, the Commission threw out a couple of studies and was left with A&E In '85, ER-85-17, ER-85-160 the Commission studies. approved the Staff TOU method and rejected the coincidental peak and peak responsibility methods. The peak responsibility method is another name for the A&E that preceded the publication in the NARUC And then in this most recent case the manual. Commission made the statement in looking at CCOS, These differences would only be relevant if the Commission were relying on these differences in making its decision about how to allocate the rate increase to the rate class, which it didn't.

So I think that part of the shortcomings of the A&E, and some of these apply to CCOS studies in general in the area of production allocation, but the A&E with the way that we get load research from Ameren does a really terrible job of dealing with solar and net metering. You're effectively going to be billing classes that are contributing generation for full production. You're not giving them credit



for that generation they're providing. It's pretty terrible in dealing with demand response events that have been called through MiA or through other demand response activities.

It's at odds with what the utilities have been telling us about why they're adding generation capacity. And specifically here, to go to the Ameren Boomtown case, we had Mr. Arora testify that -- if you'd like me to read, I can read; if you'd like me to paraphrase, I can paraphrase.

Q. Paraphrase.

A. In Boomtown Mr. Arora testified that
Ameren needs energy as well as capacity as well as
ancillary services and the paradigm of planning has
shifted and so they're now looking at energy and
capacity separately and ancillary services
separately.

And in general it just makes more sense to look at how the system is both operating today and how we got to the position we're in. And that's where across the utilities in Missouri we've gotten to the current fleets in very different ways. And Ameren is a unique utility in that respect.

Q. To change subjects again, I've asked a couple witness about paragraph eight of the

- 1 | stipulation and agreement in case ET-2018-0132
- 2 | regarding whether Ameren Missouri has complied with
- 3 | that provision of that stipulation and agreement.
- 4 | And I -- Ameren -- Mr. Wills indicated that Ameren
- 5 | had and that they had retained that data. I'm going
- 6 | to ask you the same question. Has Ameren complied
- 7 | with that -- that part of the stipulation?
- 8 A. No. What they were able to provide to us
- 9 | in a response to 591 does not comply with that
- 10 | stipulation and it certainly isn't in a form that's
- 11 | been discussed with Ameren -- or with OPC and Staff
- 12 | even if it was the appropriate data.
- 13 Q. And why is it not the appropriate data?
- 14 A. Well, what we can tell of what it provides
- 15 | is that it does not clarify what the contribution
- 16 | actually was, whether that contribution -- I guess,
- 17 one, it's in a bunch of separate pieces that you have
- 18 | to kind of mix and match across data sets to fit
- 19 together. But from what we can tell, the dollar
- 20 | values presented, it's unclear what those dollar
- 21 | values are representative of. And it certainly isn't
- 22 giving us any sense of the total dollar value and
- 23 | the -- the portion actually contributed by the
- 24 | customer, how those two relate to each other.
- 25 Because if you go back to that ET case,

Page 432

- 1 this data was supposed to enable us to audit whether
- 2 or not their line extensions costing were making
- 3 sense. And if you only have one dollar value ever,
- 4 you really can't evaluate a heck of a lot with that.
 - Q. So it was insufficient for its purpose?
- 6 A. Yes.

5

12

14

15

16

17

18

19

20

21

22

- Q. On page 17 of your -- I'm sorry. On
 page 14 of your Direct testimony at line 17, just a
 clarification question. Should Account 346 actually
 be Account 364, poles, towers, and fixtures?
- 11 A. Almost certainly. Yes.
 - Q. So that would be a correction?
- 13 A. Yes. My apologies.
 - Q. I asked Dr. Marke that disregarding what the actual proposed customer charge is, what's Staff's position on having different customer charges for different residential rate plans as is being proposed by Ameren in this case?
 - A. As it's being proposed by Ameren in this case, Staff is deeply concerned that Ameren will market the rate plan with the highest bill-risk.

 That is, bill-risk is hyphenated, not highest bill hyphenated.
- We're concerned that customers who are least equipped to deal with high bills will be



	Page 433
1	marketed to the most risky plans. And that's based
2	on Ameren's statements that, you know, if customers
3	are concerned and this was in Ameren this was
4	in Steve Wills' testimony and I also heard him say at
5	local public hearings that if customers are
6	concerned about paying \$13 a month, they should just
7	hop on Ultimate Savers or they should consider
8	hopping on Ultimate Saver.
9	MS. GRUBBS: Objection; I believe that's
10	hearsay, and the record from the transcript or the
11	transcript from the local public hearing will speak
12	for itself.
13	JUDGE CLARK: I'll sustain that.
14	MS. LANGE: To be clear, that was in the
15	question/answer session so it would not be. But I
16	accept that.
17	If you look at my Surrebuttal, I have
18	BY JUDGE CLARK:
19	Q. Well, let me ask real quick.
20	A. Sure.
21	Q. You said that it would there was a
22	danger of putting customers in the riskiest time-of-
23	use plans.
24	A. Yes.
25	Q. What makes a time-of-use plan riskier, one



- 1 | time-of-use plan riskier than another?
- 2 A. So specifically the Ultimate Saver plan
- 3 | has a demand charge component, and that is
- 4 | effectively an add to the customer charge as far as
- 5 | an unavoidable amount once you've used some usage
- 6 goes. And that's what I was hoping to find.
- Q. Is that -- is that the \$25 plan or is that
- 8 | the higher --
- 9 A. It's --
- 10 | 0. I can't remember what the --
- 11 A. It's --
- 12 Q. -- actual numbers are.
- 13 A. It's the \$8 plan.
- 14 | Q. That's the \$8.
- A. Or the -- I'm sorry. Is it -- now I've --
- 16 now I'm misspeaking. I want to make sure I've got
- 17 | the right dollar value. It's the plan that they're
- 18 proposing to have the lowest customer charge.
- 19 Q. Okay.
- 20 A. But from the customers, I reviewed a
- 21 | hundred residential customers to try to see, you
- 22 | know, if you were on this, what would happen to your
- 23 | bill. And what I found was that it was a very risky,
- 24 | from a bill perspective, proposition for customers to
- 25 | qo on that plan. So if a customer's worried about

1	Page 438 being able to spend \$13 a month, this is not a good
2	plan for them is the short answer there. And the
3	longer answer is presented in my testimony, Rebuttal,
4	page 55.
5	Q. Okay. Thank you. Can you open your
6	Surrebuttal to page 6. There's a graph there. And
7	that graph shows the average rate per kilowatt hour
8	under the Ultimate Saver, Smart Saver, and Anytime
9	rates.
LO	A. Yes.
L1	Q. Would you explain that graph to me?
L2	A. Oh, yeah. This is actually the section of
L3	testimony I was trying to direct you towards. So
L4	wherever I said it was, that's not where it is. It's
L5	page 4 of my Surrebuttal. Sure. So what this is
L6	showing
L7	Q. Four or 6?
L8	A. It's starts on the discussion starts on
L9	page 4, but it continues.
20	Q. The graph's on page 6?
21	A. The graph is on page 6.
22	So what this is is I got a hundred
23	customer hourly usages from Ameren for residential
24	customers, and I plotted out what their bill would be



on a per kWh basis and plotted it on this graph, and

that's what that is.

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

18

19

20

2.2

And so you see the Anytime flat rate is that sort of, the gray sort of trend towards the middle. And then -- again, this is a random placement of customers on this rate, so this isn't customer self-selecting. But you'll see that the blue, there are some way above, there are some way below. The orange, there are some above, there are some below. And so that's what we're talking about in terms of bill risk.

So not -- not necessarily -- this is not necessarily a total random sample across the customer classes, but this is removing self-selection that does occur in Ameren's distribution of these plans.

- Q. And just to clarify because I want to -- this is a hundred -- a hundred dots. Right?
- 17 A. Yes.
 - Q. What this is not is this is not showing the same hundred customers' bills under the three rate plans?
- 21 A. Oh, I apologize. This is 300 dots. Yes.
 - Q. Okay. That's what I wanted to --
- A. No, no. I'm sorry. My apologies. Yes, this is 300 dots.
- Q. Okay. So this is showing the same hundred



	Do 20 407
1	Page 437 customers' bills under each of the three rate plans?
2	A. Yes. Yes, it is. I apologize.
3	Q. And were the customers selected randomly?
4	A. So they were the customers that Ameren
5	provided when I requested a hundred random customers.
6	Well, a hundred random customers who have 12 months
7	of TOU data I think is the more accurate way of
8	saying that. Or of AMI data, not TOU data.
9	Q. Do you have any idea how these customers,
10	these same customers would perform on the
11	Evening/Morning saver?
12	A. So the Evening/Morning and the Anytime
13	Saver are virtually on top of each other. I took
14	them out of here because 400 dots is even harder to
15	see than 300 dots.
16	Q. Another question I also
17	A. Oh, I apologize. You said,
18	Evening/Morning Saver. Sorry. There are so many.
19	Yes. Evening/Morning Saver is very similar to
20	Anytime Saver. And the Overnight Saver is very
21	similar to the Smart Saver. Again, not identical,
22	but in the ballpark.
23	Q. Given Staff's proposal to have customers
24	transition to AMI meters within a month or in the



25

next billing cycle from having those installed, how

does Staff picture that education materials would have to be changed to accommodate the shortened time frame?

A. So if I can answer the question you didn't ask. For transition to the Evening/Morning Savers as Staff has recommended, I don't believe anything needs to change. I believe that we order bigger customer impacts all the time. You know, we might be ordering a \$3 customer charge increase in this case with a month's notice. That's a routine thing.

If what you're looking at doing is something comparable to what was done in the Evergy case, what I would suggest, resources permitting, would be to modify the time periods of the -- of the -- I don't want to get these rate plans confused. I would modify the Evening/Morning Saver overlay plan to align with the time periods that you're wanting of a higher differential plan. And I would, starting immediately out of this rate case or upon installation of an AMI meter, I would order those customers onto that lower differential plan with those same time periods and give them a year and then move them to the higher differential plan.

That's not my recommendation, but if you're looking to do something similar to what was



- 1 done in Evergy, I think that's a -- a way to do it 2 that's going to give customers education for what is 3 their actual time periods of usage. It's going to start giving them a mild, you know, maybe a penny, 4 5 maybe a two-penny differential over that time period. 6 But it's going to retain that winter decline block 7 element over that time period to give them an 8 opportunity to make decisions they need to make about 9 what they want to do in future heating and cooling 10 seasons.
 - Q. And for the record what was the question I didn't ask?

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

A. I think the question you didn't ask is would it be the same if it was for a higher differential plan. And I think that if that's the Commission's decision on where to go, that's a decision the Commission can make, I just, I would give customers a moderated price signal for a year so that they are getting a price signal, so that they are getting that information rather than relying on some sort of utility marketing effort. And to the point Mr. Marke raised this morning, you know, that could be confusing with Ameren with different customers in different states of deployment.

So I think that if you're going to do



- 1 | that, I would make a low interval or a low
- 2 | differential rate. Well, we don't need another rate
- 3 | out there. I would modify the existing
- 4 | Evening/Morning Savers rate to a moderate version of
- 5 | where you want the rate to be. And I would order all
- 6 customers with AMI meters onto that rate for a year.
- 7 | Then after that year, you would transition them to
- 8 | that higher differential rate.
- 9 Q. And that would mitigate certainly any need 10 for customer education.
- 11 A. Well, it -- in effect, it would be the customer education.
- 13 O. Yeah.
- 14 A. You're not sending them a separate mailer.
- 15 | You're not directing them to a website. They're
- 16 | seeing, Okay, here's how much energy I used in this
- 17 | time period; here's how much energy I used in that
- 18 | time period. And whether you're going with a
- 19 | three-period or a two-period rate would indicate
- 20 | exactly how you would design that. But you would
- 21 | want to -- you would want your transition rate --
- 22 one, I think you would want a transition rate. And
- 23 | two, you would want it to mimic the time periods that
- 24 | retain the winter decline to -- to ease customers
- 25 | over to that.



I've only got a few more questions. Q. Based on Staff's proposed changes, what residential plans would be available to customers with net metering? So I will say that we've had some turnover Α.

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

2.2

23

24

- in Staff counsel's office, and so I'm not sure exactly legally, although I suspect we could address it in the brief, where we are on that. But I think with how the Evening/Morning rate structure is being dealt with with net metering customers, I think that barring a differing opinion from Staff's counsel, I think that you could modify rate structures of other plans to produce similar rate impacts while dealing with the issue that Mr. Wills has pointed out about the billing period issue. And I think that if you're going to do a mandatory time-of-use rate similar to what was done in Evergy, I think that we would just need to be cognizant of how that's handled.
- Now, the proposed -- or Ameren's Ο. Evening/Morning Saver plan has a peak rate from 9:00 a.m. to 9:00 p.m. every day including weekends. Is that correct?
 - Α. That's correct.
- Is a 12-hour week peak period effective in Ο. reducing customer usage during peak periods or shifting usage from peak periods to non-peak periods?



- 1 I think that presupposes that that's the Α. 2 intent of that time period selection. And one, it's 3 But I do believe it is consistent with that movement. It's probably in and of itself not enough 4 5 to encourage it, but I believe it is at least 6 directionally consistent. And so to the extent you 7 have a customer who's charging an electric vehicle, a 8 customer who's considering precooling their home, 9 prewarming their home, I think that those are 10 elements that, if customers are paying attention, at 11 least it gives them a hint of what to do. 12 Evening/Morning Savers was never intended as a 13 long-term solution. 14
 - Q. Now, you said that wasn't the intent. What do you believe the intent of it was?

15

25

16 To -- well, it's a couple of things. Α. Wе 17 picked up the nomenclature of training wheels. first of all it's just to make customers aware that 18 19 the time at which energy is consumed is a factor. 20 Number two, it's designed to make customers aware of 21 how the energy they use broadly fits in to time 2.2 periods. And number three, it's to begin the 23 alignment of cost causation with revenue 24 responsibility.

Now, when I proposed that rate in 2019, it



- 1 | didn't look like what's on the tariff today due to
- 2 | some stipulations, some differentials were reduced.
- 3 | I think that something more like what we proposed in
- 4 | Evergy with the three-period, I think that makes a
- 5 little bit more sense than the Ameren design does,
- 6 | sitting here today. Now, in the last case we
- 7 proposed some changes to that rate. We were told now
- 8 | is not the time to tinker with it, so frankly I
- 9 | didn't bother in this case. But if I were to tinker
- 10 | with it, I would probably make it look more like what
- 11 | we recommended in Evergy.
- 12 Q. Okay. Given that you said that that
- 13 | wasn't the intent of that rate plan, was to either
- 14 reduce customer usage during peak or shift loads,
- what's the benefit of eliminating the Anytime plan
- 16 | available to AMI customers if the Evening -- if the
- 17 | Evening Savers plan is not to reduce peak usage or
- 18 | shift load?
- 19 A. To better align cost causation and revenue
- 20 responsibility. And I grant you, it's not huge. I
- 21 | would personally like it to be a little bigger. I do
- 22 | think as an interim step to customers who have gone
- 23 | from, you know, a buffet if you will as far as timing
- 24 | goes, that small is good. I do think a training
- 25 | wheels approach is a good approach.

I think Dr. Faruqui has got a little -you know, he's traveled the country talking about
what a great plan Ameren has, you know, that we had
to drag him kicking and screaming into. But I do
think that for a mandatory time-of-use rate that
starting small to give customers information is a
good step. And I do think that this approach that
doesn't just change how customers are billed eight
months of the year is a good one.

And I think -- I think this has probably been lost on the Commission for how information's presented, there are a huge number of the customers on the Smart Savers and Ultimate Saver and Overnight Saver rates who are only paying TOU bills four months of the year. They've opted out of doing that during the non-summer season. And I can give you those percentages. But it's -- it's nontrivial.

In Overnight Savers there are 6 percent of energy sales are not on TOU during the winter. In Smart Savers there's 14 percent that -- of energy sales that are not on TOU during the winter. Oh, and I apologize, Ultimate Savers is year-round. But those are for those two rate plans. There's, you know, that's not nothing in terms of such a small of number of customers to begin with.

	Transcript of Proceedings
1	Page 445 So I guess to expound on answering another
2	question that wasn't asked, you know, if you were
3	going to order and again, Staff is not suggesting
4	you do, but if you're going to order that customers
5	be moved to, for example, the Overnight Savers plan,
6	I think the Commission, to achieve the result they
7	are trying to achieve, would want to clarify that
8	that is without the option to remain on a
9	conventional rate for eight months of the year.
LO	Q. And that's to achieve peak reduction?
L1	A. Well, that's to actually put them on the
L2	rate.
L3	Q. Okay.
L4	A. So you can opt in to Overnight Savers and
L5	Smart Savers in a way that only puts you on those
L6	rates for four months of the year. There's options
L7	under the option.
L8	JUDGE CLARK: Thank you. Those are all
L9	the questions I have. Any recross based upon
20	questions?
21	CHAIRMAN RUPP: Judge, it's Commissioner
22	Rupp.
23	JUDGE CLARK: Oh, I'm sorry.



Can I pop a question in?

Please, go ahead.

CHAIRMAN RUPP:

JUDGE CLARK:

24

CHAIRMAN RUPP: Thank you very much.

QUESTIONS

BY CHAIRMAN RUPP:

2.2

- Q. So the -- we had previous testimony from the Company when they were discussing the, I forget the name now, but the poles distribution study from 2009.
- A. Vandas.
- Q. That was it. Thank you. And the Company had stated that they would be open and find benefit to updating that study and providing that information to Staff in lieu of doing other different data collection. My question is would Staff be -- would Staff welcome an updated version of that study and would they use that, or would it be something that they would still find not as a valuable resource for the planning?
- A. I've got a two-part answer to that if you'll permit. First is it depends. If the study means just literally three sets of percentages by account with no underlying work papers or data, no, we can't just take their word for that kind of thing. And if we did, you probably ought to, you know, hire some staff who do their jobs.
 - And two, another issue that's come to



1	Page 447 light and, you know, I guess a preview of later this
2	afternoon is Staff has some real concerns about the
3	reliability of the actual underlying accounting data,
4	the continuing property record for these accounts in
5	particular. So I think that a study of the assets as
6	reported in a continuing property record is only as
7	good as the continuing property record.
8	So it's hard to say, you know, one, if
9	they would do a robust study to begin with, and two,
10	if the underlying data is reliable. But if they can
11	shore up, you know, those 15 years of missing
12	retirement data and if they can show us their work, I
13	think that could be a reasonable thing to do to
14	answer those questions about the cost of the high
15	voltage system, the primary system, and the secondary
16	system. And those are the only questions that are
17	answered by the Vandas study. Okay. So it's not a
18	fix-all for everything, but that is that is the
19	distribution classification question.
20	CHAIRMAN RUPP: Okay. Great. That was
21	exactly what I was looking for. Thank you.
22	JUDGE CLARK: Thank you, Chairman. Are
23	there any recross questions based upon bench or
24	Commission questions?

MR. WILLIAMS: I have a few.

JUDGE CLARK: Mr. Williams, go ahead.

CROSS-EXAMINATION

BY MR. WILLIAMS:

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

2.2

23

24

25

- Q. Ms. Lange, do you recall whenever you said the class members are not as homogenous as they're treated in class cost of service studies?
 - A. Yes.
 - Q. Could you elaborate on that a bit?
- Sure. And I guess the easiest way for me Α. to explain this is actually to talk about customers who may be homogenous across classes. So let's give the example of a data center. So let's say that you have a data center that uses, you know, a 99.9 percent load factor of energy consumption. Obviously there's going to be differences in a data center that is, you know, operating at, you know, a home office, a small commercial center, a large regional center, and a sort of mega center. Okay. Those are all going to have different customer facilities, but the average cost of energy that they're paying over time ought to be pretty similar. Well, in fact, under Ameren Missouri's rate structure they're incredibly different. Okay.

So if you look at that as here's how customers could be the same and just at different



sizes and they're being billed very difficult under -- under the rate classes, the same is actually true within a rate class.

2.2

So using LPS for example, there are LPS customers who are being billed, you know, below 5 cents kWh on average. There are LPS customers who are being billed almost 9 cents a kWh on average. The LPS rate design is incredibly simple. Once you have a facilities charge and a demand charge, all kWh in a month is billed at the same rate. So there's recognition given to customers who may be operating around the clock. There's no recognition to customers who may be operating entirely off peak.

We are -- we are assuming that this average class load that is presented out of the load research data is representative of individual customers within the class. And frankly, that's just not a reasonable assumption to make, especially now that we have AMI data that proves it's not the case.

- Q. That sounds like you're saying that some of Ameren's current rates are unduly discriminatory for similarly-situated customers?
- A. Well, we don't know what we don't have data for. I -- I suspect that that is the case. Or I suspect that to design good rates would result in



rates that are very different than what we have today, or at least different than what we have today. I certainly wouldn't be proposing any new hours used rate structures in the year 2023.

- Q. There was quite a bit of discussion about rate modernization earlier. Took the opportunity to look through your testimony, and I think you may have omitted explaining what -- how you view that in more detail than what you testified to here. If you'd take the opportunity to, I don't know, either to find it or explain in a little more detail than you did earlier?
- A. So what I mean by rate modernization is using the information that we have available and the billing systems that can exist in today's time frame that are different than what existed, you know, in the '80s and '90s and before and using that to come up with a reasonable customer charge based on the customer-related costs that a customer exerts, a facilities charge that accurately reflects the cost that that customer is imposing on the distribution system, particularly in regard to its customer specific infrastructure, and then some combination of a coincident peak demand charge, meaning demand during what are identified as appropriate peak hours.

Page 451

And I think I threw out in this case an example of that as well as a time-based charges to recover the remaining revenue requirement. Did that answer your question?

- Q. I think so. You referred to billing system information. Do you mean usage, or did you mean something more than that?
- A. So what I mean is in the past -- well, it's kind of ironic. Ameren -- Ameren's one of the biggest utilities and it has about the smallest number of rate classes. So in the past, you know, there was limited information that could be handled in a given month to bill a given customer and complex billings had to be done on a manual basis.

what I mean by that is that it may be, what I foresee happening over the next ten years is where a customer of a given size is charged a particular customer charge based on that size. It's charged a facilities charge multiplying its noncoincident demand by a set rate that may be the same or virtually the same across all classes adjusted only for line losses. It's billed energy charges that may be the same or virtually the same across all classes adjusted only for line losses.

Q. I'm going to turn to something else. You



said that the current fleets of the utilities including Ameren Missouri's differ because of historical differences. Would you elaborate a bit on that?

A. Yeah. So Ameren, you know, the big Ameren rate case that kind of set in motion the rate structures and rate designs that Ameren has today was the Callaway case. You know, in the '80s a framework was laid. It was refined in the '90s. And those rate structures have been in the place since I believe the late '90s.

And since that time we had a -- you know, Ameren acquired virtually no generation, maybe a peaker or two from I believe it was about 1985 until early 2000s, I want to say around 2003 or 2004, when they picked up what are referred to the Aquila fire sale CTs. Which, as the name implies, were acquired less because they made sense to them as a utility and more because they were close by and they were at an affordable price for an international utility that, you know, made international news for going bankrupt.

And since that time we've seen coal plants retire. We've seen renewables being added that, you know, we're not saying they shouldn't be added, we're not saying that they don't serve capacity and



	Page 453
1	certainly in the way I allocated them, their capacity
2	contribution's recognized. But they're not being
3	added to meet a peak capacity, which is the premise
4	that is underlying, you know, what you want to call
5	some historic production allocation approaches such
6	as the A&E.
7	MR. WILLIAMS: Thank you.
8	JUDGE CLARK: Any other recross based on
9	Commissioner or bench questions?
10	MS. GRUBBS: Yes, your Honor, if I may.
11	JUDGE CLARK: Go ahead.
12	CROSS-EXAMINATION
13	BY MS. GRUBBS:
14	Q. Just briefly. To your knowledge,
15	Ms. Lange, are billing units available for the
16	alternative, or I think you called it transition
17	rates or rate?
18	A. The thing that I suggested we ought to
19	develop as an interim step if the Commission is going
20	to enter an order similar to what it entered in
21	Evergy?
22	Q. Correct. That was my understanding.
23	A. No. We'd have to work on those.
24	MS. GRUBBS: That's all. Thank you.
25	JUDGE CLARK: Any other recross based on



1	Page 454 Commissioner or bench questions? Any redirect from
2	staff?
3	MR. KEEVIL: Very briefly.
4	REDIRECT EXAMINATION
5	BY MR. KEEVIL:
6	Q. Ms. Lange, in response to discussion you
7	were having with the judge, if I wrote this down
8	correctly, you made the statement that the weighted
9	energy allocator has been misrepresented by the
10	witnesses in this proceeding. Did I get that
11	basically correct?
12	A. That is certainly true, and I do recall
13	telling the judge that, yes.
14	Q. What can you explain that? First of
15	all what is weighted energy allocator, how's it used,
16	and then how's it been misrepresented?
17	A. So to allocate the cost of the network
18	distribution system, I took the demand of each class
19	from Ameren's load research in each hour and I
20	squared the values of the hour so that what I would
21	end up with is the relationship between the let me
22	put it this way. The hours with the highest demand
23	had the highest rating and the hours with the lowest
24	demand had the lowest rating. And I think that while
25	the parties have seized on, you know, this belief



1	that it's producing an energy result, it doesn't. I
2	can state the differences if that's helpful. But
3	it's not the same.
4	But what it does show us is that when
5	we've had these assumptions for years that have said,
6	you know, well, these classes cause these costs,
7	these classes are peaky, these classes whatever, what
8	that ignores is that some of classes with high load
9	factor well, classes with high load factor, it's
10	not only that they're using energy and hours with low
11	load factor or with low demands, it's that's they are
12	also causing contributions to demand in hours with
13	high demands.
14	And I think the easiest way to look at
15	that is if you rank if you rank the hours from
16	highest to lowest, what you see and when I say
17	that, so you'd have 8,760 hours. You'd have class
18	load in each of those hours at a consistent voltage.
19	And if you rank those from highest to lowest, the
20	highest overall we have is for 613, 22, hour 17,
21	total demand of 6,990,997. Well, in that hour LPS
22	is contributing 515,384; SPS is contributing 585,274;
23	LGS is contributing 1,412,834; SGS is contributing



And while those numbers are, you know,

- 1 they are what they, but, well, let's skip down 2 roughly 50 hours. And I -- I apologize, I didn't 3 number the hours when I pulled my information. But, okay. So let's go to where the total demand 4 5 is 662,328 which is probably 40 hours from the 6 highest hour of the year. We see that LPS has a 7 demand of 518,990. And that's not to say that they 8 should be penalized for having a consistent demand. 9 It's just that if you're looking at a system that has 10 to exist in every hour of the year, I think that you 11 need to start looking at what the requirements are on 12 that. Because it's not just peak demands that drive 13 the distribution planning. 14 And where this kind of ties back into what 15 Mr. Williams was getting at, and this is very 16 important, when you do this on a class level, you do 17 get numbers that aren't too far off of the energy 18 allocators. But if you do this on a customer level, 19 you see huge differences in customers. And this is a 20 method that I developed in costing out distribution
 - So if you want to have a higher differential TOU rate than what Staff has proposed in recent cases, you have to look at costing out of revenue requirement to those hours to reasonably

costs to time periods for TOU rate development.

21

22

23

24

- 1 allocate cost of those hours to see a cost
- 2 difference. And what you find is that, you know, you
- 3 | have some customers who are using exclusively in
- 4 high-cost hours. You have some customers who are
- 5 using exclusively in low-cost hours. And a lot of
- 6 customers are somewhere in between. And that's true
- 7 across all classes which is what gets missed when
- 8 | it's aggregated to the class level.
- 9 Q. You also had a discussion with the judge 10 about, it was actually rather lengthy, about the 11 minimum distribution system study that Ameren has

Do you recall that generally?

13 A. Yes.

12

14

15

16

- Q. And you said something about Ameren's -is this a model or a study? I guess I should call it
 study. Right? Ameren's study is based on a minimum
 distribution system that's primary voltage?
- 18 A. Correct.
- 19 0. What's the effect of that?
- A. The effect of that is that you are
 assuming a per customer cost as though every customer
 were a primary customer. And what I mean by that is
 that if you were building a distribution system to
 serve your house or let's say that the judge has law
 office up the street, you would not run a primary



Page 458

line from a generation facility to that house or that business. You know, that's -- that's why the secondary distribution system exists.

So if you're going to cost out the distribution system on what you're going to claim as what you would build if you weren't serving any customer demand, which is the -- you know, or the minimum level of customer demand, I'm sorry, it should reflect the minimum level of customer demand which would be, frankly, it would be a lighting customer. But realistically it would be a 110, 240 volt secondary customer, not a primary customer.

- Q. So does Ameren's study then allocate greater cost to the smaller use classes than it should or?
- A. It -- if you -- so Ameren uses that portion of its study to decide how much cost should be allocated to each customer, which is aggregated at the class level. So the effect of this study is that you're allocating the same costs to one unit in a triplex as you're allocating to a lead smelter for -- and if you go back to that exhibit we had earlier today, I don't have it in front of me, but for 60 percent of poles and for, I believe it's 57 percent of overhead conductors and devices. That -- that is

the portion that they're allocating based on the number of customers under the premise that each customer should pay the same amount.

- Q. Okay. There was also some discussion about scaling a cost of service study based on percentages or something, some reference to

 Mr. Hickman scaled the Vandas study based on changes in something. What -- first of all what is -- what is meant by scaling the study? And then second of all, how is that done?
- A. Well, I think there's three issues where this has come up. One is with Mr. Hickman's adjustment to the Vandas study results to fit his minimum system study. One is with the adjustment Mr. Brubaker purported to make this morning of scaling his study results to fit a different revenue requirement compensation. And the third is with Mr. Hickman's TH-1 table. And it's the same issue across all of those, which is to say that mathematically you can't adjust an average when the contents that made that average changed and get results that are accurate.
 - So using the example of the Vandas study,

 I believe I outlined this in my Rebuttal testimony,

 but Mr. Hick -- Mr. Hickman didn't, if you will --



sorry, let me see if I can potentially get the right percentages in here. Sure.

So if you look at page 44 of my testimony at the top, we have what are called the Vandas study results. And this is a direct copy and paste out of Hickman's work paper. And in here, in poles he says he has 19 percent HV, 38 percent primary, and 19 percent secondary. Well, if you total those up, there's not 60 percent that's missing, but he find that 60 percent of the poles account should go on minimum system and so then he just adjusts these percentages down.

Well, with these values, if you're doing a minimum system that takes up 60 percent, that wipes out the 19 percent that is allocated to secondary when you just adjust that minimum size that Vandas found in, you know, I guess 1994. You know, when you replace that minimum size with the 60 percent, that wipes out what is here as the secondary percent. That wipes out a chunk of what's here as the primary percent. But instead he just adjusted those percentages while changing what the fourth component of that study result was.

Q. Excuse me. Lot of discussion about the rate modernization workshop or working group. When



1	Page 461 you think of the rate modernization working group, do
2	you see that as an opportunity to perform actual work
3	on actual data, or is it just sort of an academic
4	exercise in your mind?
5	A. I sure hope it's an opportunity to do
6	actual work on actual data. If the intent of this
7	process is to sit in a room and be read a Power
8	Point, I'd submit that's a waste of everyone's time.
9	I think that if we you know, looking back to how
10	some of the working documents were done, you know, as
11	the FAC was being developed, as the MiA rules were
12	being written where people came with their laptops,
13	they came ready to do math, they came ready to do
14	work, I think that that could be a really productive
15	exercise. If it's a, you know if it's a meeting
16	of spreadsheets, great. If it's a meeting of Power
17	Points, frankly it's a waste of everyone's time.
18	Q. All right. How does Ameren's CCOS method
19	coincide with the reality of Ameren's MISO
20	participation?
21	A. It doesn't.
22	MR. KEEVIL: Objection; beyond the scope.
23	MR. KEEVIL: That's well, that's not
24	beyond the scope, Judge. There were tons of
25	questions about Ameren's MISO or excuse me,



	Dec. 40
1	Page 46. Ameren's CCOS study. I'm not limited to bench
2	questions; I'm doing redirect. That's based off all
3	questions.
4	JUDGE CLARK: Go ahead.
5	MR. KEEVIL: Thank you.
6	JUDGE CLARK: That'll be overruled.
7	BY MR. KEEVIL:
8	Q. Ms. Lange, let me restate there or repeat
9	the question. How does Ameren's CCOS method coincide
10	with the reality of Ameren's MISO participation?
11	A. It doesn't. And that's especially true
12	now that MISO has moved to a seasonal capacity
13	construct. Now, there was a brief time kind of I
14	think after testimony closed but before this hearing
15	when that construct was in question. I think that
16	MISO has come out since then indicating that the
17	the auction will be slightly delayed. But as I
18	understand it, 4/18, so five days from now, Ameren
19	will be open or I'm sorry Ameren will be
20	participating in a MISO capacity auction that's based
21	on four seasons rather than one coincident peak,
22	which has been the historic practice.
23	And the way that I allocated the costs of
24	the the cost and the revenues associated with



25

production facilities that are not low/no variable

Page 463 costs net of the capacity contribution of facilities
that are low/no variable costs is explicitly designed
to account for that MISO function whereas what

to account for that MISO function whereas wha 3

- Ameren's doing has been something the industrials 4
- 5 have been pushing since at least 1985 which
- 6 necessarily does not account for that.
- 7 OPC, Mr. Williams of OPC asked you about 0.
- 8 your two biggest concerns I think it was with
- 9 Ameren's CCOS method, and you gave some examples.
- 10 Are there other concerns you have that make Ameren's
- 11 CCOS study unreliable?
- 12 I'm just going back. I know I addressed Α.
- 13 several of them with Mr. Williams; I'm trying to not
- 14 be repetitive.

1

- 15 Oh, you know, one of the biggest things
- 16 and we kind of take it for granted because it's just
- 17 always been this way in utility studies is that
- 18 they're using an around-the-clock cost of energy
- 19 average. And so this is coming from their Direct.
- 20 So they're using a year-round average for the cost of
- 21 Every -- every hour of every day of every
- 22 month is the same cost of energy in Mr. Hickman's
- 23 And that's the cost of actual energy net of
- 24 the revenues they get from selling energy which, you
- 25 know, using their FAC tariffs, they were looking

at 14.48 cents per kWh in the summer and 13.12 cents per kWh in the winter. And those just aren't reasonable estimates of the cost to use for energy.

2.2

So what Staff did is Staff takes the hourly load on each hour and the L&Ps in each hour and it multiplies those two to -- to look at the cost of energy, which seems like a pretty obvious way to solve for the cost of energy. You know, so that one, you know, I don't understand why Ameren keeps doing this when the information to do it better is pretty darn easy to do.

- Q. Chairman Rupp asked you about the Vandas study and certain information that Ameren had offered or something. Are there specific pieces of information needed in that study to make the study useful?
- A. To redo the Vandas study as the Vandas study was done in 1994 is going to be using information pretty similar to what I've suggested the utilities should be providing, either pursuant to Commission order in this case or as developed through the rate modernization docket. There may be some differences, but I would think they'd be minimal. The biggest issue is that that Vandas study is necessarily going to be based on the assets as



they're recorded in the company's continuing property record which we've learned are only reflecting, coincidentally, accurate retirement data.

- Q. Is it possible that the percentage of distribution plant used to serve various voltage levels have changed over time, especially considering Ameren's smart energy plant investments?
- A. Oh, especially considering the smart energy plant investments. And frankly, I think the data or at least the analysis being relied on precedes the Metro East transfer, you know.

So Ameren has -- since this Vandas study was originally done, possibly even as reflected in the, what they call the Refresh in '09, you know, that may or may not be accounting for distribution plant that's sitting in Illinois. And it may or may not be -- I know since then they've picked up, was it Owensville Municipal Utilities. I think they've picked up a couple other smaller systems since then that is just left out of this study, not to mention the growth that's happened. There's been several ice storms since then that have resulted in significant rebuilding of areas of the distribution system.

There's been significant undergrounding efforts.

I mean, if you just look at the mismatch

- in the percents between the Poles account and the
 Conductors and Device account, that tells you right
 off the bat that something's not making sense with
 these -- with the approach they're taking. Whether
 that's the underlying study or whether that's the way
 they're applying it to the data today, it just
 doesn't make sense.
 - Q. In the very beginning of your answer there you used the phrased the Metro East Relo --
 - A. Metro East Transfer.

- Q. The Metro East Transfer. Just for the record, can you -- what is that?
- A. I'm going to get the year wrong here.

 Sometime between 1999 and 2005, and I apologize, I am going to get the year wrong if I try to be more specific, Ameren Missouri -- well, Ameren Illinois got some legislation that resulted in their need to divest of generation assets. That coincided with Ameren Missouri's need to get out of the business in being in Ameren Illinois and so there was a case filed. I think this was done in one case; it may have been spread over two where Ameren Missouri seeded a significant amount of customers and load, primarily industrial load, factories in East

 St. Louis and the area around East St. Louis in

1	Page 467 exchange for picking up the Noranda Smelter as a
2	customer. And I apologize, if that was done over one
3	case or two or possibly more, but that's broadly
4	referred to as the Metro East Transfer.
5	And whether this is allowed or not,
6	Mr. Wills, am I generally right on that? If I've
7	said something terribly wrong, I don't have want to
8	have the record terribly wrong.
9	MR. WILLS: Not from my knowledge, there's
10	not anything terribly wrong.
11	MS. LANGE: Okay. And I will I
12	will yeah. I'll stop talking there then.
13	BY MR. KEEVIL:
14	Q. Going back to, in response to the judge,
15	you read something from the something you printed
16	out over lunch, and I offered to offer it and
17	Ms. Grubbs didn't want me to offer it at the time.
18	Do you know what I'm talking about, the
19	A. I do.
20	Q exhibit thing 1 I believe it was
21	marked as 183.
22	Could you describe that again for the
23	just for the record.
24	A. So visually, the first page is a table of



some account names and some rows consisting of

- 1 descriptions of cost. The second page is an email
- 2 | from myself to Mr. Luebbert and Mr. Jim Busch dated
- 3 | Monday, April 10th, 2023 4:46, as well as one
- 4 handwritten line.

17

18

19

20

21

22

23

24

- Q. And this represents data that you believe to be needed?
- 7 If I was going to start from -- if I was Α. 8 going to pretend the last three cases hadn't happened 9 and I was going to ignore various representations, 10 orders, stipulations that have been achieved about 11 what data we need to do things and I was to say, 12 Let's all put that all behind us and start from 13 scratch, this is the data that I believe we need as a 14 bare minimum to have a productive discussion of 15 reasonable rate structures and the costing thereof 16 for Ameren Missouri.
 - Q. And would this be for purposes of the rate -- the modernization workshop that we talked about or the -- or a future rate case or for what purpose exactly?
 - A. Either of those. I guess it depends on timing. You know, if they file a rate case, you know, July 3rd as has been something of a tradition, you know, and I'm not speaking from knowledge if that's proposed or not, you know, then we would want

	Page 469
1	it for that. Ideally this is something that we would
2	take a little bit more time with and work through in
3	a rate modernization workshop.
4	MR. KEEVIL: Judge, I'd offer this
5	Exhibit 183 I think it's called.
6	MS. GRUBBS: Can other parties see a copy
7	of it? Sorry.
8	JUDGE CLARK: I was actually getting to
9	that. I don't think anybody's had an opportunity see
10	that yet.
11	MS. LANGE: It should look familiar,
12	Jermaine.
13	MR. WILLIAMS: Judge, the only thing I'd
14	add is my recollection is that there was a correction
15	to that exhibit on one of the, I don't remember if it
16	was an account number or a description, but just so
17	it's in the record near to when the exhibit's be
18	being offered.
19	MR. KEEVIL: An account number correction
20	or was it in the testimony?
21	MS. LANGE: There was a voltage
22	correction in one of the there's a typo in one of
23	the voltages. And I would submit that the literal
24	voltages and that sort of thing that are referenced
25	in this document, Staff has flexibility on what



Page 470

- 1 | reasonable voltages would be to use in lieu of that.
- 2 | If the Ameren distribution engineers who are
- 3 | obviously closer to the system than Staff is, you
- 4 | know, if I said, you know, 600 volts and it should
- 5 | have been 575 volts, you know, we're not being a
- 6 | stickler on that.
- 7 MR. KEEVIL: Judge, I'm at a bit of a
- 8 | loss as to what we're doing right now because, I
- 9 | mean, if this is Ms. Lange's opinion as to minimum
- 10 data necessary, whether other parties have seen it or
- 11 | not, I don't get the connection.
- JUDGE CLARK: Well, if you're planning to
- 13 offer it as an exhibit, the other parties get chance
- 14 | to look at it so they have an opportunity to object
- 15 | to it if they want to.
- MR. KEEVIL: Well, that's -- that's.
- 17 | Okay. That's true.
- 18 MR. OPITZ: If I can clarify with Counsel
- 19 | for Staff, for what purpose are you offering this?
- 20 | Didn't she testify to everything that was on there?
- 21 | MR. KEEVIL: I don't believe she
- 22 | testified to the second page.
- MR. OPITZ: I don't have any objection to
- 24 | it.
- 25 MR. KEEVIL: Don't ever do this again.

1	Page 471 MS. LANGE: May the record reflect I have
2	been chided.
3	MR. WILLIAMS: No objection.
4	MR. KEEVIL: We'll make some additional
5	copies now, Judge, and she works for you, don't
6	hand it to me. We'll make some additional copies
7	when we come back from the break I assume that we'll
8	be taking soon, and so everyone can have a copy.
9	JUDGE CLARK: Well, I'm going to ask
10	right now, has everybody had an opportunity to look
11	at it that wanted to look at it? Are there any
12	objections to admitting Exhibit 183, what I am
13	calling Staff's Minimum Proposed Data for
14	Modernization onto the hearing record?
15	MS. GRUBBS: None from the Company, your
16	Honor.
17	JUDGE CLARK: I see and hear no
18	objections. Exhibit 183, Minimum Staff's Minimum
19	Proposed Data for Modernization is admitted onto the
20	hearing record.
21	(Staff's Exhibit 183 was received into
22	evidence.)
23	MR. KEEVIL: Judge, I did also have one
24	question for you. After all of your questions for
25	Ms. Lange, I don't remember you asking her anything



1	about the graphs on the Staff response to the
2	April 4th order. Was that intentional on your part,
3	or was that did you forget?
4	JUDGE CLARK: I forgot.
5	MR. KEEVIL: Okay. I thought you might
6	have, but I did want to bring that up while she's
7	still here.
8	JUDGE CLARK: Why don't we just do that
9	real quick.
10	QUESTIONS
11	BY JUDGE CLARK:
12	Q. You prepared those graphs?
13	A. I did.
14	Q. And are they true and accurate to the best
15	of your knowledge?
16	A. They are as good as the underlying Ameren
17	load research data. So to the extent that there's
18	any issue with how solar represented, I can't vouch
19	for that. They are accurate to the data that all the
20	parties were using in this case for load research.
21	Q. So you this was compiled from data that
22	was supplied to you from Ameren?
23	A. Yes. This is Ameren's load research data
24	which is the only data that we have for hourly energy
25	by class, hourly demand by class. It's the same



- 1 thing at the hourly level. It has not been
- 2 normalized, granulized for weather impacts, customer
- 3 growth, anything of the sort.

I do.

- 4 Ο. Well, why don't we -- do you have it in 5 front of you --
- Α.

6

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

- 7 -- by chance? O.
 - Can we just go through really guickly for -- just for the purposes, even though this has already been admitted onto the record, why don't you just tell me what each graph represents.
 - Α. The -- the first one it's labeled Okay. Max Hourly Load in 24-hour Period at Generation Voltage, July 2021 through June 2022, per Ameren load research.

So what I did is I took the Ameren load research at I believe generation voltage. I set up in row one a solve for max, maximum value in each I then selected an array of cells that was 24 class. cell -- 24 rows long and I drug that for the length of the 8,760 hours indicated on this. That then produced a maximum daily demand which I guess if you want to account for the Daylight Savings Time, there's, I guess, a variation there if any maximum demand occurred at midnight or one o'clock, I would



not expect that to be the case.

2.2

I then removed the nonvalue cells and I provided the total and residential values produced by what I just described.

- Q. Okay. Next graph. That's June 2022?
- A. Yes, June 2022. So using that same data set, I created -- so the data set is arranged by month, day, time. So I created a row that established for each hour on that 8,760 hours, I established a month/hour valuation. I then created an array of months and hours and used that to draw out of the -- the data set of 8,760 hours the average across those hours within that month for the total in residential as indicated for the month of June 2022. I followed the same process for each of the other months as indicated.
 - Q. That would be July, August, December, January, and February?
 - A. I believe you read those accurately, yes.

MR. KEEVIL: Judge, one thing I noticed, that because of the way the test year fell, you go from like, on the chart, you go from June '22 to July '21. So I just want to point that out because of the way the test year fell and everything, so the months don't go consecutive even though it sounds



1 June, July, August, it sounds like they're 2 consecutive. They're not because some are from a 3 previous year. 4 JUDGE CLARK: Thank you for pointing that 5 out to me. I didn't notice that. Did you have any 6 other redirect for this witness? 7 MR. KEEVIL: No, Judge. That was it. 8 I'm concluded. 9 JUDGE CLARK: Okay. I think you were right on the money that it is a good time to take a 10 11 It's 2:43 right now. I propose we take about break. 12 a 15-minute break and come back at 3:00. During that 13 time if you can get copies of that exhibit for the 14 parties and for myself, I would appreciate it. 15 MR. KEEVIL: Well do. Mr. Luebbert will 16 do that. 17 Thank you. JUDGE CLARK: Thank you, Mr. Luebbert. With that in mind, we will recess 18 19 until three o'clock and let's go off the record. 20 (Off the record.) 21 JUDGE CLARK: Let's go back on the 2.2 record. All right. We're back from break. We just 23 finished with Staff's Witness Lange for Issue 1. 24 Does Staff have any more witnesses at this time.

MR. GRAHAM:

Not on that issue.

1	Page 476 JUDGE CLARK: Is your microphone on?
2	MR. GRAHAM: Not on that issue.
3	JUDGE CLARK: Thank you, Mr. Graham. And
4	I believe off the record Ameren had indicated that
5	there was a housekeeping matter. Would you like to
6	talk about that now?
7	
	MS. GRUBBS: Yes. Thank you, your Honor.
8	During this morning's discussion or maybe earlier
9	this afternoon, I'm sorry, I'm losing track, we had
LO	reserved I think it was Exhibit No. 52 for the data
L1	request response that provided the information
L2	pursuant to the ET-2018 case. And so I just wanted
L3	to move that into the record. I would note that
L4	there are three attachments and those are
L5	confidential as they contain customer-specific
L6	information. So we would have 52C and 52P to be
L7	added. And I believe that has been emailed to the
L8	court reporter.
L9	JUDGE CLARK: Okay. Would you say that
20	again, 52C and?
21	MS. GRUBBS: 52P.
22	JUDGE CLARK: Okay. Public and
23	confidential. Okay.
24	MS. GRUBBS: Yes, sir.
25	JUDGE CLARK: And what would you use as a



1	Page 477 description for that?
2	MS. GRUBBS: Company Response to DR
3	MPSC 591.
4	JUDGE CLARK: Say the DR number again
5	please.
6	MS. GRUBBS: 591.
7	JUDGE CLARK: Company Response to DR 591?
8	MS. GRUBBS: Yes, thank you.
9	JUDGE CLARK: And has that already been
10	offered or are you offering it now?
11	MS. GRUBBS: Pardon me. I would ask that
12	it be moved to the record.
13	JUDGE CLARK: Any objections to admitting
14	the Company response to DR 591 onto the hearing
15	record?
16	MR. WILLIAMS: And I I don't have an
17	objection, but I would appreciate receiving a copy of
18	it as well.
19	JUDGE CLARK: Absolutely. Can you get a
20	copy to Mr. Williams?
21	MS. GRUBBS: Yes. We can email that and
22	it is also available in EFIS.
23	JUDGE CLARK: Mr. Williams, would you
24	like to see that before I close the time for
25	objections?





to stay on Issue 1 any longer or can we move to

With that in mind, is there any reason that we need

24

1 | Issue 2?

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

2.2

23

24

25

MS. GRUBBS: I would just clarify there
will be a witness presented on Issue 1 tomorrow is I
believe the expectation for MECG witness Mr. Chriss.

JUDGE CLARK: And I was aware of that. I just talked to MECG and I believe that we're going to try and do that -- I set to make him available in the morning.

Now, for Issue 2 are we going in the same order that we went for mini openings for Issue 1?

MS. GRUBBS: That was my understanding, your Honor.

JUDGE CLARK: Okay.

MR. GRAHAM: Your Honor, I wasn't here for that. I looked at the schedule, so, but I didn't -- I can't make the comparison in my mind, so.

JUDGE CLARK: Staff filed an updated -filed an updated issues list, and under Issue 1,
Wednesday, April 12th, they had mini opening
statements. When you move on to Issue 2, it says
mini opening statements on Issue 2, but it doesn't
list an order. So I assume we're going to use the
order that -- the same order we used for Issue 1.

MR. GRAHAM: Well, I hope someone will

tell me when it's time to stand up.

Page 480

MR. WILLIAMS: You're second on the list.

MR. GRAHAM: Thank you.

JUDGE CLARK: Well, let's start Issue 2 which is formerly Issue 24B which is depreciation continuing property record which was the CPR. And it's, Should the Company be ordered to change the manner that property retirements are recorded to its continuing property record.

And with that in mind, first person to give an opening on -- or first party to give an opening on this, on this mini issue is Ameren Missouri.

MS. GRUBBS: Thank you. Good afternoon.

May it please the Commission. While the depreciation rates were agreed to in the stipulation that's going to be presented on the record tomorrow and the signatories -- among the signatories I know parties have otherwise opposed the stipulation, it's helpful to understand the context that the continuing property record or CPR for short is used in the depreciation study. And within a depreciation study, there are recorded retirements by account.

Depreciation rates are estimates of the reduction in value of an asset over time, just generally speaking. In other words how assets

depreciate over time. Issue 2, the continuing property record issue comes down to the manner of recording retirements of mass property assets in the CPR.

Mass property, like the title suggests, are assets that are large in number of units and homogeneous in nature so that detailed accounting for each individual asset is simply not practical. The Uniform System of Accounts accordingly does not require the same detailed information for mass property assets, namely the location of the unit, as the recordkeeping requirements for other types of property.

appropriately relies on survivor curves determined from the most recent depreciation schedules to statistically select the mass property values to be retired and deploys this method through its software system. Just as the depreciation rates are estimate -- estimates based on informed judgment so are the retirements. The Company is following the methodology as outlined in FERC's Uniform System of Accounts and the Commission's rules for its continuing property records, including it's retirement of mass property assets in the best



interest of customers.

In fact, as noted in the Surrebuttal testimony of Company witness Mitch Lansford the Uniform System of Accounts Electric Plant instructions, specifically 10D, allows for the use of estimates in determining the electric plant to be retired.

As explained by Company witness John
Spanos in Rebuttal, the Company's processes and
methods for retirement of mass property assets are
the same or similar to those of many other utilities.
And the technology solutions and accompanying
statistical analysis relied upon by the Company and
many other utilities to process retirements for mass
property are a practical necessity for keeping the
property records accurate and as current as possible.

The process for retiring mass property assets as proposed by Staff, which to reiterate is not required by the FERC Uniform System of Accounts or the Commission's rules, is impractical, would create unreasonable extreme administrative burden with negligible, if any, benefits.

So I encourage you to ask Company witnesses John Spanos and Mitchell Lansford about the unreasonable burden that would be created and the



1 | lack of corresponding benefit.

In conclusion, no changes in the Company's recording of mass property assets should be ordered. And I'll try to answer any questions, but I may have to defer to an Ameren Missouri witness who may best answer.

JUDGE CLARK: Any questions from the Commission? I have no questions. Thank you.

MS. GRUBBS: Thank you.

JUDGE CLARK: Next opening from the Staff of the Commission.

MR. GRAHAM: If it please the Commission.

Remember that number, 10D, the rule that was invoked by Staff -- or by Ameren.

The issue before the Commission today concerns recordkeeping. Ameren Missouri's required by regulation to track additions and retirements of its assets in a continuing plant inventory record. Here we will refer to that record as the CPR. Staff has been made aware that the Company is not tracking the retirements of assets accurately and is instead allowing the power plant software to simulate retirement data. This simulated data is then being used in subsequent depreciation studies to determine depreciation rates for those accounts in future rate



cases.

The specific question before the

Commission today is does Ameren Missouri's current

practice adhere to the Commission's regulations. The

answer is no. Should the Company be ordered to track

and record retirement in its continuing plant

inventory record, the CPR, instead of simulating

data. The answer's yes.

Let's take a look at the rules, starting with the rules and we will end with the 10D that counsel referred to. 20 CSR 424.020.0203A states that an electric corporation subject to the Commission's jurisdiction shall maintain plant records of the year of each unit's retirement as part of the continuing plant inventory records. As the term is otherwise defined in part 101 definitions 8, in paragraph 15.001.8. This reference refers to 18 Code of Federal Regulations part 101.

18 Code of Federal Regulations part 101, definition 8 states, The continuing plant inventory record means company plant records for retirement units and mass property that provide as either a single record or in a separate records readily obtainable by references made in a single record the following information: For each retirement unit the



Page 485

name and description or the description of the unit or both. Two, the location of the unit. Three, the date that the unit was placed in service. Four, the cost of the unit as set forth in plant instructions 2 and 3 of this part. And five, the plant's control account to which the cost of the unit is charged.

And B, for each category of mass property. One, a general description of the property and quantity. Two, the quantity placed in service by vintage year. Three, the average cost as set forth in plant instructions 2 and 3 of this part. Four, the plant control account to which the costs are charged.

As counsel has alluded, Ameren's counsel's alluded, we were talking about categories of mass property in this instance. What constitutes mass property. The mass asset convention of accounting applies to the accounting for large numbers of homogenous assets in situations in which the accounting for individual assets is not practical. Under this convention homogenous assets are aggregated and depreciated by applying a rate base on the average expected useful life of the assets. So simplified, a category of mass property is a grouping of many similar asset units into one

group for accounting purposes.

Now, going back to the rule, part 101, definitions 8B requires the recording of the quantity placed in service by vintage year and the average cost be recorded for each category of mass product -- mass property.

So in a nutshell, what does the rule require. Stated succinctly the rule requires that when a widget is retired, certain things be recorded in the Company's continuing plant inventory record.

One of those things is the widget's vintage year as previously recorded. As previously recorded. I said it twice for a reason. Another is average cost as previously recorded. The Ameren Missouri method of recording is -- or I'm sorry -- Ameren Missouri is not recording this for all accounts, but it is instead simulating retirement data.

In response to Staff data request 0209.3 the Company stated the following: Ameren uses the power plan system to select assets for retirement based on an Iowa Survivor Curve for mass property accounts based on the type of asset. The survivor curve reflects current dispersion patterns of the assets which has been determined in the most recent depreciation study or studies as other intervenors,



1	including from Staff study, the appropriate
2	deprecation parameters for our investments, close
3	quote.
4	So the Company is in violation of the
5	rule. When the Company retires an asset, it is not
6	recording the vintage year or average value of that
7	asset as it was previously recorded in the company's
8	books. Instead it is randomly recording a different
9	vintage year and most importantly, a different
10	average value for that asset. It is doing this on
11	the basis of a software analysis of an Iowa Survivor
12	Curve.
13	Let me illustrate this point and I've got
14	a page from Mr. Cunigan, Cedric Cunigan Surrebuttal
15	True-Up Direct testimony, page 4, if I may approach
16	the bench.
17	JUDGE CLARK: Please.
18	MR. GRAHAM: I'll give you one of these.
19	If we're going to mark it, I think I'll just leave it
20	behind for the court reporter so it's nearby her.
21	JUDGE CLARK: Are any of these numbers
22	confidential?
23	MR. GRAHAM: I've checked with
24	Mr. Cunigan; he says no. But before we do anything,
25	if other people would chime in on that question.



	Dags 400
1	Page 488 JUDGE CLARK: Before we put anything up
2	on display, I
3	MR. GRAHAM: I didn't intend to put it up
4	on display, but I will be reciting numbers and so
5	your point is, of course, well-taken. I think that
6	it's not nobody's objecting that it's
7	confidential.
8	JUDGE CLARK: Ameren, is this in any way
9	confidential?
LO	MS. GRUBBS: No. Thank you. We have
L1	confirmed we're good. Thank you.
L2	JUDGE CLARK: Thank you. Go ahead,
L3	Mr. Graham.
L4	MR. GRAHAM: Thank you. Take a look at
L5	the chart on page 5 of the testimony which will be
L6	placed in evidence later when Mr. Cunigan takes the
L7	witness stand. This is 5 of Cedric Cunigan's
L8	Surrebuttal True-Up Direct testimony. This chart
L9	tracks six data points for an asset. Its ID, the
20	utility account, the retirement unit, the asset
21	location, the activity quantity, the activity cost,
22	and the average cost.
23	Look at the first line with me. Now,
24	suppose one of those poles is retired for whatever
2.5	reason. Might be a lightning strike, could be



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

Page 489

anything, but it's retired. When that happens, the regulations require that the number 5, see that 5 under activity, be reduced to 4 and that the number \$291,080.76 be reduced by \$58,216.15. With the Company approach however, this does not happen or it may or may not happen. Applying its software to a survival curve, the Company may jump down six lines and lower the number 80, if we look down the page to the last row on that chart, the number 80, to 79 and subtract \$169.37 from \$13,549.83. Cutting to the chase, so what. The answer is that rates and shareholder returns will continue to be calculated on the assumption that \$58,216.15 minus \$169.37 remains in used and useful plant when it is not there.

What does the Company say about this.

Now we get to 10D. Witness Lansford says that this procedure is allowed as an estimate. He states, and I quote from page 11 of his Surrebuttal and True-Up testimony and from Ameren's reference to this rule, quote, Specifically the US of O [sic] allows for the use of estimates in determining the book cost of electric plant retired.

And here comes the rule. The rule is the book cost of the electric plant retired shall be the amount at which such property is included in the

1 | electric plant account. That's where you start,

2 | including all components of construction costs, and

3 | that's what's goes over into the retirement record.

4 The book costs shall be determined from the utility's

5 records.

Now, what's next is the cutting edge of this case. The rule goes on to say, and as I understand, Ameren is hanging its hat on this, The book cost, if this cannot be done, it shall be estimated. Utilities must furnish the particulars of such estimates to the Commission if requested when it is impractical to determine the book cost of each unit due to the relatively large number or small cost thereof an appropriate average book cost of the units with due allowance of any differences in size and character shall be used as the book cost of the units retired. Stop.

The rule requires that if a widget from line 1 worth \$58,216.15 is retired, that it be recorded at that line unless that is not possible or it is impractical. Rule, exception. Rule, exception. Rule, exception. Rule, of proof that the rule does not apply. The exception contemplates that the Company has got to come forth and show that this is impossible or impractical. That's not the case that



Transcript of Proceedings 1 we have here. 2 Through discovery in this case what we 3 hear from the witnesses is, Oh, it's impossible. 4 That's not a self-proving statement. 5 Oh, it's absurd. 6 That's not a self-proving statement. 7 No evidence has been brought forth. Now, 8 it might be said that we didn't ask for it. Well, 9

the burden because of this rule is on the Company to come forth and justify its violation of the rule and there is no doubt anywhere that the rule is being violated. Well, putting it differently -- that's unfair of me. It's not that the rule is being It's that they're not recording the data violated. in the manner required by the rule. This is not in dispute. Well, if it's not in dispute, then the second part of 10D here --

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

JUDGE CLARK: Mr. Graham, can you stand a little closer to the microphone.

MR. GRAHAM: -- then the second part of the rule is triggered.

And that rule requires them to show that it's impossible, impractical. They haven't done In fact, continuing here, it appears from that. discovery in this case that it is possible and

practical. The Company has the data. The Company has the data necessary to comply with the rule and put down the actual data that the rule requires.

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

Now, let me make this clear. Staff is not saying -- I, of course, picked a rather explosive example just for illustrative purposes and perhaps to get folks' attention on an otherwise dry issue perhaps. Let me make this clear. Staff is not saying the error always favors the Company. Staff is saying there's no way to tell which way it goes. Staff is saying accordingly that where millions of dollars in mass assets are being recorded this way, there is no way of saying that a resulting rate is just and reasonable. By replacing an act -- by replacing an actual vintage year as recorded and an actual average asset cost with fabrications we end up with a fabricated continuing plant inventory record.

How do we know this. Well, here's the epiphanic moment. The record I've just shown you is not accurate. It never was accurate. This record is a record of what happened after the last retirement occurred using the Company's system. We don't know as we look at this record whether on the date that this record was made, whether these numbers, this

Page 493

data reflected actual plant in service. And that's where we stand today. The chart shows inventory 3 after the Company has made retirements per its When made, were there actually five poles 4 system. each with a vintage year of 2020 with an average cost of \$58,216 or had one been retired but recorded as a 7 reduction of 81 to 80. We don't know.

1

2

5

6

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

The Company states as much in the supplemental response to Staff Data 209.1S1 where Laura Moore states, That vintage year will not, except by pure coincidence, match the vintage year of the actual asset retired in the field.

Well, that's a statement that could be made about the entire record. Whether the record reflects actual plant in service for ratemaking purposes is a matter of pure coincidence. That's what the Ameren's own witness said.

Now, moreover, it gets worse. The error itself's sustaining and quite literally feeds on itself. I hesitate to pawn this way, but away we go. Feeds on itself. That is there is a feedbag, I apologize, loop error involved here. In baby steps the survivor curve projects a service life of an asset account. That projected service life, in turn, is used to retire assets on the accounting books and

to add newly fabricated data to the depreciation database. Then that fabricated data is used in the next depreciation study to determine the survivor curve in the next case, in the next retirement.

Putting this differently, overtime the continuing property record is no longer an accurate record of plant assets.

Ameren Missouri is not disagreeing with this statement. It simply contends that the rules allow for an estimate without addressing whether or how the estimate involved is a reasonably accurate estimate.

Now to reiterate, look at the chart from Cedric Cunigan's Surrebuttal testimony. Vintage year, just so I get this across because there's been a lot of conversation at least coming into this courtroom about vintage year. Vintage year is directly tied to the average cost.

Why do I bring up at this point a key word that you heard in Ameren's opening statement was the word "location." Staff is not insisting here that the correct location -- the rule requires it, but that's not the heartburn that is being caused for Staff here. The heartburn is over the vintage year.

Vintage year is directly tied to the average cost. Location is not. Vintage year, the age of the asset is what's critical when you're trying to determine average cost of a depreciated asset. By not tracking the appropriate vintage year of retirements, Ameren is also not tracking dollars appropriately for those retirements. Two of the pieces of information that Ameren is required to track as a part of the CPR are not being recorded correctly.

I reiterate that the Commission's rule 20 CSR 424.020.02038.18 requires that Ameren Missouri maintain plant records of the year of each unit's retirement as part of the continuing plant inventory records as the term is otherwise defined in the rules that I've already cited and read to you.

Now, here's Staff's recommendation:

Going forward the Company should record plant records of the year of each unit's retirements as part of the CPR in compliance with the regulations. Specifically when retiring mass assets, the CPR recording process should be based upon the actual recorded vintage years, recorded vintage years, and the associated average cost of that vintage year. Line up the records with the records.

At this time Staff is not recommending that the Commission order a retrospective full inventory or adjustment of the books. Nevertheless for ratemaking, the rate base should reflect an accord between book values on the one hand and plant actually in service. So Staff will continue conversations with the Company to determine whether a full inventory and book adjustment is necessary.

Now, wrapping this up, let me go back to that rule that counsel cited us to and look at the second wing of it. Company says Staff is being absurd, but Ameren's Witness Spanos states in his Rebuttal at page 18, It is always best to be able to specifically identify the actual vintage of an asset. Point not in dispute.

Mitch Lansford in response to Staff's

DR 439 which I'll put into evidence when Mr. Cunigan

takes the stand, stated that the, quote, Company

maintains accounting records of all of its

investments and those accounting records contain life

characteristics as required under the FERC USO of A

[sic]. Ameren's response to 439 is filed in EFIS

with an Excel spreadsheet, which I, of course, am not

going to introduce here because it's perhaps hundreds

of pages of long, I don't know. It contains the



1	Page 497 accurate data. The Company has it. So think about
2	that rule that's that Ameren invoked.
3	Staff contends that in this case it is
4	just as easy to do it right as it was to do it wrong.
5	If data's available, then doing things right is no
6	harder than doing it wrong. Furthermore and in any
7	event because the rule and because we have a duty to
8	ensure that rates are just and reasonable, if it can
9	be done, then it must be done. That concludes my
10	opening.
11	JUDGE CLARK: Thank you, Mr. Graham. Any
12	questions from the Commission? I have no questions.
13	Thank you.
14	MR. GRAHAM: Thank your, Honor.
15	JUDGE CLARK: On behalf of the Office of
16	Public Counsel.
17	MR. WILLIAMS: Public counsel waives
18	opening.
19	JUDGE CLARK: On behalf of MIEC.
20	MS. PLESCIA: No opening. Thank you.
21	JUDGE CLARK: On behalf of Sierra Club,
22	NAACP, and CMU [sic].
23	MR. THOMPSON: No opening, your Honor.
24	JUDGE CLARK: Consumers Council is not
25	here. On behalf of Midwest Energy Consumers Group.



1	Page 498 MR. OPITZ: No opening, your Honor.
2	JUDGE CLARK: MECG. On behalf of Renew
3	Missouri.
4	MR. LINHARES: No, your Honor. Thank
5	you.
6	JUDGE CLARK: Thank you. Well, those are
7	all our openings. Ameren, you may call your first
8	witness.
9	MS. GRUBBS: Thank you. The Company
10	calls Mr. John Spanos to the stand.
11	JUDGE CLARK: Would you raise your right
12	hand and be sworn.
13	(Witness sworn.)
14	JUDGE CLARK: Please be seated. And say
15	and spell your name for the hearing record.
16	MR. SPANOS: My name is John J. Spanos,
17	S-p as in Paul -a-n-o-s.
18	JUDGE CLARK: Go ahead, Staff.
19	MS. GRUBBS: Staff or the Company?
20	JUDGE CLARK: Sorry. I meant Company.
21	MS. GRUBBS: Okay. Sorry. Just wanted
22	to be sure.
23	JUDGE CLARK: Go ahead, Ameren.
24	JOHN SPANOS, having been first duly sworn,
25	testified as follows:



DIRECT EXAMINATION BY MS. GRUBBS:

1

4

5

- Q. Mr. Spanos, by whom are you employed, what it your title, on whose behalf are you testifying?
 - A. I am employed by Gannett Flemming

 Valuation and Rate Consultants, LLC, I am the

 president, and I am testifying on behalf of Ameren.
- Q. You are same the John Spanos who filed

 Direct, Rebuttal, and Surrebuttal testimony in

 this case which has been marked as Exhibits 42, 43,

 and 44. Is that correct?
- 11 A. That is correct.
- 12 Q. Do you have any corrections or revisions 13 to make to your testimonies?
- 14 A. I do not.
- Q. If I asked you the questions contained in your testimonies today, would your answers be the same?
- 18 A. Yes, they would.
- MS. GRUBBS: I would move for
- 20 Exhibits 42, 43, and 44 into the record.
- JUDGE CLARK: Any objections to
- 22 Exhibits 42, 43, and 44, the Direct, Rebuttal and
- 23 | Surrebuttal testimony of John Spanos? I see and hear
- 24 none. Exhibits 42, 43, and 44 will be admitted on to
- 25 | the hearing record.



1	Page 500 (Ameren Missouri's Exhibits 42, 43,
2	and 44 were received into evidence.)
3	MS. GRUBBS: With that, Mr. Spanos is
4	tendered for examination.
5	JUDGE CLARK: Any questions from any
6	cross-examination from MIEC?
7	MS. PLESCIA: No questions. Thank you,
8	your Honor.
9	JUDGE CLARK: Any cross-examination from
10	MECG?
11	MR. OPITZ: No, thank you, your Honor.
12	JUDGE CLARK: Any cross-examination from
13	Sierra Club, the NAACP, or MCU?
14	MR. THOMPSON: No questions, your Honor.
15	JUDGE CLARK: Any cross-examination from
16	Renew Missouri?
17	MR. LINHARES: No questions, your Honor.
18	JUDGE CLARK: Any cross-examinations
19	well, CCMO isn't here. Any cross-examinations from
20	Public Counsel?
21	MR. WILLIAMS: No, thank you.
22	JUDGE CLARK: Any cross-examination from
23	Staff?
24	MR. GRAHAM: No, thank you.
25	QUESTIONS



BY JUDGE CLARK:

1

5

6

18

19

22

23

24

- Q. Mr. Spanos, you were here for Mr. Graham's opening. Correct?
- 4 A. Yes, I was.
 - Q. Was there anything in Mr. Graham's opening that you take issue with?
- 7 Α. I think he has portrayed the Yeah. 8 quality of the data that is available for Ameren and 9 the consistency of that data as to how it's handled 10 within the industry inaccurately. I believe that 11 under the guidance, the manner at which Ameren 12 follows their accounting records and records that 13 accounting records are consistent in the industry. 14 It is the ability to follow all of the steps that 15 Mr. Graham laid out there is not done in an industry, 16 particularly in the size of Ameren because of the 17 fact that --
 - MR. GRAHAM: I'm going to make an objection.
- JUDGE CLARK: What's your objection,
- 21 | Mr. Graham?
 - MR. GRAHAM: Objection is no foundation for this testimony and this reference to the industry and the industry standards. There's not been any foundation laid by this witness or any other Ameren



Page 502

witness that justifies this Commission's receipt of that opinion.

JUDGE CLARK: Well, I've got some questions about that anyway. I'm going to overrule your objection.

MR. SPANOS: I'll continue with the fact that the manner in which you need to record information and why these fixed asset systems have been created in the first place is because utilities weren't able to keep track of the data at the pace that they were replacing it and the detail that was required, particularly because you need field personnel to records all of these entries. And field personnel's main objective is to keep reliable quality service in play.

So if you have a storm, for example, and you now have emergency situations where hundreds of assets are being changed quickly and not only being done by Ameren personnel, but by other utilities that come to assist, this happens quite a bit. So for all of that to have to get done, then get recorded in a position that it gets sent to property accounting who then needs to input all of that information and at the level that that requirement is that was being asked of is no different than use -- utilizing, as



Page 503

done in a depreciation study when you go through and do field inspections and review of assets, discuss property records and develop estimates based on that curve, the quality of the data is you're getting the benefit of the survivor curve and the analysis done in a depreciation study as to why the detail of those property records to identify every single asset doesn't make sense.

You're going to cost tremendous amount more money for the utility and ratepayers to maintain the degree of detail without any benefit. And you won't see that benefit for 50 years because these assets all have average lives of 40, 50, 60, 70 So that whole process doesn't make sense which is why there was these fixed asset systems developed 20 years ago and utilities are utilizing those to better -- provide better service in the long run.

Thank you. I jumped ahead JUDGE CLARK: without asking if there were any Commission questions. Are there any Commission questions at this point? I hear none, so I will move on. BY JUDGE CLARK:

23

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

24

25

Ο. You would agree -- you had mentioned that Ameren is keeping it in accord with industry

standards, but you would -- would you agree that industry standard is -- that does not necessarily equate to a Commission rule?

1

2

3

18

19

20

21

22

23

24

- 4 Α. I wouldn't necessarily say it doesn't 5 equate to a Commission rule in that there are 6 vintages that are applied to every asset that's 7 retired. And so in that guidance, I'd feel that it's 8 followed which is why all other util -- or not all, 9 excuse me, almost all of the other utilities are 10 doing a similar fashion to recording of their assets 11 in order to most appropriately address what rate base 12 And that's why it's -- this process is being 13 It's something that's been going on for 20 done. 14 It's not something that's new. It's -- it's 15 done and was created because of the fact that you couldn't keep track of the data and still supply 16 17 quality service.
 - Q. And is it industry standard to use software to record this? To, I guess, estimate this?
 - A. The process of -- and maybe to help clear up an understanding of what is being estimated is I'll take the poles account for example. The -- not every pole has a stamp on it. Okay. So it's not identified with a specific vintage. So again, if you have a storm that occurs and you have 50 poles that



got replaced all at once, you can identify how many poles were replaced, but you won't know the stamp because one, it doesn't exist. I mean, if it was a storm, it could have blown away or it's been sitting there for 70 years and you don't have it ident -- able to identify it.

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

So the survivor curve, and what you do, you're not doing a statistical analysis only when developing a survivor curve. You are using judgment that understands the ratio and mortality of poles. So is it able to establish, okay, 40 poles were built in the '60s or -- and used in the '60s, so now we're going to apply the '60s vintage to the poles that got That's a reasonable expectation. dollar value that is being assigned is much more in line with how -- the example that Mr. Graham put out in his opening remarks. You have a much narrower view of what the actual average cost is of those dollars. And that's why there's the ability to get that recorded more timely than waiting to go find -send the field personnel to go out and try to figure out what that vintage was is, you know, an impossible task and it's going to keep them from keeping the power on for somebody else.

Q. Mr. Graham had indicated in his opening



that you already have, or that Ameren already retains this information. Is that correct?

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. There is vintage data that has been incorporated when it was first put into play or into service, excuse me. However, to be able to identify that exists every single asset is the challenge.

So again, there's 900,000 poles, so when the field personnel go out and have a project that they need to replace, it will take them time to record what they actually retired. Instead of saying two poles on Fifth Street, they need to go out and find what the two -- the vintage of those two poles Instead of saying it's a 40-foot pole on Main was. Street, they have to say 40-foot pole, oh, we don't have the vintage. Well, if they have to go track down that vintage somehow, which who knows how they're going to figure that out other than some quidance as to when that street had electricity put They won't be able to actually get the pole up in. and service back to the customer. They're going to have to take hours to figure that out.

And that's kind of -- if you magnify that for every single project all the time, you're asking the field personnel to do work that's not under their criteria, but once they do get that information, they



- now need to send it to property accounting and
 property accounting then records every single entry
 that goes on. And the automation is much more
- 4 reasonable to do, you know, through an estimation using a survivor curve.
- JUDGE CLARK: Okay. Thank you. I have no further questions. Any questions based on bench questions?
- 9 MR. GRAHAM: Yes, from Staff.
- 10 CROSS-EXAMINATION
- 11 BY MR. GRAHAM:

20

21

2.2

- 12 Okay. Do I understand you, sir, to say Q. 13 that the lineman or whoever it is that is out there 14 replacing the pole is going to be stopped and will 15 not be able to serve the customer and replace the 16 pole until he has gathered the data which will be 17 sent in? He's got to stop and do all this research 18 before he can actually replace the pole? Was that 19 your testimony?
 - A. Testimony is that's part of what his assignment is under the criteria that you're asking is he has to -- I'm not saying whether it's before or not, but it's --
- Q. But that's what you --
- 25 A. -- in the course of the day you -- while



_	Page 508
1	you're doing that project, you need to be able to
2	record that information so that it gets sent to
3	property accounting; otherwise, you'll have a lag and
4	not get any recorded at all of the retirement.
5	Q. You mean it'll take him time to figure out
6	what to record, and that's inconvenient to the
7	Company because it would like to automatically apply
8	its survivor curve and just get along with it.
9	A. That's
10	MS. GRUBBS: Objection. Is there an
11	actual questions in there or just a statement?
12	MR. GRAHAM: It was a statement, but I'm
13	asking the witness as to whether he agrees with. And
14	he understood that because he was starting to answer
15	me.
16	MS. SPANOS: I disagree with your
17	your
18	BY MR. GRAHAM:
19	Q. Okay.
20	A statement and characterization of what
21	has to happen.
22	Q. Well
23	A. If a lineman has to take time to record
24	detail of those assets, he can't go to the next
25	project where there's another pole that needs to be



replaced. So for that particular asset you may not
do it in advance, but it keeps him from getting to
the next one and the next one and the next one if
they are having to do this as part of their daily
routine in getting not only the pole up so you can
provide service, but also get the proper accounting
that you're requesting to be done. And that's why
the fixed asset system process was established 20
years ago was because they were realizing this was
delaying accurate reporting.

2.2

Q. So in the last 20 years the Company has not, for example, imagined the use of cell phone photographs or anything like that that the lineman could take right on the spot of the pole or whatever it is, file it away, do his work, get to the next job, pass that -- let's put it this way. I don't need to come up with the procedures.

My question, has the Company tried to address this problem in any way other than just relying upon survivor curves? Has it?

A. I think the reason why these fixed asset systems were developed 20 years ago was because there wasn't a solution that you're viewing to be so simplified. It's not that simple. And why it's not being done in that fashion across that country,

Transcript of Proceedings Page 510 1 because the quality and requirements that need to be 2 done take the amount of time that keep people from 3 doing the work. And you're saying take a picture. 4 What are you going to take a picture of. If there's 5 no -- no stamp on it -- a conductor, major asset, 6 where's there going to be any type of date on a 7 conductor that you can get that off of that without 8 you have to go to some original construction project 9 that is who knows where it is now. I mean, these are assets that have been in service for 60, 70 years. 10 11 In the last ten years has Ameren replaced 0. 12 more poles as a result of storm or as a part of its 13 strategic energy plan. Do you know? 14 I don't -- I don't know the percentages Α. 15 between those two items. 16 Are you aware that Ameren regularly Q. 17 inspects its poles per Commission rules? 18 Α. They do inspect their poles, yes. 19 Okay. So they're out there looking at 0. 20 their poles. 21 Α. They're not going out and identifying 22

- whether they have a vintage on it.
- O. They're out there regularly inspecting the poles for something.
 - As to whether they're able to meet the Α.



23

24

requirements of holding the conductor on, whether they're safe and properly situated, whether there's any rot to the poles. Those are the things that are part of the inspection.

- Q. And they record all that data as to whether there's any rot in the poles or anything like that?
- A. Obviously if they have that, a problem that doesn't meet the requirements, they have to replace the pole.
- Q. And that information that they see is recorded by asset ID, isn't it?
- A. I don't know if they have to record every asset that they look at in the inspection. I don't have detail on that.
- Q. Well, this may be my last question, but if they're doing all this inspecting and so forth and they conclude the pole is not defective in any way, shape, or form, and it can remain in service, does the Company have any record of that, that that happened with respect to that pole with its ID number?
- A. They will look to see whether that particular -- I mean, the -- the sampling that they do records what they've gone and looked at. That



1	Page 512 doesn't necessarily say that there's a vintage on
2	that pole or the conductor which is tied to that
3	pole.
4	Q. I'm taking your answer as a no, that after
5	they've inspected it for safety and so forth there is
6	no subsequent record showing that they inspected it
7	for safety.
8	A. I
9	MS. GRUBBS: Again, objection; I don't
LO	know if there was an actual question posed.
L1	BY MR. GRAHAM:
L2	Q. Do you agree with what I just said? They
L3	are not
L4	JUDGE CLARK: Mr. Graham Mr. Graham, I
L5	know it would be convenient to just continue to go on
L6	as though I'm not here, but but when somebody's
L7	made an objection, would you please pause long enough
L8	for me at least to hear
L9	MR. GRAHAM: Yes, sir.
20	JUDGE CLARK: the objection and rule
21	on it.
22	MR. GRAHAM: Thank you. Thank you.
23	JUDGE CLARK: Okay. Would you restate
24	your objection please. I believe you said it wasn't
25	a question and I'll agree with that, it wasn't



phrased as a question.

MS. GRUBBS: So I should have been more clear; I apologize. I would actually move to strike and there's no pending question, but it seems as though he's trying to testify or make comments and opening statements have already concluded.

JUDGE CLARK: I'm -- what I'm going to do is, Mr. Graham, I'm going to ask you to phrase your questions in the form of a question.

MR. GRAHAM: Yes, your Honor.

JUDGE CLARK: Thank you.

BY MR. GRAHAM:

- Q. Isn't it true, sir, yes or no, that under the procedure that you have described after a lineman or whoever has gone out and done an inspection, if there -- if he doesn't identify anything about the pole that's wrong, there's not going to be a record?
- A. I don't know the procedure that he has to record what he's done. There is a guidance for inspections that have to happen, and they do their recording based on their inspection. But I don't know the degree that you're asking.
- Q. Yes or no. I'm -- yes or no. Do you know what the procedure is that the Company follows, if any, for recording data when it goes out and inspects



- 1 poles? Do you know that procedure?
- 2 A. Can you identify what data means?
- Q. Whatever it might mean. There's -- you do not know what the procedure is?
 - A. Under the pole inspection process, I do not know what their specific procedure is for identifying that they've completed their work.
 - Q. Do you know whether they have a procedure for recording data, information observed during these inspections when nothing is done to the pole after the inspection? Is there any procedure at all for that?
 - A. I don't know, but I'm not sure how this relates to the property records, so that's --
 - Q. We're talking about --
- 16 A. -- a topic --

5

6

7

8

9

10

11

12

13

14

- 17 Q. I've been cautioned about --
- JUDGE CLARK: Well, as to relevance,
- 19 that's my determination to make, not yours.
- MR. SPANOS: Well, that's why I -- I'm
- 21 trying to answer the yes or no or no because I don't
- 22 understand how that -- how I can answer that
- 23 question, why I need to know what data is.
- MR. GRAHAM: May I approach the witness?
- JUDGE CLARK: Yes.



1	MR. GRAHAM: And this is going I guess
2	we're going to need to mark this as 183.
3	JUDGE CLARK: I think it's going be 184
4	actually.
5	MR. GRAHAM: Is it 184?
6	JUDGE CLARK: 184.
7	MS. GRUBBS: Does counsel have another
8	copy?
9	MR. GRAHAM: No. Well, yes, I do.
10	MR. SPANOS: Thank you.
11	BY MR. GRAHAM:
12	Q. Mr. Spanos, I've handed you what's been
13	now marked as 184. Would you agree that somewhat
14	down the page there it says number MPSC 0209.1?
15	A. Yes.
16	Q. Okay. And the title of this document is,
17	and tell me if I read this wrong; I'm just doing this
18	for the record in identification purposes, Ameren
19	Missouri's Response to MPSC Data Request, MPSC
20	gives the case number and the name of the case.
21	Correct?
22	A. Yes.
23	Q. Would you be would you read into the
24	record here the question and the answer in this DR
25	beginning with the words. Please identify.



_	Page 516
1	MS. GRUBBS: Objection. Mr. Spanos is not
2	listed as the respondent, so no foundation's been
3	laid that he is aware of this. But but also this
4	seems very far afield or beyond the scope of the
5	Commission or I'm sorry, the judge's questions.
6	MR. GRAHAM: This is redirect I believe,
7	your Honor.
8	MS. GRUBBS: No, it is not redirect.
9	JUDGE CLARK: It can't be redirect
10	MR. GRAHAM: Oh, I'm sorry.
11	JUDGE CLARK: if it's not your
12	witness.
13	MR. GRAHAM: Correct. That is correct.
14	I'm sorry; I lost my place in the day. Yeah. This
15	is offered to impeach him and this is the Company's
16	response to the data request.
17	JUDGE CLARK: I'm agree that he I'll
18	agree that they haven't moved to enter it. I don't
19	have a problem with having him read it for
20	impeachment purposes. That will be overruled.
21	BY MR. GRAHAM:
22	Q. Would you read the question and the
23	response, sir.
24	A. You want me to read the whole
25	Q. Yes.



- -- the whole question? Α.
- 2 0. I do.

1

5

6

18

19

20

21

22

23

24

25

3 Α. Okay. Please identify the individual or 4 individuals responsible for determining which existing unit of property is retired from the continuing property record when a given item is 7 removed from service. In light of the response 8 provided to Staff's DR 209 stating in pertinent part 9 no location information exists in the Company's 10 property accounting records for mass property For example, in DR 209 Staff inquired 11 investments. 12 regarding the location of an asset described as 13 Engineer in-service year 12, slash 1/2021, in-service 14 year 1/1/2021, vintage 2021, asset ID 41578918, 15 retirement unit recloser 14.4 kV, one phase, 16 activity quantity 1 and activity cost \$914.16. 17 excuse me, \$914,216.

The continuing property record included in the work papers of Mr. Hickman in this case indicates that there are items in Account 365, overhead conductors and devices, that are identified as recloser 14.4 kV one phase. By asset number these items range in average value from negative 515,247 to positive 914,216 and from vintage 1988 to vintage 2022. Please describe the process and



	Doma E
1	Page 5 ^r safeguards in place for the responsible individual to
2	determine which vintage engineering in-service year,
3	in-service year, and asset ID is selected to
4	correspond to a given item that is physically removed
5	from service.
б	Data requested by Sarah Lange and then her
7	email address.
8	Q. Now if you'd read the response please.
9	That was the question. Correct?
10	A. That was, yes.
11	Q. Go ahead and read the response then.
12	A. Response prepared by Paul Mertens, manager
13	plant accounting, date November 2nd, 2022.
14	Mass property items that are to be retired
15	are provided to plant accounting through a work
16	management system. Because the specific asset being
17	retired cannot be identified within our mass property
18	accounting records, retirements are selected based on
19	retirement curves and statistic statistical
20	analysis provided by the Company that performs
21	Ameren's depreciation studies, Gannett Flemming.
22	For location property the actual asset to
23	be retired can be determined within the Company's
24	accounting records. The plant accounting group works
25	with the business line to identify the continuing



	Page 519
1	property record to be retired when the asset is taken
2	out of service.
3	Q. Thank you.
4	JUDGE CLARK: Hold on. Hold on just a
5	second. Mr. Spanos, what do you do?
6	MR. SPANOS: I'm a depreciation
7	consultant. I do work for utility companies across
8	the across the country and Canada.
9	JUDGE CLARK: Mr. Graham, I see I see
LO	the point you're trying to make, I do, but I I'm
L1	getting the feeling that we're getting a little off
L2	track in that it seems like you're asking a person
L3	wearing shoes how how the shoes were made.
L4	MR. GRAHAM: If I may ask my next
L5	question, I think that'll clarify that.
L6	JUDGE CLARK: Go ahead.
L7	BY MR. GRAHAM:
L8	Q. You remember my last series of questions
L9	to you about the data that's being recorded by the
20	people that, you know, as the judge has correctly
21	characterized, the people with the shoes that are out
22	there on the job. But doesn't this document that
23	you've just read from KCR-2022-0337 indicate that
24	you've got people out there recording data who are

25

looking at assets and are communicating information

back?

2.2

MS. GRUBBS: Objection in that it
misrepresents what the document says. It says, For
location property. The issue in this case is mass
property, and I believe the witness has been
testifying from the mass property perspective, not
location property, which is a completely different
type of property.

MR. GRAHAM: May I respond?

JUDGE CLARK: You may. I'm going to inform you at this time that I've got an email that your conversations with Ms. Lange are being picked up by the microphone, so you might want to turn off the microphone when you talk to each other.

But go ahead and respond to the objection.

MR. GRAHAM: All right. Yes. I see that there are two wings to this. I saw that when I asked the question. One's for mass property; one is for location property. But doesn't the response indicate in either event there are servicemen out there that are in communication with the Company's accounting departments and personnel?

MS. GRUBBS: Where within the documents are you referring? Objection; vague.

1	Page 521
1	JUDGE CLARK: I don't know I don't
2	know that it's vague. I think you're asking the
3	you're making an assumption you're making an
4	assumption from the reading of that and you're
5	asking it appears that you're asking the witness
6	to make that same assumption. So it seems that
7	you're asking for them to speculate as to the
8	meaning.
9	MR. GRAHAM: I won't, I promise. I'll
10	ask him if he knows or doesn't know. I'll read this
11	statement
12	JUDGE CLARK: All right. I will overrule
13	the objection for now. You may go ahead.
14	BY MR. GRAHAM:
15	Q. The statement says, if you look, Mass
16	property items that mass property items that are
17	to be retired are provided to plant accounting
18	through a work management system.
19	First of all, did I read that correctly?
20	A. You did read that sentence correctly.
21	Q. Now, here comes the do you understand or
22	do you know question. Do you know what that process
23	is?
24	A. I know that the field personnel
25	incorporate information into the work man well,



	Page 522
1	into their system which goes into the work management
2	system which eventually gets to plant accounting.
3	That's the degree of my knowledge.
4	MR. GRAHAM: I believe that's all the
5	questions I have.
6	JUDGE CLARK: Is there any further cross?
7	Any redirect?
8	MS. GRUBBS: No. I did want to clarify
9	though, was 184 marked? But is there
10	JUDGE CLARK: Nobody's moved to admit
11	this yet. Mr. Graham, were you moving to admit this?
12	MR. GRAHAM: Yes, I'll go ahead and see
13	what the Court rules.
14	JUDGE CLARK: Any objections to
15	admitting 184 onto the onto the hearing record? I
16	hear and see no objections. Exhibit 184, the Ameren
17	Missouri's Response to Data Request MPSC is admitted
18	onto the hearing record as Exhibit 184.
19	(Staff Exhibit 184 was received into
20	evidence.)
21	JUDGE CLARK: And you indicated no
22	redirect?
23	MS. GRUBBS: Yes, your Honor.
24	JUDGE CLARK: Mr. Spanos, thank you. You
25	may step down.



-	Page 523
1	MR. SPANOS: Thank you.
2	JUDGE CLARK: Ameren, call your next
3	witness.
4	MS. GRUBBS: Thank you. The Company
5	calls its second witness for Issue 2, Mitchell
6	Lansford to the stand.
7	JUDGE CLARK: And, Mr. Lansford, would
8	you raise your right hand and be sworn.
9	(Witness sworn.)
10	JUDGE CLARK: Please be seated and say
11	and spell your name for the record.
12	MR. LANSFORD: It is Mitchell Lansford,
13	M-i-t-c-h-e-l-l, Lansford, L-a-n-s-f-o-r-d.
14	JUDGE CLARK: Go ahead, Ameren.
15	MS. GRUBBS: Thank you.
16	MITCHELL LANSFORD, having been first duly sworn,
17	testified as follows:
18	DIRECT EXAMINATION BY MS. GRUBBS:
19	Q. Mr. Lansford, by whom are you employed and
20	what is your title?
21	A. Ameren Missouri, and I'm the director of
22	regulatory accounting.
23	Q. You are the same Mitchell Lansford who
24	filed Direct testimony, Supplemental Direct
25	testimony, Rebuttal, Surrebuttal, slash, True-Up



1	Page 524 Direct, and True-Up Rebuttal testimonies in this case	
2	which have been marked as Exhibits 45, 46, 47, 48,	
3	and 49?	
4	A. Yes.	
5	Q. Do you have any corrections or revisions	
6	to make to your testimonies?	
7	A. I do not.	
8	Q. So if I asked you the questions within	
9	your testimonies today, your answers would be the	
10	same?	
11	A. Yes.	
12	MS. GRUBBS: I move for Exhibits 45	
13	through 49 to be into moved into the record.	
14	JUDGE CLARK: Any objection to admitting	
15	Exhibits 45, 46, 47, 48, and 49, which are the	
16	Direct, Supplemental Direct, Rebuttal testimony,	
17	Surrebuttal and True-Up Direct testimony, and True-Up	
18	Rebuttal testimony of Mitch Lansford onto the hearing	
19	record? I see and hear no objections. Exhibits 45,	
20	46, 47, 48, and 49 are admitted onto the hearing	
21	record.	
22	(Ameren Missouri Exhibits 45, 46, 47, 48,	
23	and 49 were received into evidence.)	
24	MS. GRUBBS: Thank you, your Honor.	
25	Mr. Lansford is tendered for cross-examination.	



İ	Page 505
1	Page 525 JUDGE CLARK: Any cross-examination for
2	MIEC?
3	MS. PLESCIA: No questions. Thank you.
4	JUDGE CLARK: MECG?
5	MR. OPITZ: No, thank you.
6	JUDGE CLARK: Sierra Club, NAACP, and
7	MCU?
8	MR. THOMPSON: No questions, your Honor.
9	JUDGE CLARK: Renew Missouri?
10	MR. LINHARES: No questions, thank you.
11	JUDGE CLARK: Public Counsel?
12	MR. WILLIAMS: No, thank you.
13	JUDGE CLARK: Staff, any
14	cross-examination for this witness?
15	MR. GRAHAM: If I may have a moment, your
16	Honor.
17	JUDGE CLARK: Take your time.
18	MR. GRAHAM: No questions from Staff.
19	JUDGE CLARK: Are there any Commission
20	questions for this witness? Hearing none, I have a
21	few questions for you, Mr. Lansford.
22	MR. LANSFORD: Yes, sir.
23	QUESTIONS
24	BY JUDGE CLARK:
25	Q. Do you have your testimony on you



- A. Do you see the chart in the middle of page 10?
- Q. Hold on. You said your -- is it



Surrebuttal?

1

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

- 2 A. Yes. Surrebuttal True-Up Direct, it's the 3 Surrebuttal portion.
 - Q. And you said page 10. Is that correct?
 - A. Correct.
 - Q. Okay. I'm there. Go ahead.
 - A. This excerpt, line 12 here, that's from our continuing property records, our CPR, and it shows each of these categories. You can see plant control account which is 1364, this is for poles, so a category of mass property for the Company. That's been recorded.

In the second column you see the vintage year that's associated with this particular asset.

That's been recorded as required.

The quantity that's associated with that vintage year is also -- is also recorded in the activity quantity column, the fourth from the left.

We have a general description under the retirement unit heading.

 $\label{eq:And then -- and then finally we have the average cost.}$

Each of the elements as required by the guidance that you cited have been recorded into or Uniform System of Accounts --

Q. Are any of --

1

- 2 A. Into our CPR. Sorry.
- Q. Are those actuals, are those estimated, or are those computer generated in some way? What -- what are these?
- 6 Every single one of those are actuals Α. 7 that, you know, we input an amount into our 8 continuing property record as we capitalize an asset. 9 Every single amount that you see there is an actual 10 amount. As we retire amounts, as we retire and 11 remove records from the continuing -- from the CPR, 12 that's -- that's where we estimate those -- the 13 retirements of our -- of our categories of mass 14 property.
 - Q. What do you mean by that?
- 16 A. What do I mean by estimating the retirements?
- Q. Yes. I mean, I -- let's assume the actual, which is I know nothing. So let's just -- let's just assume that I want -- I don't know --
- 21 A. Yeah.
- Q. -- what the purpose of this.
- Let's say I look at this and it says, This
 pole is due for retirement. I go out there and I go,
 Well, this pole looks great, but they say I have to

chop it down.

A. Yeah. So the CPR is a database of our plant records. Right. And we are constructing new assets, installing new poles, hanging new wire or whatnot, we are going to add rows, records to that database to show that we've installed those assets. Right. Are -- you're following me on that?

And then the question here is what do you do when you need to retire something from the system. You know you've taken a pole, you know, off the system, some probably associated conductor as well. And so from there, we have to remove a record from our -- from our database. And that's where we're estimating that record. We know we removed a pole, but the exact and specific characteristics of that pole that was removed from our system or that wire, you know, that's where we're estimating it as we've sort of laid out using our depreciation study.

- Q. And why are you having to estimate it as opposed to identifying the actual pole that was removed?
- A. Why do we have to -- there -- there's no bridge. There's no way to know that you took a pole off of our system and then be able to find that into our -- into this database. This database has no

Page 530 characteristics to identify or specifically show what

- 2 | pole or what section of conduit was removed from the
- 3 | system. There -- there's just no way to translate it
- 4 to this -- to this data, to our accounting records.
- 5 And that's not required, in fact, based on the
- 6 accounting guidance that we just looked at and
- 7 referred to a couple times.

- 8 Q. Well, when you say it can't be done, are
- 9 | you saying that -- that -- when you're saying it
- 10 | can't be done and you're saying that the -- that the
- 11 database doesn't have the capability to enter that
- 12 | information, is it just that you're missing a row and
- 13 | that it's the software or?
- 14 A. No. I wouldn't characterize it that way,
- 15 Judge. By -- by electing to account for -- for these
- 16 | investments as categories of mass property, by -- by
- 17 | utilizing that section of the guidance, we do not
- 18 | have the necessary data to translate it to the
- 19 | location or to a specific pole on our system that may
- 20 be retired in the future. We would have to change
- 21 | our accounting convention to -- to abandon the
- 22 | category of mass property guidance that we're -- that
- 23 | we're applying here and perform the same accounting
- 24 | methods that we perform for location property, which
- 25 | is -- which is where you know exactly -- exactly

- 1 what's being retired from the system. You know
- 2 exactly, you know, if it's an entire power plant,
- 3 | you're going to specifically remove -- remove that
- 4 power plant or even if it's just, you know, several
- 5 | components of a power plant.
- Q. And correct me if I'm wrong, but it sounds
- 7 | like the way you're saying it, it's that your
- 8 | accounting system doesn't comply with the
- 9 | Commission's rule?
- 10 A. No. I would not agree with that, Judge.
- 11 There are just two sections of accounting rules here,
- 12 one of which is for location property and one of
- 13 | which is for mass property. And we're using the
- 14 | conventions relating to mass property for these
- 15 | high-volume relatively low dollar amount assets like
- 16 | poles and wire and such.
- Q. Okay. Now, Ameren, in Spanos's Rebuttal,
- 18 | do you have that available to you?
- 19 A. I do not actually have that in front of
- 20 | me.
- 21 O. Well, I'll just tell you what it states
- 22 | and if you have -- if we need to pull it up, we can.
- 23 | In his Rebuttal testimony it states, It is always
- 24 | best to be able to specifically identify the actual
- 25 | vintage of an asset. However, for mass property

1 assets, achieving this goals is not realistic.

2

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

2.2

23

24

25

Doesn't the statement imply that the year 3 an asset is placed in service isn't recorded as 4 required by the USoA?

- It is recorded, Judge. It is -- but it is estimated. And, you know, I guess the guestion is -yeah, it's recorded and the data exists. We do record the retirement.
- Well, how's it recorded when it's placed O. into service?
- Well, when it's placed into service, Α. there's no estimation; it's the actual amount. It's the actual vintage, it's the actual -- actual average cost associated with that, that project. There's no estimation upon initial recording.
- Are you familiar with 18 CFR part 125.3, Q. the Federal Energy Regulatory Commission schedule of records and periods of retention?
 - I don't have that in front of me. Α.
- Under Plant and Deprecation 16B it states, Ο. Continuing plant inventory ledger, book or card records showing description, location, quantities, cost, et cetera of physical units or items of utility plant owned have retention period of 25 years.

Are you aware of any separate description

- for mass property asset retentions in part 125.3?
- 2 A. I am not.

- Q. Does Ameren retain separate plant records for depreciation and income tax purposes?
- A. I don't know if I would call them separate plant records for depreciation or income tax records. We have -- we have subledgers. We have a subledger for a fixed asset system. We have a subledger for our income tax transactions. And -- and those rely on the same data.
- Q. But those aren't separate and apart from this record?
- A. They -- they all are reliant on the same data including this data.
- Q. Now, you state on page 10 of your Rebuttal that Ameren has approximately 900,000 poles. And the difficulty is in tracking the location and vintage of each pole. Is that correct?
- A. That's correct. In no way does our accounting system for these categories of mass property like poles and the example you bring up here have location information where you can go find the pole in our system along with vintage, quantity, cost, et cetera.
 - Q. Now, according to its 2021 annual report,



- Ameren Missouri has over a million residential
 customers and approximately 1.2 million customers in
 total. Is that correct?
 - A. I believe it's correct based on -- yeah.

 Based on my knowledge of those approximate amounts.
 - Q. How does Ameren manage to identify each customer by location and bill them each month?
- 8 A. We -- we do -- we do keep those records. 9 We -- that's a record that we -- that we do keep.
 - Q. Now, when you say you do keep these records, so you do keep them for customers, but not for mass property in the same manner?
 - A. Right. Yeah. The -- the records that you need to be able to bill your customers accurately and collect -- collect from your customers have different characteristics than what's necessary to account for categories of mass property. So yes, the data that that we collect, retain, and otherwise keep is different for those two data elements.
 - Q. Now, you heard Mr. Graham's opening. Correct?
- 22 A. I did.

4

5

6

7

10

11

12

13

14

15

16

17

18

19

20

21

Q. And he -- I got two things from it and that is that you shall do this unless, and then there was the words "impossible or impractical." Which one



of those is Ameren claiming?

A. Impractical. Yeah. Without a doubt. I mean, we have 110, you know -- over a hundred million feet of -- of overhead conductor. We account for each foot of that overhead conductor separately. And 900,000 poles, crossarms that may be an equal amount. And you see the volume of, you know -- of relatively, you know, the high volume of relatively low dollar amounts begin to build and build and build when you talk about specifically tracking each foot of conductor overhead, I guess underground as well.

JUDGE CLARK: Okay. Those are all the questions I have. Any recross based upon bench questions?

MR. WILLIAMS: Yes, please.

JUDGE CLARK: Go ahead, Mr. Williams.

CROSS-EXAMINATION

19 BY MR. WILLIAMS:

Q. I think I understand that there's a historical problem in that you haven't tracked, in mass asset property you haven't tracked retirements by item because you don't know a particular item so you've been doing it by a dollar amount. Is there some reason you can't track things like poles going



forward?

1

17

18

19

20

21

2.2

23

- MS. GRUBBS: Objection. That's beyond the
- 3 | scope of your questions.
- JUDGE CLARK: I don't think it is. I'm going to overrule it.
- 6 MR. LANSFORD: Can you repeat your
- 7 | question?
- 8 BY MR. WILLIAMS:
- 9 Ο. Is there some reason you can't track specific items? Well, let's pick poles in 10 11 particular. Is there some reason you can't have a 12 database where you know what dollar's associated with 13 a particular pole so that you have that information 14 in the future so when that pole's retired, you know 15 the dollars associated with it for what you're 16 tracking currently as mass property?
 - A. Just as it's impractical to do that for our historical records, it's impractical for us to do that going forward.
 - Q. Well, I understand the impracticability about history, but with the databases and computerization we have currently, and places like Walmart do that all the time, is there -- is it really impractical to do? And if so, why?
- 25 A. Yeah. Sure. I mean, I'll just try to



Page 537

describe that. It's that same -- that's that same -- you know, it's that same process that Mr. Spanos was describing a bit.

You know, what would it take I guess to track this stuff going forward. The first thing -- you know, it's a multi-step process. What would you have to do. The first thing you'd have to do is go out and assign some sort of asset ID to every -- you know, to every new asset on the system. Right. You would have to assign that. Right.

Then you would have to then, you know, train your employees to understand and identify and how to use that -- that new asset ID that's been -- you know, that's been determined. They'd have to take time, you know, as Mr. Spanos mentioned to then, when that asset is then being retired, they'd have to take time to -- to determine that asset ID, to determine the accounting characteristics, to call up a database, whatever it might be, and then, you know, then process that transaction.

That entire database, that entire process would have to be designed. There would be a digital or a software element of doing that. It would have to be implemented. It would have to be paid for.

And we'd have to -- we'd be pretty clear that there

- would be direct, you know, benefits that came out of that process as well in order to do all that.
- Q. Well, I've heard of this thing called
 Google Maps and Mapquest where you actually can see
 some poles from a satellite image, and all you would
 need to do is tag it and have the original
 information and that was being the pole removed,
 would you not?
- 9 MS. GRUBBS: Objection; assumes facts not in evidence. It calls for speculation as well.
 - JUDGE CLARK: Give me a second. Give me a moment, let me think about this. I see the point you're trying to get to. Can you ask a different question and get there?
- 15 BY MR. WILLIAMS:

11

12

13

14

16

17

18

19

20

21

2.2

23

24

- Q. Aren't there different ways than what you've described in order to track the dollars associated with a particular assets that's being installed or replaced or removed?
 - A. Are there different ways than what I described?
 - Q. Yes. Than somebody in the field actually having to collect a bunch of information and relay it. Couldn't you design a system where they would only -- where you would only need to know that the



Page 539 1 pole is either being installed or replaced or 2 removed? 3 Α. Would somebody at the -- in the field then 4 need to -- you know, still -- somebody in the field 5 would still be needed to identify that that pole is 6 being installed or replaced. 7 But that would be the only information Ο. 8 somebody in the field would need to provide to the 9 accounting department. Correct? Could you develop a system where that was all that was needed? 10 Let me 11 put it that way. 12 Α. I think maybe theoretically it is 13 possible. You know, at what cost, I'm not sure. 14 And during normal maintenance aren't there Ο. 15 decisions made before you're out in the field as to 16 actually replacing or removing something like a pole? 17 MS. GRUBBS: Objection; this is beyond the scope of the judge's questions. 18 19 JUDGE CLARK: What's the question again? I don't recall offhand 20 MR. WILLIAMS: 21 If the court reporter could read it back 2.2 question read back.

COURT REPORTER: "Question: And during normal maintenance aren't there decisions made before you're out in the field as to actually replacing or

23

24

	Page 540
1	removing something like a pole."
2	JUDGE CLARK: I'm going to sustain the
3	objection.
4	MR. WILLIAMS: No further questions.
5	JUDGE CLARK: Any other recross based
6	upon bench questions? Mr. Graham, do you have any
7	recross for this witness?
8	MR. GRAHAM: Yes, your Honor.
9	RECROSS-EXAMINATION
LO	BY MR. GRAHAM:
L1	Q. Mr. Lansford, just as sort of an
L2	introduction here, when assets are placed out there,
L3	poles, so forth, you've heard us talking about those
L4	today, is it not the case that an ID number is
L5	assigned to each one of those?
L6	MS. GRUBBS: Objection; beyond the scope
L7	of the judge's questions.
L8	JUDGE CLARK: Mr. Graham, I'm going to
L9	cut you off for just a second. I'm going to go
20	back. I'm going to disagree. I think the identity
21	of the mass assets is what this is all about and I'm
22	going to let Mr. Williams ask the questions that I
23	did not let him answer before. So, Mr. Williams, go
24	ahead.
) E	DECDOCC EVAMINATION



BY MR. WILLIAMS:

1

2

3

5

6

7

8

9

- Well, that question, if I recall it correctly, was about identifying the property that 4 was going to be installed or replaced or removed before you actually go out in the field.
 - And I would say I'm not involved in Α. planning, you know, that maintenance. I wouldn't know exactly how that process works. I'd have to speculate.
 - Ο. So your answer is you don't know?
- 11 Α. I don't know.
- 12 MR. WILLIAMS: That's a good answer.
- 13 Thank you.
- 14 JUDGE CLARK: And now Mr. Graham, you may 15 ask your question.
- 16 RECROSS-EXAMINATION
- 17 BY MR. GRAHAM:
- 18 My question is when an asset is placed out Ο. 19 there or at some point after it's out there, isn't it 20 assigned by the company, a lineman or someone assigns 21 it an ID number that's specific to that asset?
- 2.2 MS. GRUBBS: And I will renew my
- 23 objection.
- 24 JUDGE CLARK: And I will overrule that
- 25 objection.



1	Page 542 MR. LANSFORD: I know for certain that
2	there is no assignment of an asset ID to those poles
3	or any section of our conduit or or overhead
4	conductor that can correspond with our plant
5	accounting records. I I'm aware generally that
6	we in that we do put a pole tag on some of
7	these poles so that we can do our pole inspection
8	program, but my knowledge of that pole inspection
9	program is is limited to that.
10	BY MR. GRAHAM:
11	Q. So there is a pole tag?
12	A. At least for some of our poles. I don't
13	know what our pole pole inspection program
14	entails, but I'm aware that we have some pole tags on
15	some of our poles. Similarly or, you know, in
16	contrast to that, I'm definitely aware that we have
17	no asset IDs on any of our overhead conductor.
18	MR. GRAHAM: May I approach, your Honor?
19	JUDGE CLARK: Yes.
20	MR. GRAHAM: Looking for copies for other
21	people. I'll give this one to the judge. I'm going
22	to show everybody this. If the judge will indulge
23	me, I have only one copy of this so I'm going to take
24	it from counsel to counsel.
25	JUDGE CLARK: That's fine. Go ahead.



1	Page 543 MR. GRAHAM: Your Honor, if you'll
2	indulge me, I'll get a copy of this later. I'm just
3	shuffling paper here. What is the next number.
4	JUDGE CLARK: I believe that would
5	be 185. Is that correct? Yes. It's 185.
6	BY MR. GRAHAM:
7	Q. I'm going to hand you this, sir. It's the
8	only copy I've got, so I'll be over here and I'll
9	come over if I need to see it.
LO	JUDGE CLARK: Mr. Graham, what do you
L1	want to call that?
L2	MR. GRAHAM: I'm going to call that
L3	response and Exhibit let's see, is it 439? Let me
L4	turn my speaker on. There we go.
L5	That's going to be Ameren Missouri's
L6	Response to MSPC Data Request No. 439 with
L7	attachment.
L8	JUDGE CLARK: Could you speak a little
L9	clearer into the microphone; I'm sorry.
20	MR. GRAHAM: Yeah. That's Ameren
21	Missouri's Response to MPSC Data Request 439 with
22	attachment.
23	MS. GRUBBS: May I clarify there are
24	multiple attachments to DR 439 is what was submitted
25	it looks like through EFIS. So is this I see one



- 1 | that says poll data. Okay.
- 2 MR. GRAHAM: Pole data is the specific
- 3 | subject of the attachment. And I'm letting
- 4 Mr. Lansford take a look at that.
- 5 BY MR. GRAHAM:
- 6 Q. Have you had an opportunity, sir, to see
- 7 | that?
- 8 A. I have, yep. I would like to --
- 9 Q. Well, there's not a question on the table
- 10 | yet.
- 11 A. Yes, sir.
- 12 Q. But I take it you want to correct an
- 13 | answer that you gave earlier?
- 14 A. I do not.
- 15 Q. Okay. Now, isn't it the case that a
- 16 | question or a DR was propounded to the Company. And
- 17 | if you want to, let's just jump straight down to the
- 18 | answer. I'm going to read this and ask you if I've
- 19 | read it correctly. Where's the second page to this.
- 20 | I think this is it. All right. I'm going to read
- 21 | this and you tell me if I get it wrong.
- 22 To clarify -- and I'm going to start at
- 23 | the top so the record's perfectly clear when the
- 24 | judge reads it later. You tell me if I read this
- 25 | correctly or if I make a mistake.



Page 545

DR 201.1 states in part vintage, location, voltage, et cetera are not a part of the asset information collected, which is by design because not collecting such information is the essence of and a key benefit of using mass property accounting. At the end of the month the work management system sends that information to the power plant system. The information sent to power plant includes the retirement unit, 40-foot poles for example, in parenthesis, and the quantities retired.

Two, power plant then automatically uses the Iowa Survivor Curve for the account for the cost of 40-foot poles that are recorded to determine what quantities within any given vintage year it will select for retirement. That vintage year will not, except by pure coincidence, match the vintage of the actual asset retired in the field.

The draft evaluation methodology contained in Ryan Arnold's Direct testimony in part relies on the age, slash, asset vintage as a criterion to support justification for distribution system investments.

One, and here comes our question, explain in detail the asset, slash -- the age, slash, asset vintage data Ameren Missouri has available to

	Page 546
1	quantify identify and document the age, slash, asset
2	vintage for distribution system assets for each
3	category separately. System hardening, substations,
4	underground cable upgrades, revitalization of the
5	downtown St. Louis underground network, grid
6	resiliency, and smart grid technology.
7	Two, please reconcile the response to
8	DR 209.1S and the draft evaluation methodology
9	presented by presented in Ryan Arnold's Direct
10	testimony, specifically DR requested by Claire
11	Eubanks and there is her email address.
12	Did I read the DR correctly?
13	A. Yes.
14	Q. Okay. Now let's look at the response.
15	Tell me if I've read this correctly.
16	To clarify, the quote from DR 209.1S1
17	referred to in data request relates to the type of
18	information that is determined to process the
19	retirement of categories of mass property as it
20	relates to the Company's property accounting records.
21	Other categories of information or data points are
22	determined for other purposes as I will describe
23	below. Company maintains accounting records for all
24	of its investments and those accounting records
25	contain life characteristics as required under FERC

1	USoA, Unif	Page 547 orm System of Accounts. A copy of these
2	accounting	records were provided in response to data
3	request MP	SC 01.25.1. Separately the Company
4	maintains	operational records for its energy delivery
5	assets whi	ch were provided in response to data
6	request MP	SC 0440 and which document the vintage of
7	those asse	ts.
8		Did I read that correctly?
9	Α.	Yes.
10	Q.	And it goes on to say, No other age,
11	slash, ass	et vintage data exists for these assets.
12		Did I read that correctly?
13	Α.	Yes.
14	Q.	Now, to this document and provided with
15	this docum	ent is the schedule there concerning poles.
16	Do you hav	e it in front of you?
17	Α.	I do.
18	Q.	Does it not identify for each one of those
19	poles a ta	g number?
20	Α.	For this page, this section of poles that
21	we have th	ere is a pole tag number.
22	Q.	And an age?
23	А.	And an age.
24	Q.	Okay. And that information is not
25	produced b	v an Towa curve or vour software. That was



1	actual information for the assets that are recorded
2	there. Correct?
3	A. It was produced by the inspections.
4	Q. Yes. So to go back directly to a question
5	that the judge asked you, it's your software and your
6	accounting system based on that software that is not
7	in compliance with the rule. Isn't that true?
8	A. No, absolutely not.
9	MR. GRAHAM: No further questions. I
LO	would what number did I write on that,
L1	Mr. Lansford?
L2	MR. LANSFORD: 185.
L3	MR. GRAHAM: I would offer into evidence
L4	Exhibit No. 185.
L5	JUDGE CLARK: Any objection to admitting
L6	Exhibit 185, Response to MPSC DR 49 and Pole
L7	Attachment? Hearing and seeing none, Exhibit 185
L8	will be admitted onto the hearing record.
L9	(Staff Exhibit 185 was received into
20	evidence.)
21	JUDGE CLARK: And Mr. Graham, you said
22	you have no more questions?
23	MR. GRAHAM: That is correct, your Honor.
24	JUDGE CLARK: Any and at some point
25	I'll need to get that exhibit.





Ameren, do you have any

JUDGE CLARK:

further witnesses for this issue?

24

Page 550 1 MS. GRUBBS: No, your Honor. 2 I have Staff listed next. JUDGE CLARK: 3 Would Staff like to call their witness? 4 Cedric Cunigan. MR. GRAHAM: 5 JUDGE CLARK: Mr. Cunigan, would you 6 raise your right hand and be sworn. 7 (Witness sworn.) 8 JUDGE CLARK: Please be seated and state 9 and spell your name for the record. 10 MR. CUNIGAN: Cedric E. Cunigan. Cunigan 11 is C-u-n-i-q-a-n. 12 JUDGE CLARK: Go ahead, Staff. 13 MR. GRAHAM: Thank you, your Honor. 14 CEDRIC CUNIGAN, having been first duly sworn, 15 testified as follows: 16 DIRECT EXAMINATION BY MR. GRAHAM: 17 And again, if you would state your name 0. for the record. 18 19 Cedric E. Cunigan. Α. 20 All right. Are you employed by the Staff Ο. 21 of the Commission? 22 Α. Yes. 23 And in what capacity? Ο. 24 Senior professional engineer. Α. 25 And have you filed in this proceeding Q.



1	Direct tes	timony with the Exhibit number of 117,
2	Rebuttal to	estimony with an Exhibit number of 118, and
3	Surrebutta	l, slash, True-Up Direct testimony with an
4	Exhibit nu	mber of 119?
5	Α.	Yes.
6	Q.	Do you have any corrections to make to any
7	of these de	ocuments?
8	Α.	Yes, to my Direct testimony.
9	Q.	That's Exhibit 117?
10	Α.	Yes.
11	Q.	Would you describe your corrections
12	please.	
13	Α.	So on page 6, line 16, it reads, And the
14	whole-life	technique.
15		That should be remaining-life technique.
16		JUDGE CLARK: What page is that again?
17		MR. CUNIGAN: Page 6, line 16.
18		And then I would also strike page 6,
19	lines 18 tl	nrough page 7, lines 12. That was a
20	holdover f	rom a previous case.
21	BY MR. GRA	: MAH:
22	Q.	Are those your corrections to Exhibit
23	No. 117?	
24	Α.	Yes.
25	Q.	Do you have any corrections to either 118



- 1 or 119, your other testimonies? 2
 - Α. No.

3

4

5

6

8

9

- Q. Okay. If I were to ask you the questions that are set out in those documents, would your answers be the same ones as you have now corrected them?
- 7 Α. Yes.
 - And with those corrections, are those same Ο. answers true and now correct to the best of your knowledge and belief?
- 11 Α. Yes.
- 12 MR. GRAHAM: Your Honor, at this time I would offer or tender into evidence Exhibit 117, 118, 13 14 and 119 and tender the witness for cross-examination.
- 15 JUDGE CLARK: Any objection to admitting 16 Exhibits 117, 118, and 119, the Direct, Rebuttal, and 17 Surrebuttal testimony of Cedric Cunigan onto the
- hearing record? I hear and see no objections. 18
- Exhibit 117, 118, and 119 are admitted onto the 19 20 hearing record.
- (Staff Exhibit's 117, 118, and 119 were 21 received into evidence.) 2.2
- 23 JUDGE CLARK: Is there any 24 cross-examination from Public Counsel?
- 25 No, thank you. MR. WILLIAMS:



ı	Transcript of Froceedings
1	Page 553 JUDGE CLARK: Any cross-examination from
2	MIEC?
3	MS. PLESCIA: No questions, your Honor.
4	JUDGE CLARK: MECG?
5	MR. OPITZ: No, thank you.
6	JUDGE CLARK: Sierra Club, NAACP, MCU?
7	MR. THOMPSON: No questions, your Honor.
8	JUDGE CLARK: Any questions from Renew
9	Missouri?
10	MR. LINHARES: No questions, your Honor.
11	Thank you.
12	JUDGE CLARK: Any questions from Ameren
13	Missouri?
14	MS. GRUBBS: Yes, your Honor.
15	JUDGE CLARK: Go ahead.
16	CROSS-EXAMINATION
17	BY MS. GRUBBS:
18	Q. Mr. Cunigan, you agree that the Uniform
19	System of Accounts requires less detailed information
20	for mass property assets, specifically location is
21	not required for mass property assets in the
22	continuing property record?
23	A. I agree that location is not required for
24	mass property assets.
25	Q. Do you believe that that then is less



- detail than is required for location property?
 - A. For that category, yes.
 - Q. You agree that depreciation in the regulated utility context estimates the reduction in value of an asset over time, or in other words, how assets depreciate over time?
- 7 A. Yes.

1

2

3

4

5

6

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

- Q. And survivor curves are estimates based on statistical analysis and judgment about the service life of assets. Right?
 - A. Can you restate the question?
- Q. Sure. Survivor curves are estimates based on statistical analysis and judgments about the service life of assets. Right?
 - A. Yes. I would agree with that.
- Q. Focusing on your proposal, your proposal to modify the retirement of mass property within the Company's continuing property records would require the work order system to tie to the asset IDs within the continuing property record. Correct?
 - A. There would have to be some kind of tie between the physical assets in the field and the asset ID that you have in the continuing property record. It may not necessarily require additional tagging. It could be a simple change in your

- spreadsheets or databases where you link it, but it would require some kind of tie.
 - Q. And you've heard -- you've been present for the presentation of the Company's witnesses,

 Mr. Spanos and Mr. Lansford -- Lansford, pardon me, today?
 - A. Yes.

- Q. So under your proposal to modify the retirement of mass property within the Company's continuing property record, wouldn't that practically mean that Ameren Missouri field personnel would have to find and note the asset ID tag for every asset being retired on a work order?
- A. To tie it to the continuing property record, there would need to be some kind of tie between the -- the asset ID and the continuing property record and some kind of identification on the asset in the field. I believe -- I don't have it in front of me now because the judge has my copy, but on that spreadsheet from -- attached to DR 439, there is an asset ID tag or a -- I'm trying to remember it. There is a tag number associated with those poles.
- Q. So my question was wouldn't that practically mean then though that Ameren Missouri field personnel would have to try to find and note



any tag, asset ID tag for every asset being retired on a work order?

- A. Yes. They would have to identify the asset somehow.
- Q. And to your knowledge are asset IDs for mass property currently maintained in the Company's work order system today?
- A. Asset IDs for certain equipment, like I said, such as the poles, they do have asset tags for those. I can't say it for every account that the Company has mass property on.
- Q. So, for example, the wires or conductor, are you aware of any tags with the asset ID on it for that type of asset?
- A. For wires I am not aware of that. I think also -- well, I'll let you ask your next question.
- Q. Is your recommendation then that the Company begin labeling every mass property asset like a foot of conduit -- or I'm sorry, a foot of conductor with an asset ID so that it can be recorded in the work order system?
- A. I think we would have to look at each individual asset group or account. Because when you look at mass property, I don't know if someone said it earlier or not, but it's for homogenous high count

Page 557

assets but also low value. And we have some assets in this -- in these accounts that are approaching a million dollars, and I wouldn't consider that low value.

And so there may be some wiggle room in there where we can say, you know, You may not have to do this tagging for, you know, wires. But if you can do it and it's more feasible, we might need to narrow that down.

- Q. So I might clarify then, is this a potential revision of your proposal that you would not suggest that this would be required for every type of asset group within mass property assets?
- A. My testimony did not outline specific accounts, but I would be open to discussions of the accounts and assets that this would be -- this new process could be used on.
- Q. Are you aware of tags on poles for example ever falling off or being damaged over the life of the asset?
- A. From personal experience, no, but it is feasible given storms, tornados, or car strikes that they be damaged. It's feasible.
- Q. And are you aware of asset ID tags for the Company's location property, so non-mass property,



- sometimes even falling off or being damaged over the life of assets that they're in service?
 - A. From personal experience, no.
- Q. So if an asset sticker or ID did exist on every pole, for example, or every crossarm, the field personnel would have to send the asset IDs with quantity information somehow to be provided to the plant -- plant accounting group. Is that accurate?
- A. There would have to be the asset ID and the quantity associated with that same asset ID or some other way to identify the vintage year.
- Q. So this is the step where you were talking about the tie or coordination required between systems like the work order system and the continuing property record --
 - A. Yes.

2.2

- 17 | O. -- would have to occur?
 - Okay. So then receiving that, the -- the plant accounting group would have to select then the quantity with the ID retired within the Company's continuing property record?
 - A. Yes. But it appears that they're already simulating that same data through power plant. You have to retire from a vintage group anytime you retire, and it's just recording it versus simulating



it.

- Q. May I clarify, when you use the term "simulate," is that the same thing as using the statistical analysis that power plant uses, or is there some other simulation occurring?
 - A. That's the same thing I'm referring to.
- Q. Do you agree that additional numerous staff field personnel, property accountants would have to be hired by the Company in order to effectuate your proposal for mass property asset retirements?
- A. I'm not aware of how many staff would need to be hired to facilitate something like this. As far as assets that are already identified in your system somewhere, it could be a simple switch in your database and no new tagging would be necessary.
 - O. A switch in which database?
- A. So for poles example, poles already have an asset tag on them from that DR 439 response. There's already an asset tag on certain poles. There is already an asset ID in the CPR for poles as well. It would simply be linking those in the database to the appropriate vintage year. Then when an asset tag is retired, you could track it that way. It would just, it would require linking those two IDs between



your systems.

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

2.2

23

24

25

- Q. But it would also require that the field personnel note the asset tag or that ID to then transmit it to the mass property account group -- accounting group, pardon me?
 - A. That's one option, yes.
- Q. Well, have you ever been a field personnel who would be responsible for noting assets to be retired and assets to be installed?
 - A. No.
- Q. Have you ever been booked an asset retirement with any community property record, not just Ameren's?
- A. No.
- Q. Okay. And the goal of your proposal to modify the retirement of mass property within the Company's continuing property record is more precision in the retirement process?
 - A. It's more precision in the data that we use. The data that we use in the depreciation studies to determine the depreciation curves is being simulated for these accounts. And so over time you get that feedback loop of the data appearing more and more like you expect it to.

And when we have random retirements due

- 1 | to, you know, if a brand new pole is struck down,
- 2 | that data is no longer getting reflected. It's
- 3 | looking -- it's just going to repeat the -- it's just
- 4 going to mimic the curve shape. And so actually
- 5 | tracking the data helps us track and determine if
- 6 | that curve shape is changing, but we don't get that
- 7 | without actually tracking the data.
- 8 Q. In your Rebuttal testimony, if you could
- 9 | shift to your Rebuttal please.
- 10 A. What page?
- 11 Q. Page 5 please.
- 12 A. Okay.
- 13 Q. So looking at page 5, lines 7 and 8
- 14 | specifically, you describe that the magnitude of
- 15 difference between book values and plant and service
- 16 | could be relatively small on a percentage-wise basis.
- 17 | Right?
- 18 A. That's what it states, yes.
- Q. Did you perform any analysis to confirm
- 20 | whether it was a small impact?
- 21 A. I didn't perform any analysis because you
- 22 | would actually have to know what the actual plant and
- 23 | service was, which we don't have that information, to
- 24 know how far off the current books are.
- Q. Your proposal to modify the retirement of



	Transcript of Proceedings Page 562
1	mass property as I understood it is only going
2	forward. Is that correct? So future work orders and
3	not try to go back to the inventory of existing mass
4	property assets. Is that correct?
5	A. Yes.
6	Q. Okay. So since your proposal is going
7	forward, when would the additional precision you're
8	proposing become statistically relevant?
9	A. It's hard to say. It would be different
10	for each account based on the life of those assets.
11	Q. Well, since many of the mass property
12	distribution assets are 40, 50-year-live assets,
13	wouldn't it be decades before there was statistically
14	relevant additional precision?
15	A. It really depends on how far off the
16	survivor curves are from actual data. And I don't
17	I don't know that.
18	MS. GRUBBS: Those are my questions.
19	Thank you.
20	JUDGE CLARK: Any questions from the
21	Commission?
22	CHAIRMAN RUPP: No, thank you, Judge.
23	TUDGE CLARK: Thank you I just have

22 CHAIRMAN RUPP: No, thank you, Judge
23 JUDGE CLARK: Thank you. I just have
24 very few questions for you.
25 QUESTIONS



BY JUDGE CLARK:

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

- Q. Did you examine the mass property records of other regulated utilities in Missouri?
 - A. Yes.
 - Q. Do other regulated utilities have the same issue with retirements being generated by software rather than recorded an actual plant retired?
- A. I am unsure at this time. We were not made aware of this instance until we got a data request response to let us know that they were simulating the data. We received the data in the manner that we asked it and we didn't know it was simulated up until this point.
 - Q. So at this point you don't know if other regulated utilities are also handling mass property this way?
 - A. Correct. And I think it was data -- data request response 209.1 I think where we first became aware of it.
- 20 Q. And that's already been entered into the 21 record.
- 22 A. I'm not sure.
- 23 Q. No, it has.
- 24 A. Oh, okay.
- Q. That was a statement, not a question. I



1	Page 564 think I'm looking at that, MPSC 20 0209.1?
2	A. Yes.
3	Q. Thank you.
4	A. And there's also a supplemental
5	response to that too that outlines a little bit
6	further, 209.1S1.
7	Q. Okay. That was not placed into the
8	record. What is what is data request 565?
9	A. 565. I do not have a copy of that in
10	front of me actually. Can someone
11	JUDGE CLARK: It appears Mr. Williams
12	with Public Counsel has a copy.
13	MR. WILLIAMS: That's what I got from
14	Mr. Robinett. I don't know if anyone wants to see it
15	before I
16	MR. GRAHAM: What number is it?
17	MR. WILLIAMS: 565.
18	JUDGE CLARK: I'd like somebody to verify
19	that it is what it is before they hand it to a
20	witness to read from. Thank you. Please.
21	MR. WILLIAMS: That's the original.
22	Mr. Cunigan, I'm handing you what's been marked as
23	response to MPSC 0565. Well, it hasn't been marked,
24	but that's what it is, a data request response.
25	MR. CUNIGAN: All right. Thank you.



BY JUDGE CLARK:

1

2

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

2.2

23

24

25

- Q. Are you familiar with that data request?
- A. If you'll give me just a minute to read
- 4 it. I believe someone else from Staff asked it.
 - Q. Please take your time. And I believe it's referenced in your Surrebuttal on page 5.
 - A. Oh, yes. There we go.
 - Q. What can you tell me about that particular data response?
 - A. So it's referring to poles, and it's specifically asking about their accounting records. So question, To please describe the extent to which these records were relied upon by Mr. Hickman in his classification of poles including identification of the years of inspection reports utilized.

I think the part that I was more interested in was that they -- number four, Please confirm whether Ameren Missouri possesses records of the vintage year and location of each of the Company's approximately 900,000 poles.

And so one of the things that we've specifically not asked for for -- or at least my recommendation was not that the location of the poles are tracked, but that the vintage year is. And that is, you know, one of the specific things that is

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

2.2

23

24

25

called out in the CFR and the CSR on multiple occasions for mass property. It's vintage year, quantity, placed in service by that vintage year and the associated cost or average cost by that vintage year. And vintage year is the key to determining those other pieces.

So like the location wouldn't matter as much for my purposes and my recommendation, though the Company does already track it. But tracking that vintage year would.

And I think I provide on page 4 of my Surrebuttal testimony there's another version of the CPR or continuing property record where they have an asset ID for -- this is looking at crossarms 30-foot and over. They have an asset ID tied to a vintage year and tied to the activity quantity and the average cost for that year. The thing is we don't know how accurate that is anymore because they're not recording it, but they're simulating retirements for And so when it comes to doing those depreciation studies, I don't know how far the data is off from the actual data in the field. And, you know, we argue back and forth over curve choices sometimes, but our data's faulty potentially. Or, you know, as one of the other Ameren witnesses says,

- 1 | It only matches by coincidence.
- JUDGE CLARK: I know this hasn't been
- 3 offered by any party. Are there any objections to
- 4 making the response to data request 565 a Commission
- 5 | exhibit?
- 6 MR. GRAHAM: No objection.
- 7 JUDGE CLARK: Any objection from the
- 8 | Company?
- 9 MS. GRUBBS: No. Thank you.
- 10 JUDGE CLARK: Any other objections? And
- 11 | I haven't actually assigned the Commission any
- 12 | numbers so I will call this Commission Exhibit 01.
- 13 | And I will call it Response -- Ameren Response to
- 14 Data Request 565 and that will be admitted onto the
- 15 | hearing record.
- 16 (Commission Exhibit 01 was received into
- 17 | evidence.)
- 18 JUDGE CLARK: And if somebody can get me
- 19 | a copy of that, that would be helpful. Doesn't have
- 20 | to be today.
- 21 BY JUDGE CLARK:
- 22 Q. Now, Ameren treats transformers as mass
- 23 | asset property. Is that correct?
- 24 A. I believe one of the accounts has those,
- 25 | yes.



Page 568

- Q. So that is, in fact, mass property?
- 2 A. They're treating accounts 364 through 373 as mass property, yes.
 - Q. And that's one of those accounts?
- 5 A. Yes.

1

4

10

11

- 6 Q. Do you know if transformers have serial 7 numbers?
- 8 A. I would assume so. I can't say that I've 9 actually seen one in person.
 - Q. I guess how big of an issue is this? Why is -- why in kind of a nutshell, why is this an issue?
- 13 So if you go to my Surrebuttal testimony Α. 14 on that chart on page 4, this is the 30-foot 15 crossarm and over, this is one account. If they 16 retire the wrong vintage year, say -- say the third 17 line, the 2019 vintage year has 27 poles in it. Ιf that pole is taken out, there's about \$9,000 18 19 associated with that pole on their books. So if it's physically taken out but they choose a different 20 21 vintage year, say they choose 1971 because it's 2.2 older, that value associated with that pole is 23 only \$170. And so the difference between those 24 amounts would remain in rate base and they'd recover 25 their return on that even though that asset is gone.

2.2

Page 569

And while most of the time the curve might pick the right year or it may not, I just don't know, but the rate of -- rate base is different from what's in the field if it's not actually recorded. And, you know, I picked that number, but, you know, if it was a 2020 poll, average cost of that is 58,000. And so every time you're off on the vintage year that you pick, you're off on the cost that's still in rate base.

And like I said, this is one example. All accounts may not have as drastic of a swing in prices, but we'd have to go through each account and really look to figure that out. And we didn't have to time to do it for every account for this -- in every retirement unit during this case.

- Q. Okay. Thank you for explaining that to me. Setting the Commission rule aside for a second, whether or not they've complied with the Commission rule, for your purposes would it be sufficient to do some sort of random sampling of a set number and see how far these curves are off as you say, or is that not something that makes any sense?
- A. I don't think you could do a random sampling on the inventory.
 - Q. Because it would have to be known



those accounting entries affect rate base?

2.2

23

24

25

Α. So I can't say that the accounting -- let me say this again. The depreciation rates is what goes in and then determines depreciation expense and



1	Page 571 how much plant service is removed when you balance it
2	with the reserve balance. And so that's where that
3	accounting data comes in on the depreciation
4	database.
5	Q. So do you know what the debits and credits
6	are for the accounting entries for a retirement of
7	mass property and how those entries affect rate base?
8	A. So when plant is retired, it should be
9	retired from the plant in-service account and the
10	reserve balance account.
11	MS. GRUBBS: Thank you. Those are all my
12	questions.
13	JUDGE CLARK: Any redirect from Staff?
14	MR. GRAHAM: Yes. Yes, your Honor.
15	Again, I need to approach.
16	JUDGE CLARK: Go right ahead.
17	MR. GRAHAM: I think I believe this is
18	going to be Exhibit 186. Before I go any further I'd
19	like
20	JUDGE CLARK: And how are you identifying
21	that?
22	MR. GRAHAM: This is going to be Ameren's
23	Response to Data Request 440.
24	REDIRECT EXAMINATION
25	BY MR. GRAHAM:



Page 572

- Q. Mr. Cunigan, you were asked a number of questions about Ameren's tags on cables or on poles.

 Is that right?
 - A. Yes.

- Q. I'm going to direct your attention to a document which I've handed you and which has been marked or will be referred to in the record as Exhibit No. 186. And we are going on call it Ameren's Response to Data Request 440. Okay?
- A. Okay.
- Q. Would you read, first of all, clearly identifying it as such, the question that was directed to Ameren in -- read off of 186 the question that was directed or the data request that was made to Ameren in this data request. Just read it off please.
- A. One, provide any and all data supporting the slide decks attached to Ryan Arnold's Direct testimony. Two, please explain the source of asset age, slash, vintage data included on the slide decks for each category separately, system hardening, substations, underground cable upgrades, revitalization of the downtown St. Louis underground network, grid resiliency, and smart grid technology. DR requested by Claire Eubanks and her email.



1	Q. Okay. And that was the data request. Is
2	that correct?
3	A. Yes.
4	Q. Would you now please read to us Ameren's
5	reply?
6	MS. GRUBBS: Your Honor, perhaps this can
7	just be reflected that the document speaks for itself
8	and it's been marked. If he moves it into the
9	record, there's no need to waste court reporter and
10	everyone's time reading in the response. It speaks
11	for itself?
12	JUDGE CLARK: Mr. Graham, do you just
13	want to move to admit this and then ask further
14	questions about it?
15	MR. GRAHAM: Yes. That'll be fine.
16	JUDGE CLARK: Any objection to admitting
17	Exhibit 186, Ameren's Response to DR 440 onto the
18	hearing record? No objections. Ameren's Exhibit
19	186, Ameren's Response to DR 440 is admitted onto the
20	hearing record.
21	(Staff's Exhibit 186 was received into
22	evidence.)
23	BY MR. GRAHAM:
24	Q. Mr. Cunigan, among the items that are
25	described in this data request and in the response to



the data request are there mass assets?

A. Yes.

2.2

- Q. And doesn't this response indicate that the Company has and uses asset age and vintage information in order to record and otherwise do work with respect to recordkeeping and with respect to the maintenance and replacement and retirement of these assets? And you correct my question to the extent that it's necessary. Take a look at the exhibit.
- A. They list different systems, but yes, each one, in each category they state how asset age and vintage data is extracted.
- Q. With respect to each one of these categories?
 - A. Yes.
- Q. And from this exhibit can you identify for the Commission which of these, which of the assets or the categories of assets that are identified here as being related to asset age and vintage data would you characterize as mass assets?
- A. Well, under system hardening, they specifically have poles in there, pole age.

 Underground cable. I'm not sure just from the title what all is in grid resiliency or UG revitalization, but it would appear that at least some of these



accounts are in the mass property accounts.

- Q. So again, what is the effect of using -by Ameren Missouri of course you were asked about
 survivor curves. What is the effect of using
 retirement -- or data simulated from a chosen
 survivor curve rather than from the records
 themselves?
- A. So I kind of answered that with the Commissioner's question, but the data that you receive is part of what you use to determine the survivor curve. And then the survivor curve is used to determine the depreciation rate that then in turn affects depreciation expense and how quickly plant is retired off the books. And that affects how much rate of return the Company receives on the surviving plant. And so by using simulated data, all those pieces along that chain would then be inaccurate.
- Q. You've examined all the prefiled testimony in this case and been in the hearing today on this issue. Is that correct?
 - A. Yes.

2.2

Q. To your knowledge has Ameren put on any evidence of the cost of compliance with this rule?

MS. GRUBBS: Objection; this is beyond the scope of any cross or --



1	Page 576 JUDGE CLARK: What's your question again?
2	MR. GRAHAM: Has Ameren put on any
3	evidence of the cost of compliance.
4	JUDGE CLARK: This is redirect.
5	MR. GRAHAM: Yes.
6	JUDGE CLARK: No, I was saying that to
7	Ameren.
8	MR. GRAHAM: I did get right this time.
9	JUDGE CLARK: The objection's overruled.
LO	Go ahead, Mr. Graham.
L1	BY MR. GRAHAM:
L2	Q. Have you heard any evidence from Ameren
L3	concerning the cost of compliance?
L4	A. I believe Mitch Lansford answered a
L5	question on it, but I haven't seen any evidence
L6	provided to actually list out what the cost would be.
L7	Q. Let me ask this: Have you ever done
L8	investigation in the field for us here at the PSC or
L9	your previous work?
20	A. I've done site visits for the PSC. I
21	don't know if I would call it investigation.
22	Q. Well, put on your common sense cap.
23	Would you say it would be easier for a field
24	worker to report retirement of pole, we'll just take
25	that 900,000 number. You've heard that bandied



- 1 | around for poles. Right?
- 2 A. Yes.

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

- Q. Would it be easier for a field worker to record the retirement of pole 900,001 or to report the retirement of a 43-foot class 4 pole?
- A. I mean, if it's both one data point, it just -- just depends on what you're --
- Q. Let's explore -- let's explore that. If there's a tag on there that says pole 900,001, would it be difficult to associate that tag number with all of the data reports or all of the data points that are required by the rule and reference them all back to a tag number, vintage number, the whole thing? Or vintage year, the whole thing.
 - A. If the database already had that tag number and the required information, it would be simple to do that.
 - Q. Yeah. Be simple for the lineman to do that?
- 20 A. Yes.
- Q. Okay. Is it your understanding that some asset groups are recorded to multiple accounts? For example, are transformers, switches, poles assets types found in multiple accounts?
- 25 A. Yes.



1 Would it be easier or harder to Q. 2 communicate the retirement of one of those asset types with or without an identifying asset number? 3 4 Can -- you asked a couple different --Α. 5 I'll try that again. Would it be easier O. 6 or would it be harder, which would it be, to 7 communicate the retirement of one of the asset types, 8 with or without an identifying asset number? 9 It would be easier to retire one of the Α. 10 different asset types with an asset number. 11 The last few questions that I've asked Ο. 12 you, would these be the kinds of questions one would expect reasonably to be asked and answered in 13 14 determining what it would cost to bring this system 15 into compliance? 16 That would be reasonable. Α. Yes. 17 That's all I have. MR. GRAHAM: 18 JUDGE CLARK: Mr. Cunigan, you can step 19 Thank you. down. 20 Mr. Williams, you had a request as to 21 Mr. Robinett? 2.2 MR. WILLIAMS: We're offering 23 Mr. Robinett as a witness on this topic should anyone 24 have any desire to inquire of him. 25 Do any parties or are any JUDGE CLARK:

1	Page 579 parties going to have any questions for Mr. Robinett?
2	MS. GRUBBS: I would renew my objection
3	from yesterday regarding his presentation as a
4	witness. We took it up in preliminary matters in
5	that OPC Witness Robinett did not provide any
6	testimony on this issue. Under the procedural order
7	they had plenty of opportunity, all parties had
8	opportunity to file rebuttal and surrebuttal and no
9	OPC witness provided rebuttal or surrebuttal on the
10	CPR issue. It would defy Commission procedural rules
11	and is inconsistent with due process, just as a
12	summary of my renewed objection.
13	JUDGE CLARK: And I take it what you're
14	wanting to do is offer his testimony into the record?
15	MR. WILLIAMS: No.
16	JUDGE CLARK: Just have him present to
17	testify?
18	MR. WILLIAMS: We're just offering him
19	should the Commission or anyone else have questions
20	of him. My anticipation was if the Commission has an
21	interest in utilizing his expertise towards any
22	resolution of this issue, it might ask questions and
23	in that event, I would expect the other parties to do
24	cross. But if the Commission doesn't want to
25	question him, I anticipate he won't appear and



1 | testify.

9

10

13

14

15

16

17

18

19

20

21

2.2

23

24

25

2 I hate to make him dress up JUDGE CLARK: 3 and sit through me, but I have no questions for him. 4 I don't believe the Commission does either, that I've 5 received. Do any other parties have any questions 6 for Mr. Robinett? I see none, so I think the 7 question -- I think the objection's kinds of moot at 8 this point, unless you want me to rule on it.

MS. GRUBBS: No, that's fine. Thank you.

JUDGE CLARK: All right. Then

11 Mr. Robinett, there's no need for you to appear on this subject.

All right. It's been another long day, but we have one issue with no actual testimony tomorrow where I believe we're just doing openings on that. And then we have an on-the-record presentation. Given that, I don't think we need to start at 8:30 tomorrow. Is there any objections to starting at 9:00?

MR. OPITZ: No objection here. I do want to note that MECG's witness on Issue 1 will be available via Webex tomorrow, I assume after the remaining issue opening statement.

JUDGE CLARK: I'm sorry. Thank you for reminding me of that. So we do have one witness

Page 581 1 I'd like to -- I'd like to take him tomorrow. 2 actually first before we move on to the next issue 3 just because I don't want to pick him up after the 4 issue. So why don't we return to him -- why don't we 5 return to Witness Chriss for Issue 1 first thing in 6 the morning and then we'll move on to the last issue. 7 I still don't see any reason that we would need to 8 start before 9:00 a.m. so if there's no objections to 9 starting at 9:00 a.m., we'll do that. Okay. I will 10 see everyone tomorrow at 9:00 a.m. and we are off the 11 record for the day. 12 (Whereupon, the hearing was adjourned 13 until April 14, 2023 at 9:00 a.m.) 14 15 16 17 18 19 20 21 22 23 24 25



1	Transcript of Froceedings	B 500
1	INDEX	Page 582
2	EXAMINATIONS	PAGE
3	AMEREN MISSOURI	
3	STEVEN WILLS Questions by Judge Clark	275
4	Recross-Examination by Mr. Williams Recross-Examination by Mr. Keevil	312 313
5	Redirect Examination by Ms. Grubbs	320
6	JOHN SPANOS	400
7	Direct Examination by Ms. Grubbs Questions by Judge Clark	498 501
8	Recross-Examination by Mr. Graham	507
0	MITCHELL LANSFORD	
9	Direct Examination by Ms. Grubbs Questions by Judge Clark	523 525
10	Cross-Examination by Mr. Williams	535
11	Recross-Examination by Mr. Graham Recross-Examination by Mr. Williams	539 541
	Recross-Examination by Mr. Graham	541
12	Redirect Examination by Ms. Grubbs	549
13	OFFICE OF PUBLIC COUNSEL GEOFF MARKE	
14	Direct Examination by Mr. Williams Cross-Examination by Mr. Keevil	329 330
15	Cross-Examination by Mr. Reevil Cross-Examination by Ms. Grubbs	333
16	Questions by Judge Clark Recross-Examination by Mr. Keevil	345 360
17	MIEC	300
1.0	MAURICE BRUBAKER	2.5.5
18	Direct Examination by Ms. Plescia Cross-Examination by Mr. Opitz	366 369
19	Cross-Examination by Mr. Keevil	372
20	Cross-Examination by Ms. Grubbs Questions by Judge Clark	375 376
21	Cross-Examination by Mr. Williams Redirect by Ms. Plescia	378 379
22		
23		
24		
25		



	Transcript of Proceedings	
1	INDEX CONTINUED	Page 583
2	STAFF	
3	SARAH LANGE Direct Examination by Mr. Keevil	385
4	Cross-Examination by Mr. Williams	391
4	Cross-Examination by Ms. Grubbs Questions by Judge Clark	397 398
5	Questions by Chairman Rupp	446 448
6	Cross-Examination by Mr. Williams Cross-Examination by Ms. Grubbs	453
7	Redirect Examination by Mr. Keevil Questions by Judge Clark	454 472
		1/2
8	CEDRIC CUNIGAN Direct Examination by Mr. Graham	550
9	Cross-Examination by Ms. Grubbs	553
10	Questions by Judge Clark Recross-Examination by Ms. Grubbs	563 570
11	Redirect Examination by Mr. Graham	571
11	Certificate of Reporter	583
12	ISSUE 2 OPENING STATEMENTS	
13	Opening Statement by Ms. Grubbs	480
14	Opening Statement by Mr. Graham	483
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		



1	Transcript of Proceedings	D 504
1	EXHIBITS	Page 584
2	STAFF EXHIBITS	
3	Exhibit 117	REC'D
•	Cedric Cunigan's Direct Testimony	552
4	Exhibit 118 Cedric Cunigan's Rebuttal Testimony	552
5	Exhibit 119 Cedric Cunigan's Surrebuttal Testimony	552
6	Exhibit 136	
7	Sarah Lange's Direct Testimony Exhibit 137	388
8	Sarah Lange's Rebuttal Testimony Exhibit 138	388
	Sarah Lange's Surrebuttal Testimony	388
9	Exhibit 181 Hickman Plant Work Paper Annotated by	
10	Staff	318
11	Exhibit 182	
	Graphs attached to Staff Response to April 4th Order regarding Load Data	390
12	Exhibit 183 Staff's Minimum Proposed Data for	
13	Modernization	471
14	Exhibit 184 Ameren Missouri's Response to Data Request	
	MPSC	522
15	Exhibit 185 Response to MPSC DR 49 and Pole Attachment	548
16	Exhibit 186	
17	Ameren's Response to DR 440	573
18	OFFICE OF PUBLIC COUNSEL EXHIBITS	
19	Exhibit 200C	
20	Geoff Marke's Direct Testimony	330
21	Exhibit 201C Geoff Marke's Surrebuttal Testimony	330
22		
23		
24		
25		



_		Page 585
1	EXHIBITS CONTINUED	
2		
	MIEC EXHIBITS	
3	Exhibit 350	
4	Maurice Brubaker's Direct Testimony Exhibit 351	368
5	Maurice Brubaker's Rebuttal Testimony	368
6	Exhibit 352 Maurice Brubaker's Surrebuttal Testimony	368
7	Exhibit 353 Brubaker's Revenue Settlement Spread	383
8		
9	AMEREN MISSOURI EXHIBITS Exhibit 42	
	John Spanos' Direct Testimony	500
10	Exhibit 43 John Spanos' Rebuttal Testimony	500
11	Exhibit 44	
12	John Spanos's Surrebuttal Testimony Exhibit 45	500
	Mitchell Lansford's Direct Testimony	524
13	Exhibit 46 Mitchell Lansford's Supplemental Direct	
14	Testimony	524
15	Exhibit 47 Mitchell Lansford's Rebuttal Testimony	524
	Exhibit 48	
L6	Mitchell Lansford's Surrebuttal and True-Up Direct Testimony	524
17	Exhibit 49	
18	Mitchell Lansford's True-Up Rebuttal Testimony	524
19	Exhibit 52C Company Response to DR 591 - Confidential	478
20	Exhibit 52P Company Response to DR 591 - Public	478
21		
22	COMMISSION EXHIBITS Exhibit 01	
	Ameren Response to Data Request 565	567
23		
24		
25		



1	Page 586 CERTIFICATE OF REPORTER
2	STATE OF MISSOURI)
3	COUNTY OF COLE)
4	I, Shelley L. Bartels, a Certified Court
5	Reporter, CCR No. 679, do hereby certify that I was
6	authorized to and did stenographically report the
7	evidentiary hearing; and that the foregoing
8	transcript, pages 1 through 585, is a true record of
9	my stenographic notes.
10	I FURTHER CERTIFY that I am not a relative,
11	employee, or attorney, or counsel of any of the
12	parties, nor am I a relative or employee of any of
13	the parties' attorney or counsel connected with the
14	action, nor am I financially interested in the
15	action.
16	
17	DATED this 20th day of April, 2023.
18	
19	Shelley & Bartels
20	
21	Shelley L. Bartels, CCR 679
22	
23	
24	
2.5	



	09 465:14	14,16,19,21	15-minute 312:10,
\$		11:15 327:25	14 328:3 475:12
\$13 387:5 433:6	1	11:16 384:4	15.001.8 484:17
435:1	1 428:13 467:20	11:30 327:23	16 397:9 551:13,
\$13,549.83 489:10	475:23 478:25	12 334:2 414:4	16B 532:20
\$140 425:12	479:3,10,18,23 490:19 517:16	423:10 428:13	
\$169.37 489:10,13	580:21 581:5	437:6 517:13 527:7 551:19	17 432:7,8 455:20
\$170 568:23	1,412,834 455:23	12-hour 441:23	17th 335:7 337:19
\$20 347:3	1.2 534:2	12.4 393:2	18 484:17,19 496:13 532:16
\$25 296:21 297:5	1.25 303:3	120 423:4,7	551:19
434:7	1.6 380:11	125.3 532:16	181 317:2 318:9,
\$25.94 296:10,13	1.7 371:12 381:24	533:1	12
\$291,080.76 489:4	382:1	12:30 328:1	182 319:18 389:4, 24,25 390:2,17,19
\$3 438:9	1/1/2021 517:14	384:19,20	
\$58,216 493:6	1/2021 517:13	12th 479:19	183 467:21 469:5 471:12,18,21
\$58,216.15 489:4, 13 490:19	10 357:20 392:1	13.12 464:1	515:2
	403:4,16,19 407:25 424:15,22	13.2 423:11	184 515:3,5,6,13
\$8 434:13,14	425:15 526:20,24	13.8 423:12	522:9,15,16,18,19
\$9,000 568:18	527:4 533:15	130 409:19	185 543:5 548:12, 14,16,17,19
\$914,216 517:17	101 484:16,18,19	136 386:17 388:9,	186 571:18 572:8,
\$914.16 517:16	486:2	13,14,16	13 573:17,19,21
	10:01 328:5,8	1364 527:10	19 460:7,15
400.47	10D 482:5 483:13 484:10 489:16	137 386:18 388:10,13,14,16	1971 568:21
-a-n-o-s 498:17	491:17	138 386:19	1985 415:14
0	10th 329:7 468:3	388:10,13,15,16	428:20 429:5
	11 489:18	13th 273:3 329:8	452:14 463:5
01 567:12,16	11.6 380:6,10,12	14 334:2 371:16	1988 517:24
01.25.1 547:3	110 394:3 422:25	381:8 397:17 432:8 444:20	1992 313:2 321:1
0132 287:20	423:1 458:11 535:3	581:13	1994 396:4 460:17 464:18
0209.1 515:14 564:1	117 551:1,9,23	14.2 371:16	1999 466:14
0209.3 486:18	552:13,16,19,21	14.4 517:15,22	1:00 328:1
0440 547:6	118 551:2,25	14.48 464:1	
0565 564:23	552:13,16,19,21	15 312:11 447:11	
301.20	119 551:4 552:1,		



Index: \$13..1:00

	208 423:4,5	300 436:21,24	373 568:2
2	209 517:8,11	437:15	375 582:19
2 391:24 479:1,9,	209.1 563:18	310 273:5	376 582:20
20,21 480:3 481:1	209.1S 546:8	312 582:4	378 582:20
485:4,11 523:5 583:12	209.1S1 493:9	313 582:4	379 582:21
20 397:7 484:11	546:16 564:6	31st 303:17	38 405:12,17
495:11 503:16	20C 330:1	320 582:5	460:7
504:13 509:8,11, 22 564:1	21 288:6 474:23	329 582:14	385 583:3
	22 455:20 474:22	330 582:14	39 408:10,11
2000s 452:15	220 394:3	333 582:15	391 583:3
2003 452:15	24 473:19,20	34 402:13	397 583:4
2004 452:15	24-hour 473:13	345 582:15	398 583:4
2005 466:14	240 422:25 423:1,	346 432:9	3:00 308:7 475:12
2007 416:2,3	5,7 458:11	350 367:2,11	3rd 468:23
2009 396:3 446:7	24B 480:4	368:3,7,9,11 382:11	
200C 329:10,20 330:4,8	25 423:13 532:24		4
201.1 545:1	26 333:24 396:5	351 367:2,12 368:4,7,9,11	4 285:17 375:17
2010-0036 429:5	27 568:17	352 367:2,12	420:5 423:9
2014 415:10	270 422:19,21	368:4,7,9,11	427:4,10,15,16,19 428:2,13 435:15,
2017 404:4	275 582:3	353 382:8,11,19	19 487:15 489:3
2017 404.4 2019 276:10 307:2	277 423:8	383:8,9,12	566:11 568:14 577:5
392:24 393:17	2:43 475:11	354 379:9 382:6	4's 420:6
442:25 568:17	2nd 518:13	360 422:9 582:16	4/18 462:18
201C 329:10,20		361 422:9	
330:4,8	3	362 422:9	40 396:6 456:5 503:13 505:11
2020 307:3 493:5 569:6	3 387:2 485:5,11	364 395:1,9 432:10 568:2	562:12
2021 307:2,4	3,807,498 455:24		40-foot 506:13,14
473:14 517:14	3.2 371:7,10	365 395:1,10,13 396:6 517:20	545:9,13
533:25	3.75 342:19	366 395:1,11	400 437:14
2022 473:14	3.9 371:14	582:18	41578918 517:14
474:5,6,14 517:25 518:13	30 339:17 403:20	367 395:1,12,13	42 499:9,20,22,24 500:1
2023 273:4 303:16	30-day 303:24	369 582:18	424.020.02038.18
335:7 404:2 450:4	30-foot 566:14	370 422:9	495:12
468:3 581:13	568:14	372 582:19	424.020.0203A



Index: 2..424.020.0203A

484:11	5.14 370:23,25	565 564:8,9,17	7
43 499:9,20,22,24	380:20,24 381:8, 13,17	567:4,14	
500:1	5.6 371:5	57 315:10 458:24	7 342:20 387:2
43-foot 577:5	50 370:21 371:1	57.3 316:1	551:19 561:13
439 496:17,22 543:13,16,21,24	376:13,16,19	570 583:10	70 503:13 505:5 510:10
555:20 559:19	378:4 379:25	571 583:10	77 303:15
44 460:3 499:10,	380:25 381:4,9, 14,16 456:2	575 470:5	
20,22,24 500:2	503:12,13 504:25	58,000 569:6	79 489:9
440 571:23 572:9	50-year-live	583 583:11	795,261 303:2,9
573:17,19	562:12	585,274 455:22	7:00 308:7
446 583:5	501 582:7	59.7 314:23	8
448 583:5	507 582:7	591 431:9 477:3,6,	
45 312:21 524:2,	50s 354:7	7,14 478:4	8 484:16,20 526:4,
12,15,19,22	51 301:7,10	5:00 307:24 308:1	6 561:13
453 583:6	515,247 517:23		8,760 455:17 473:21 474:9,12
454 583:6	515,384 455:22	6	8.22 381:12,17,22
46 524:2,15,20,22	518,990 456:7	6 435:6,17,20,21	
47 524:2,15,20,22	52 301:11 402:25	444:18 551:13,17,	80 489:8,9 493:7
472 583:7	403:4 424:13,19	18	80s 450:17 452:8
48 524:2,15,20,22	425:4 476:10	6,990,997 455:21	81 493:7
480 423:8 583:13	523 582:9	6.7 371:3 381:7, 18,23	85 429:7
483 583:13	525 582:9	60 312:21 314:4,	87 303:19
49 524:3,13,15,20,	526 361:24	11,17 315:7	8:30 580:18
23 548:16	52C 476:16,20	404:14,24 458:23	8:33 273:1,4
498 582:6	478:5	460:9,10,14,18 503:13 510:10	8B 486:3
4:00 307:24 308:1	52P 476:16,21	600 422:19,21	
4:46 468:3	478:3,5	470:4	9
4th 310:6 319:12	535 582:10	60s 354:7 505:12,	9 302:23 408:13
386:4 388:21	539 582:10	13	413:18,19 424:15,
389:8 472:2	541 582:11	613 455:20	21 425:15 449:7 526:6
5	549 582:12	62 361:24	90 358:17,19
	55 387:2,21 435:4	64 303:10	401:1
5 387:12 396:5 420:3,4 449:5	550 583:8	662,328 456:5	900,000 506:7
488:15,17 489:2	553 583:9	670,007 455:24	533:16 535:6
561:11,13 565:6	563 583:9		565:20 576:25



Index: 43..900,000



Index: 900,001..additional

	Transcript of Proceedings		Index: additionsallocation
562:7,14	383:11 388:15	19,22	550:12 553:15
additions 313:24	390:17 471:19	aggregated 457:8	571:16 576:10
317:11 483:17	473:10 478:4	458:18 485:22	Ahmad 276:12
	499:24 522:17		
address 287:8	524:20 548:18	agree 291:10,20	air 354:8 361:16
301:14 403:2,3	552:19 567:14	311:7 314:3	align 279:19 281:6
419:1 441:6	573:19	333:9,17 334:7	322:10 340:23
504:11 509:19	admittedly 360:22	341:11 357:16	409:12 417:4
518:7 546:11		358:24 360:14	438:17 443:19
addressed 463:12	admitting 317:7	373:11 374:20	alianad 200.2
addragaa 204:04	330:4 368:7 383:8	424:25 426:8	aligned 298:2
addresses 324:21	388:13 390:1	428:9 503:24	355:1
addressing	471:12 477:13	504:1 512:12,25	aligning 281:8,17
494:10	522:15 524:14	515:13 516:17,18	323:8
adequately 419:1	548:15 552:15	531:10 553:18,23	alignment 340:5
	573:16	554:3,15 559:7	442:23
adhere 484:4	adopt 290:18,23	agreed 289:14	
adherence 351:14	adoption 278:4	290:20 291:7	aligns 297:22
adjourned 581:12	322:11 344:18	323:16 407:12	allocate 280:16
-		480:15	286:9 325:12
adjust 273:11	advance 278:2	agreeing 335:22	410:2 413:1,2,16
369:8 372:14,19	309:17 397:11,18	341:7	414:4,5,23 429:16
373:17,24 383:3	509:2		454:17 457:1
425:24 459:20	advanced 303:24	agreement 287:18	458:13
460:16	305:5,9,11,19	288:8,16 289:19	allocated 283:5
adjusted 372:16,	, , ,	290:13 431:1,3	286:20 301:24
17 396:3 403:5	advances 397:14,	agrees 288:9	314:5 315:8
451:22,24 460:21	20	425:12 508:13	340:16 342:21
•	advocate 343:1	ahead 273:2	369:20 413:6
adjusting 401:20	361:19 363:13		414:9,11 420:13
adjustment	affect 570:18,22	275:5,6 312:1	426:1 453:1
459:13,14 496:3,8	571:7	317:15 318:14 328:2 330:10	458:18 460:15
adjustments			462:23
376:13	affects 575:13,14	333:5 347:4 358:17 362:14	
	affirmatively	366:2 367:9,10	allocates 285:22
adjusts 460:11	428:21	368:13 377:24	295:25
administrative	affordable 452:20	379:10,21 389:1,	allocating 300:11
482:21		3,24 445:25 448:1	391:23 393:18
admission 420:21	afield 300:13	453:11 462:4	458:20,21 459:1
	516:4	488:12 498:18,23	allocation 300:18
admit 319:16	afternoon 447:2	503:19 518:11	302:6 313:12
522:10,11 573:13	476:9 480:13	519:16 520:15	341:23 342:16
admitted 318:11	000 20E:4E 40E:0	521:13 522:12	353:7 369:4
319:18 330:6	age 325:15 495:3	523:14 527:6	375:19,22 399:25
365:9 367:11,13	545:20,24 546:1	535:17 540:24	415:13,16 416:16
368:9 379:9 382:7	547:10,22,23 572:20 574:4 11	542:25 549:3	417:7 429:20
	572:20 574:4,11,		



	Transcript of	Proceedings	Index: allocationsanybody's
453:5	400:4,23,25	337:23 346:11	amplify 322:14
allocations 392:6	401:15,23 402:7,	360:9 361:8	analogy 323:7,23
	17 403:5 411:7,21	364:12 372:21	350:18,24
allocator 295:5	413:21 416:5,23	378:9 380:6,7	,
300:4 314:6	417:22 418:10,25	382:23,24 403:1,	analysis 280:13
334:19,21,25	419:19,21 421:6	21,23 412:19	291:2 293:21
335:2,3,16 352:9	422:11,13,15	413:12 417:3	308:16,22 309:2
411:3 427:11	427:11,15 428:22	433:2 436:14	465:10 482:13
454:9,15	429:1,22 430:7,	441:18 449:21	487:11 503:5
allocators 403:6	13,23 431:2,4,6,	451:9 454:19	505:8 518:20
456:18	11 432:18,19,20	457:14,16 458:13	554:9,13 559:4
allowance 490:15	433:3 435:23	461:18,19,25	561:19,21
allowance 490.15	437:4 439:23	462:1,9,10 463:4,	analyst 398:24
allowed 276:25	443:5 444:3	9,10 465:7 472:23	410:3
467:5 489:17	448:22 451:9	485:14 489:19	analysta 250:12
allowing 483:22	452:2,5,7,13	493:17 494:20	analysts 352:13 409:24
	457:11 458:16	496:12,22 518:21	409.24
alluded 297:13	462:18,19 464:9,	560:13 570:9	analyze 279:16
485:14,15	13 465:12 466:16,	571:22 572:2,9	analyzed 301:22
alternative 424:24	19,20,22 468:16	573:4,17,18,19	308:12
426:13 453:16	470:2 472:16,22	AMI 278:20,22	
amaran 272,0 10	473:14,16 476:4	279:9 282:19	analyzing 301:16
ameren 273:8,10, 16,19 277:21	480:11 483:5,14,	302:8 303:2,22,23	ancillary 430:14,
279:17 281:7	16 484:3 486:14,	305:2 309:10	16
	15,19 488:8 490:8	312:8,12,15 348:3	annetated 210:1
283:8 288:9,15 289:2,25 290:4	494:8 495:6,8,12	355:12,17,19	annotated 318:1, 2,10,18
297:10 299:15	497:2 498:7,23	359:15 427:20	2,10,10
301:11 302:8	499:6 500:1	437:8,24 438:20	annotations
307:9 308:11	501:8,11,16,25	440:6 443:16	318:21
311:22 313:13	502:19 503:25	449:19	annual 533:25
314:4 315:9	506:1 510:11,16	amaumt 070,40	
320:4,19 321:4	515:18 522:16	amount 278:13	answer's 484:8
328:12 330:20	523:2,14,21	283:21 284:15 285:7 292:12	answering 277:13
333:3,13,17	524:22 526:9	293:17 298:8	445:1
335:14 342:9	531:17 533:3,16	305:7,8 327:2	answers 277:17
344:5,7 345:16	534:1,6 535:1	344:1 349:6	345:19 367:7
348:24 349:18	543:15,20 545:25	355:22 384:19	387:25 388:5
354:1,14 355:13	549:24 553:12	414:9 434:5 459:3	396:9 428:1
357:11 358:1	555:11,24 565:18	466:23 489:25	499:16 524:9
359:21 369:12	566:25 567:13,22	503:9 510:2	552:5,9
371:13 372:13,17	570:12 572:13,15	528:7,9,10 531:15	
373:2,16 374:25	575:3,22 576:2,7,	532:12 535:7,24	anticipate 330:20
380:2 387:3,6,13	12 582:2	·	579:25
389:10,17 391:4	Ameren's 281:9	amounts 528:10	anticipation
392:25 393:18,24	286:23 289:13	534:5 535:9	579:20
394:23 397:1	290:16,19 296:11	568:24	anyhodyle 420:22
	303:20 310:22		anybody's 420:22



	Transcript of	Proceedings	Index: anymoreassets
469:9	485:22 489:6	April 273:3 310:6	481:8 485:17,25
anymore 394:9	530:23	319:12 386:4	486:22 487:5,7,10
566:18	apportion 293:16,	388:21 389:8	488:19,20 492:16
	21 294:12	468:3 472:2	493:12,24 495:3,5
anyplace 288:25		479:19 581:13	496:14 502:8
anytime 291:25	apportioned 395:22	apt 363:7	503:7,15 504:6
308:14 359:6		Aquila 452:16	506:6 509:1,8,21
435:8 436:2	apportioning	_	510:5 511:12,14
437:12,20 443:15	395:21	ara 388:15	517:12,14,22
558:24	apportions 294:20	area 340:19	518:3,16,22 519:1 526:13,14 527:14
apologies 420:10		412:22 429:20	528:8 531:25
432:13 436:23	approach 279:17, 18,19,22 281:2	466:25	532:3 533:1,8
apologize 316:25	284:3 299:15	areas 412:18	535:22 537:8,9,
366:2 368:22	334:14 372:24	413:14,15 465:23	13,16,17 541:18,
377:13 385:7	377:5 379:6	,	21 542:2,17
393:4 405:13,21	399:22 403:23	argue 339:3	545:2,17,20,24
409:6 436:21	409:10 411:18	566:23	546:1 547:11
437:2,17 444:22	414:15,25 415:1	argued 349:25	554:5,19,23
456:2 466:14	443:25 444:7	Arizona 360:18	555:12,16,18,21
467:2 493:22	466:4 487:15		556:1,4,5,8,9,13,
513:3	489:5 514:24	Arnold's 545:19	14,18,20,23
appearance	542:18 571:15	546:9 572:18	557:13,20,24
273:16 274:8,10	approaches	Arora 430:8,12	558:4,6,9,10
327:9	294:24 453:5	around-the-clock	559:10,19,20,21,
appearing 274:3	approaching	463:18	23 560:3,11
560:23	557:2	arranged 474:7	566:14,15 567:23 568:25 572:19
			574:4,11,19
appears 414:14	appropriately	array 473:19	577:22 578:2,3,7,
417:23 427:22	411:10 481:14,15	474:11	8,10
491:24 521:5	495:7 504:11	arrestors 315:19	,
558:22 564:11	approved 276:11	art 277:14	assets 280:16
appellate 415:15,	366:7 429:8		285:20 334:20 335:3 338:2
17	approximate	articulate 316:8,9	375:22 396:3,5
application	422:19,21 534:5	373:21	447:5 464:25
284:13	approximately	articulated 296:21	466:18 480:25
applied 335:3,17	296:10 303:15	305:21	481:3,6,11,25
504:6	342:19 370:23	artifact 399:24	482:10,18 483:3,
	533:16 534:2		18,21 485:19,20,
applies 485:18	565:20	ascribe 312:22	21,24 486:20,24
apply 351:18,20	approximating	Assembly 361:23	492:12 493:25
402:15 408:18	387:14	assess 285:3	494:7 495:21
429:19 490:23		assessing 284:22	502:18 503:2,13
505:13 508:7	approximation		504:10 508:24
applying 466:6	303:8	asset 279:4,12	510:10 519:25
		416:15 480:24	529:4,6 531:15



532:1 538:18 540:12,21 546:2 547:5,7,11 548:1 553:20,21,24 554:6,10,14,22 557:1,13,16 558:2 559:14 560:8,9 562:4,10,12 574:1,8,17,18,20 577:23
assign 280:14 537:8,10
assigned 309:20 505:15 540:15 541:20 567:11
assigning 297:10
assignment 280:20,21 507:21 542:2
assigns 541:20
assist 502:20
Assistance 340:24 399:14
assistant 367:22
associate 577:10
Associates 366:20
assume 278:19 314:3 356:3 471:7 479:22 528:18,20 568:8 580:22
assumes 538:9
assuming 310:9 319:24 401:9 449:14 457:21
assumption

342:25 362:18

449:18 489:13

333:10 336:7,14,

521:3,4,6

assumptions

	23 339:9 354:15, 19 356:9 399:3 417:21 455:5
	assured 298:10
<u> </u>	attach 393:4
	attached 386:11, 12 389:7 555:20 572:18
	attachment 543:17,22 544:3 548:17
	attachments 388:23 476:14 543:24
	attempt 282:7 361:7 409:12
	attempted 402:21 414:17 426:4
	attempting 279:19 369:24 406:5,7,8, 10
	attempts 293:16
	attention 386:24 442:10 492:7 572:5
	attorney 287:5 327:8 416:1
,	auction 462:17,20
	audit 432:1
	August 474:17 475:1
	authorizes 401:25
	automatically 508:7 545:11
	automation 507:3
	average 285:16,17 332:5 339:3,21 369:10 370:25 371:2 373:1 375:18 380:11

Proceedings
381:4,5,8,9,13,16, 19 428:17,18 435:7 448:20 449:6,7,15 459:20,21 463:19, 20 474:12 485:10, 23 486:4,13 487:6,10 488:22 490:14 492:16 493:5 494:18 495:2,4,24 503:13 505:18 517:23 526:9,17 527:22 532:13 566:4,17 569:6
averages 413:12
avoidable 343:15
awarded 373:2 380:24
aware 284:2,4 337:12 342:15 353:19 356:19 360:8,13 361:8 365:22 387:24 392:24 429:1 442:18,20 479:5 483:20 510:16 516:3 532:25 542:5,14,16 556:13,15 557:18, 24 559:12 563:9, 19
В
baby 493:22
-
back 284:17

24 559:12 563:9, 19 B baby 493:22 back 284:17 295:12 297:12 311:14 319:9 328:5,8,11 335:5 349:20 352:18 354:3 358:11 359:2 362:4,19 384:18,23 386:7, 15 389:16 395:24

402:18 404:7 412:14 415:13 420:18 428:20 431:25 456:14 458:22 461:9 463:12 467:14 471:7 475:12,21, 22 486:2 496:9 506:20 520:1 539:21,22 540:20 548:4 562:3 566:23 577:12 background

Index: assign..based

425:21

backwards 307:15,19

bad 399:15 426:18

balance 298:21 299:1 571:1,2,10

balancing 297:23 352:2

ballpark 437:22

bandied 576:25

band 403:16 428:4

bankrupt 452:21

bare 419:6 420:11 468:14

barring 441:10

base 286:14 315:1 323:18 372:22 373:4 426:1 427:18 428:16 485:23 496:4 504:11 568:24 569:3,9 570:18,22 571:7

base-load 337:4

based 280:16 284:10 285:22,23 286:9,20 294:6 295:20,25 300:7

	r rancompt or	. recedunige	mach bacconbica
301:25 308:21	444:25 447:9	biggest 278:15	443:5 448:8 450:5
311:16 314:5,16	535:9 556:18	391:6,12 451:10	452:3 469:2 470:7
325:12 338:5	beginning 387:12	463:8,15 464:24	502:20 537:3
341:23 344:1	421:10,14 466:8	bill 282:22 293:3,7	564:5
347:22 356:4	515:25	297:18,21,24	black 374:20
357:24 360:2		298:7,18 299:4,7	
365:2 369:5,8,21	behalf 273:19,21,	305:2,16 306:2	blessing 339:17
370:19,25 372:15,	24 274:1,4,6,14,	309:19 310:1	block 354:6 439:6
20 373:1 377:23	21,24 332:24	348:16 349:11	blown 505:4
378:23 380:2,7,23	497:15,19,21,25	358:22 404:20	
382:20,23 388:19	498:2 499:3,6	407:1 408:6,15,21	blue 360:23 436:7
389:10,17,18	belief 388:2	409:20,23 432:22	blunt 411:21
404:14 424:22	454:25 552:10	434:23,24 435:24	418:14
433:1 441:1	believed 392:1	436:10 451:13	heard 242:0 242:6
445:19 447:23		534:7,14	board 342:8 343:6 355:8 359:17
450:18 451:18	believes 402:1	bill-risk 432:21,22	374:10 407:14
453:8,25 457:16	bench 360:2		374.10 407.14
459:1,5,7 462:2, 20 464:25 481:20	364:13 365:2	billboards 358:22	Bonbright 349:20
486:21,22 495:22	377:23 427:4	billed 277:12	352:12 355:3
503:3 507:7	447:23 453:9	394:15 444:8	book 489:21,24
513:21 518:18	454:1 462:1	449:1,5,7,10	490:4,9,12,14,16
530:5 534:4,5	487:16 507:7	451:22	496:5,8 532:21
535:14 540:5	535:14 540:6	billing 293:2,6	561:15
548:6 554:8,12	beneficial 323:4	309:9,18 407:20	booked 560:11
562:10 570:11	benefit 323:8,16	413:3 429:24	
	326:22 443:15	437:25 441:14	books 487:8
bases 387:6,13	446:10 483:1	450:15 451:5	493:25 496:3
basic 282:14	503:5,11,12 545:5	453:15	561:24 568:19
293:12 399:22	, ,	hillings 451:14	575:14
basically 285:24	benefits 304:4,8	billings 451:14	Boomtown 430:8,
306:16 375:14	322:1,2,5,6,13,15,	billions 347:17	12
381:3 454:11	16 351:1 352:17	414:13	boon 362:4
	482:22 538:1	bills 306:7 336:15	
basis 290:6,8 369:21 370:20	bias 280:19 281:4,	343:25 345:21	borne 280:25
435:25 451:14	11 301:19 302:2	357:22 407:18	344:12
487:11 561:16	325:25 339:22	432:25 436:19	bother 443:9
bat 466:3	biased 340:17	437:1 444:14	bottom 403:9
bear 406:16	big 353:8 356:13,	BIP 415:9 428:16	Bowden 365:24
bearing 300:9	16,17 359:5,8 362:17 392:5	bit 284:5 285:1,18 300:13 301:15	box 374:20
407:24	393:13 411:2	305:15 308:11	boy 365:19
began 273:1	414:7,14 452:5 568:10	312:6 338:15	brand 561:1
begin 348:3		348:17 350:9 358:5 370:24	brand-new 549:9
399:15 442:22	bigger 294:3 438:7 443:21	417:25 424:13	break 317:4
	430.1 443.21		
	1	1	



327:24 328:1,3 384:5 393:10 394:25 471:7 475:11,12,22 breaking 324:12, 19 384:8 415:21 **bridge** 529:23 **briefly** 330:16 360:3 375:1 453:14 454:3 549:2 **bring** 300:25 472:6 494:19 533:21 549:22 578:14 **bringing** 323:24 407:22 **brings** 297:8 **broad** 311:7 312:20 broad-strokes 312:18 broadcast 379:16 broadened 412:12 broadly 276:6 442:21 467:3 **brought** 283:20 320:5 386:23 408:4 491:7 **Bru** 372:9 Brubaker 287:7 365:12,13,18,19 366:15,18,20 367:13 369:2 370:15 372:9 375:5 377:9 378:2,11 379:3,7,

20 382:5,14,18,

22,25 383:23,25

408:17 426:3

459:15 582:17

Brubaker's 383:10 **buckets** 283:25 395:23 414:7 **buffet** 443:23 buffet-style 352:23 **build** 294:9,16 353:1 410:18 458:6 535:9,10 building 273:6 282:1 294:8 457:23 **builds** 353:2 **built** 286:1 394:11 505:11 **bulk** 394:14 **bunch** 431:17 538:23 **burden** 482:21,25 490:22 491:9 **buried** 331:8,24 burn 295:19 **Busch** 468:2 **business** 273:10 351:24 394:13 407:5 458:2 466:19 518:25 **buy** 347:4 348:14 **buzz** 277:15 C **C&i** 406:10 426:16,21 C-U-N-I-G-A-N 550:11 cable 546:4

572:2 capability 312:8 calculate 313:18 314:22 calculated 316:2 489:12 calculates 380:8 calculation 303:7 314:13,16 411:13 calculations 369:15,18 389:12 calculator 314:18, 20 calibrate 380:15 call 275:1 294:8 299:25 300:19 306:11,12 317:24 325:10 328:16 352:10 382:12,14 385:1,3 453:4 457:15 465:14 498:7 523:2 533:5 537:18 543:11,12 550:3 567:12,13 572:8 576:21 Callaway 452:8 **called** 304:7 338:14 415:19 417:10 418:2 430:3 453:16 460:4 469:5 538:3 566:1 **calling** 317:22 360:23 417:5 428:2,3 471:13 calls 498:10 523:5 538:10 campaign 358:22 **Canada** 519:8 cap 576:22 capabilities 284:10

313:1 530:11 capable 294:4 capacity 282:2 284:8,15 285:4,7, 21,24 286:3,8,10 366:19 385:18 392:13 414:25 415:20 417:5,6 430:7,13,16 452:25 453:1,3 462:12,20 463:1 550:23 **capital** 351:11 capitalize 526:13 528:8 captioned 273:9 captures 373:3 car 350:7,21,23 557:22 card 532:21 carrying 294:4 **carved** 286:13 case 273:8,9 276:10,12,13,17 278:13 288:8 289:13,14,16,18, 20 290:1,2,3,6,10, 19,21,24 291:1,7, 10,18 292:1,8 297:9 305:22 307:2 323:11 330:21,24 334:8, 15 335:10 337:20 339:14 347:16 354:4 360:9,22 361:9 366:11,23 373:19 385:23 389:8 394:24 395:18 404:9,10 405:7 406:1,3,6, 13,18 407:12 408:20 409:11



572:22 574:23

cables 375:12

410:11 411:4 412:20 414:19,20, 22 415:1,5,18,20 418:11,13 419:1 421:11,14 427:12 429:1,12 430:8 431:1,25 432:18, 20 438:9,13,19 443:6,9 449:19,24 451:1 452:6,8 464:21 466:20,21 467:3 468:19,22 472:20 474:1 476:12 490:7,25 491:2,25 494:4 497:3 499:9 515:20 517:19 520:4 524:1 526:14 540:14 544:15 551:20 569:15 575:19 **cases** 282:10 297:15 308:17 333:14 409:21 410:13 415:7 428:12 429:4 456:24 468:8 484:1 **casting** 326:24 catch 425:19 categories 284:1 374:11 485:15 526:16 527:9 528:13 530:16 533:20 534:17 546:19,21 574:14, 18 category 485:7,24 486:5 526:7 527:11 530:22 546:3 554:2 572:21 574:11 caught 412:15

causation 295:23

325:13 345:21 442:23 443:19 caused 295:16 296:3 374:11 494:23 **causing** 282:17 455:12 **caution** 344:21 cautioned 514:17 **caveat** 355:9 **caveats** 344:24 **CCMO** 397:1 500:19 **CCOS** 314:4 373:7 382:20,24 395:19 403:3,18 407:24 408:1,17,18,23 411:1,13,14 412:23 413:7 425:24,25 429:13, 19 461:18 462:1,9 463:9,11 **CCOSS** 416:2 **Cedric** 487:14 488:17 494:14 550:4,10,14,19 552:17 583:8 **cell** 473:20 509:12 **cells** 473:19 474:2 **center** 306:11 448:12,13,15,17, 18 cents 449:6,7 464:1 **century** 281:23 certainty 346:24 362:7 Certificate 583:11 cetera 293:11 532:23 533:24

545:2 CFR 532:16 566:1 **chain** 575:17 Chairman 275:7, 11 324:11 326:16 338:24 359:13 376:5 445:21,24 446:1,3 447:20,22 464:12 562:22 583:5 challenge 278:1 359:6,10 506:6 challenged 336:7 338:23 354:16,18 challenging 336:14 339:9 **chance** 470:13 473:7 **change** 281:24,25 309:12 341:16,17 344:1 355:19 369:25 374:12 406:24 408:19 425:14 430:24 438:7 444:8 480:6 530:20 554:25 570:6 changed 308:13 338:18 341:21 343:8 438:2 459:21 465:6 502:18 changing 337:11 341:2 460:22 561:6 character 490:16 characteristics 295:8 410:9,16,18 427:18 496:21 529:15 530:1 534:16 537:18 **chart** 403:4 413:20 546:25

characterization 428:9 508:20 characterize 334:24 340:14 346:21 352:1 354:10 530:14 574:20 characterized 276:17 519:21 characterizing 280:4 **charge** 281:20 296:7,8,13,19 297:1,4,15,17 298:4,6,10,13 299:3,8,10,17,22 300:15,18 302:5 343:11,23 344:15, 17 345:18 347:1, 3,6,22 348:22 349:8 350:21 351:1,3 352:3,21 354:22,23 355:1,7 360:12 409:24 432:15 434:3,4,18 438:9 449:9 450:18,20,24 451:18,19 charge-ahead 322:19,24 323:1, 11.24 **charged** 348:13 356:3 451:17,19 485:6,13 **charges** 292:15 297:10 345:12,14, 24 348:7 353:20 354:2,17 360:8 387:4 399:21 404:17,18 432:16 451:2,23 charging 442:7



10,12,16,21

claiming 535:1

474:22 488:15,18
489:9 493:2 494:13 526:23
568:14
chase 489:11
check 314:17 392:5
checked 487:23
checking 405:6
checks 319:3
chided 471:2
chime 487:25
choice 277:6 418:17
choices 406:15 566:23
choose 304:22
358:8 568:20,21
chooses 343:15
choosing 305:9
chop 529:1
chose 391:18
chosen 575:5
Chriss 377:5
384:3,11,15 408:4 479:4 581:5
chunk 460:20
circumstance 323:7
citation 405:22
cite 399:7 404:7
cited 416:10
495:16 496:10 527:24
cites 288:7
City 359:22
claim 316:6 458:5

claiming 535:1
Claire 546:10 572:25
clarification 432:9
clarify 299:19 315:13 317:10 351:2 375:17 376:1 392:16 397:17 407:7 431:15 436:15 445:7 470:18 479:2 519:15 522:8 543:23 544:22 546:16 557:10 559:2
clarifying 291:21 376:11 409:8
clarity 391:5 396:10
Clark 273:2,13,21 274:1,6,13,25 275:10,15,20 287:3,10,22 288:3 289:9,10 291:9, 13,21,24 300:21 301:2,6 311:11, 20,25 313:6 315:13,25 317:5, 12,17,21 318:4,7, 14,25 319:22 320:7,13,19 327:7,12,17,19,22 329:21,24 330:3, 10,13 332:13,17, 20,23 333:5 345:6,10 359:25 364:3,12,20,22 365:1,4,7,16,21 366:1,8,10 367:15,19,25 368:6,13,16,19,22 370:7 371:21,24 372:3,6 374:24 376:3,7,9 377:8,

378:23 379:12,15, 18 382:8,12 383:7,16,19,22 384:2,14,23 385:5,7,10 386:8 388:12 389:2 390:1,7,13,23 392:16,20 394:18 396:13,17,20,23 397:1 398:2,6,9 405:25 424:4,8,11 425:20 426:6 433:13,18 445:18, 23,25 447:22 448:1 453:8,11,25 462:4,6 469:8 470:12 471:9,17 472:4,8,11 475:4, 9,17,21 476:1,3, 19,22,25 477:4,7, 9,13,19,23 478:2, 7,17,22 479:5,13, 17 480:3 483:7,10 487:17,21 488:1, 8,12 491:18 497:11,15,19,21, 24 498:2,6,11,14, 18,20,23 499:21 500:5,9,12,15,18, 22 501:1,20 502:3 503:19,23 507:6 512:14,20,23 513:7,11 514:18, 25 515:3,6 516:9, 11,17 519:4,9,16 520:10 521:1,12 522:6,10,14,21,24 523:2,7,10,14 524:14 525:1,4,6, 9,11,13,17,19,24 535:13,17 536:4 538:11 539:19 540:2,5,18 541:14,24 542:19, 25 543:4,10,18 548:15,21,24

549:3,21,24 550:2,5,8,12 551:16 552:15,23 553:1,4,6,8,12,15 562:20,23 563:1 564:11,18 565:1 567:2,7,10,18,21 570:10 571:13,16, 20 573:12,16 576:1,4,6,9 578:18,25 579:13, 16 580:2,10,24 582:3,7,9,15,20 583:4,7,9 **class** 278:1 279:13,16,21

280:1,2,5,24,25 281:13 282:5 285:13 289:12,18, 23,25 290:18,23 291:7,11 292:1,9, 10 293:8,15,19,20 295:11,15 296:6, 12,16 301:20,24. 25 321:5,8 331:5 333:8,9,18 334:3, 12 336:24 337:12 338:14 339:25 340:4,9,13 341:24 342:6,18 345:15 369:17 370:18 371:4,6,8,11,13, 15 374:13 376:14 378:4,6,7,15 380:9,11 381:3,6, 7,13 382:25 387:10,17 389:22 390:16 391:4 394:24 401:23 403:21 407:14,23 408:3 409:11,13, 19 412:16,18,19, 24 413:19 414:15, 17 424:23 427:21 429:17 448:5,6 449:3,15,17 454:18 455:17



456:16 457:8 **closely** 279:20 column 380:4.8. 464:21 480:14 458:19 472:25 281:6 298:2 15,19,21 381:6,18 483:8,11,12,15 473:19 577:5 409:12 417:4 382:23 383:2 484:3 490:11 422:8 527:13,18 496:2 497:12 closer 298:5 337:5 class-specific 503:20,21 504:3,5 280:13 413:3 470:3 491:19 **columns** 381:11 510:17 516:5 **classes** 279:19 **Club** 274:21,24 combination 525:19 532:17 301:22 342:17,20, 332:21 371:21 450:23 550:21 562:21 22,25 343:6 396:20 497:21 567:4,11,12,16 combined 371:9 500:13 525:6 371:17 373:6 569:17,18 570:12 404:20,21 376:16,20 382:3 553:6 574:17 579:10,19, **combust** 286:12 393:14 397:12 20.24 580:4 **CMU** 497:22 403:15 404:16 combustion Commission's **coal** 284:7,23 405:3 406:25 286:12 310:6 319:12 285:14 337:1,2 407:5 410:20,21, 323:2 389:13 comfortable 311:5 452:22 23,25 412:13 439:16 481:23 413:9.10 420:13 commences **Code** 484:18,19 482:20 484:4,13 425:1 426:2,9 338:17 495:11 502:1 cognizant 441:17 429:24 436:13 comments 513:5 531:9 448:11 449:2 coincide 461:19 commercial Commissioner 451:11,21,24 462:9 280:10 339:2 455:6,7,8,9 457:7 275:8 338:24 coincided 466:18 340:11 448:17 458:14 384:4 398:4,6 coincidence 445:21 453:9 commission classes' 282:11 493:11,16 545:16 454:1 273:22.25 275:3 classification 567:1 282:6 288:25 Commissioner's 288:10 295:16 coincident 450:24 289:21,23 290:14, 575:9 447:19 565:14 462:21 18,22 296:20 commissioners **cleaned** 338:15 310:4 311:17 coincidental 327:22 322:12 323:8 clear 321:6 342:11 429:9 committed 302:14 324:20 326:1 343:8 352:15 coincidentally 327:3 330:1,15 389:9 402:4 **common** 285:3 465:3 338:16,21 339:16 421:12 422:2 286:2 576:22 340:3 341:8,9 collaborative 423:25 433:14 commonly 428:19 345:7 348:1 355:6 411:18 492:4,8 504:20 356:20 362:22 communicate 513:3 537:25 **collect** 292:15 369:11 370:2 578:2,7 544:23 325:8,14,22 372:6 376:3 communicating 404:17,18 534:15, clearer 424:1 377:19 378:2,24 519:25 18 538:23 543:19 379:5 384:7 communication **collected** 326:3,5 385:20 390:15 **clock** 449:12 398:2 411:13,19 309:25 520:22 545:3 **close** 280:20 418:10 419:13 collecting 288:19 communities 403:17 452:19 428:21 429:1,5,7, 280:9 545:4 477:24 478:14 13,15 439:17 487:2 collection 326:10 community 416:9 444:11 445:6 446:13 560:12 closed 462:14 447:24 453:19



companies 355:23 519:7 **company** 273:10 285:17 290:24 300:4,10 310:12 323:15 324:2,7 334:18 335:1 337:14 340:1 346:14,24 351:15 352:22 374:2.4 414:4 446:5,9 471:15 477:2,7,14 478:3,11 480:6 481:14,21 482:3, 8,13,23 483:20 484:5,21 486:19 487:4,5 489:5,7, 15 490:24 491:9 492:1,9 493:3,8 495:18 496:7,11, 18 497:1 498:9, 19,20 508:7 509:11,18 511:20 513:24 518:20 523:4 527:11 541:20 544:16 546:23 547:3 556:11,18 559:9 566:9 567:8 574:4 575:15 company's 276:8 293:20 322:10 326:20 346:12 349:22 356:5 465:1 482:9 483:3 486:10 487:7 492:23 516:15 517:9 518:23 520:22 546:20 554:18 555:4,9 556:6 557:25 558:20 560:17

565:20 company-owned 343:7

comparable 280:9,22 438:12 compare 306:6 comparison 305:16 308:13 309:18 310:1 479:16 compelling 347:16 compensation 459:17 competing 298:22 354:23 compiled 288:15 472:21 complaints 401:22 complete 279:9 325:3 completed 514:7 completely 520:7 **complex** 451:13 compliance 495:20 548:7 575:23 576:3,13

578:15 complied 289:2 431:2,6 569:18 **comply** 401:24 402:2 431:9 492:2 531:8 component 381:9 434:3 460:22 components 279:15 394:6 490:2 531:5

compound 348:4 computer 528:4 computerization

536:22 computers 409:22 **concept** 347:19 355:24 357:15 360:21 362:10 377:6 404:16 concepts 321:23 conceptually 331:3 404:5 concern 299:2 339:16 356:15 360:8,14,16 361:3 391:6,7,19 392:21 394:22 426:20 concerned 360:11 432:20,24 433:3,6 **concerns** 298:23 305:21 324:21 325:15,24 356:13 419:1 447:2 463:8,10 483:16 conclude 511:18 concluded 475:8 513:6 concludes 497:9 conclusion 335:22 483:2 condition 289:2 conditioners 354:9 conduct 321:4 331:4 336:24 conducted 325:20 conducting 321:7 417:22

336:4 375:7

510:5,7 511:1

488:7,9 565:18 339:22 confusion 348:9 359:20 274:22 connected 293:11 conductor 283:1 292:20 294:4,5,17 315:22 connection 395:11 400:16

connecting 282:1

282:14 470:11

cons 348:6.8

conscious 349:1 350:16

consecutive

474:25 475:2

consensus 411:16 412:17,19

consideration

341:2 427:17

considerations

296:19 297:13 323:3 346:3 356:6

427:20

considered

410:17 411:10

consistency

350:15 501:9

consistent 288:13

292:10 299:17

307:22 310:15,22

333:19 414:5

442:3,6 455:18

456:8 501:13

consisting 467:25

constantly

349:24,25

constitutes

485:16

construct 276:20

462:13,15

constructing

529:3

construction

286:5 490:2 510:8

consultant 519:7

Consultants 499:5

consume 293:5

344:2 349:1

352:24

consumed 442:19

consumer 343:1

363:13 365:7

consumers 274:6, 11 333:1 363:14

372:3 497:24,25

consumes 344:2

consumption

282:4 312:12

336:4 337:25

338:8 348:13,18

350:4,13 353:12,

15 354:5 363:22

364:7 375:8,10

448:14

consumptions

427:21

contained 387:25

388:5 419:9

499:15 545:18

contemplates

490:23

contends 494:9

497:3

contents 386:10

404:15 416:21

459:21

context 322:24

400:23 480:19

554:4

continue 395:14

399:24 489:12

496:6 502:6

512:15

CONTINUED

583:1

continues 435:19

continuing 447:4,

6,7 465:1 480:5,8,

19 481:1,24

483:18 484:6,15,

20 486:10 491:24 492:17 494:5

495:14 517:6,18

518:25 526:21

527:8 528:8,11

532:21 553:22

554:18,20,23

555:10,14,16

558:14,21 560:17

566:13

contradict 349:21

contrary 370:1

contrast 336:25

542:16

contributed

431:23

contributing

429:24 455:22,23,

24

contribution

288:9 403:11 424:23 431:15,16

463:1

contribution's

453:2

contributions

282:11 455:12

control 277:6

297:18,21,24

298:16,17,20

299:4,6,7 345:20

347:21,24 349:22

485:5,12 526:18

527:10

controlling 349:11

convenient

512:15

convention

485:17,21 530:21

conventional

285:8,9 445:9

conventions

531:14

conversation

325:23 349:10 494:16

conversations

496:7 520:12

conveying 359:10

cooling 439:9

cooperative

348:20

coordination

558:13

copies 316:24

317:3,4 390:5

471:5,6 475:13

542:20

copy 287:23 289:6

300:21 317:18

335:12 390:7

460:5 469:6 471:8

477:17,20 515:8

542:23 543:2.8

547:1 555:19

564:9,12 567:19

cords 400:10

corporation 484:12

correct 275:24

288:11,12 291:8

296:25 302:9,10 306:15 309:10

310:10,24 311:2,

6,10,23 315:11

316:5 318:21,22

325:8 334:6,9

335:11,15 337:16

338:9,10 344:13

357:2,3 364:14,15

366:1 367:16

370:24 375:19,20, 22,23 376:15,21,

24 378:18,20

383:17,18 384:14 386:3 388:1 403:6,19 409:9, 14,15 417:16 422:1 425:2 426:8,10 441:21, 22 453:22 454:11 457:18 494:22 499:10,11 501:3 506:2 515:21 516:13 518:9 527:4,5 531:6 533:18,19 534:3, 4,21 539:9 543:5 544:12 548:2,23 549:14 552:9 554:20 562:2,4 563:17 567:23 573:2 574:8 575:20
corrected 387:13 552:5
correcting 403:14
correction 432:12 469:14,19,22
corrections 367:3 386:21 387:23 499:12 524:5 551:6,11,22,25 552:8
correctly 304:1 318:17,19 376:23 454:8 495:10 519:20 521:19,20 541:3 544:19,25 546:12,15 547:8, 12
correspond 372:15 373:18 518:4 542:4
cost 276:21,24 277:2 278:10 279:13,16 280:1,

2,6,24 281:14,18,

```
25 282:5 285:13
289:12,18,23,25
290:18,23 291:1,
7,10,11 292:1,9,
10 293:2,8,15,17,
19,20,22 295:7,
11,15 296:2,7,9,
12,16,23,25
298:3,9,12 300:11
301:20 321:2,5,8,
13,16,21 323:18
324:5,7,8 325:13
331:5 333:8,9,18
334:3,12 336:2,24
337:12,23 338:1,
7,14 339:25
340:4,9,13,16
341:17,24 342:6
343:17,23 344:11,
12 345:21 347:11
349:12 351:8
353:7 360:16
362:8 369:9
370:22 371:1
372:16 373:20
374:12 375:5
376:17 377:6
378:4,6,7,15
380:1,2,3,5,7,12,
25 381:10,12,20
382:25 387:7
390:16 391:4
393:18.20 394:24
399:3 400:12,17
401:23 403:22
405:2 407:23
409:11,19 410:1,
2,8 412:16,18,19,
25 413:19,21
414:9,15,17,23
415:5,16 421:5
422:3,5,12,13,16,
17,20 423:3,6,7,8,
9,10,11,12 442:23
443:19 447:14
448:6,20 450:20
454:17 457:1,21
```

```
458:4,14,17 459:5
 462:24 463:18,20,
 22,23 464:3,6,8
 468:1 485:4,6,10
 486:5,13 488:21,
 22 489:21,24
 490:9,12,13,14,16
 492:16 493:5
 494:18 495:2,4,24
 503:9 505:18
 517:16 526:9,17
 527:22 532:14,23
 533:24 539:13
 545:12 549:17
 566:4,17 569:6,8
 575:23 576:3,13,
 16 578:14
cost-based
 298:22
cost-causative
 286:21
cost-of-service
 375:16
cost-reflective
 277:11
costing 432:2
 456:20,24 468:15
costings 411:17
costs 280:7,9,22
 281:20,21 282:8,
 9,20,21 283:8,25
 292:16,17,18,23
 293:3,21 294:12,
 15,19,20 295:13,
 14,16,23,25
 296:3,4,6 297:7,
 22,25 300:5,7,10,
 20 302:6 323:11,
 21 325:12 332:6,7
 337:16 343:14
 344:16 350:14
 351:22,23 352:8,
```

19 363:6 373:5

387:14 391:11

404:17,18,22 405:1 410:14 413:1,2,4,5,24 414:7 420:13 450:19 455:6 456:21 458:20 462:23 463:1,2 485:12 490:2,4 549:14 Council 274:7 333:2 372:3 497:24 **Council's** 365:8 **counsel** 273:15 274:2,4 311:23 317:9 318:17,23 321:1 322:1,18 328:16,23 330:13 335:14 337:23 338:11 342:24 356:25 358:6,8 372:4 390:24 407:8 418:22 419:17 420:10,18, 20 421:17 441:10 470:18 484:11 485:14 496:10 497:16,17 500:20 515:7 525:11 542:24 549:8 552:24 564:12 582:13 counsel's 328:8 345:13 441:5 485:15 counsels 335:22 count 302:1 303:6 556:25 **counter** 349:14 country 444:2 509:25 519:8 **couple** 341:20 345:19 367:23



377:14 428:5,23 429:6 430:25 442:16 465:19 530:7 578:4
coupled 407:15
court 275:8 476:18 487:20 522:13 539:21,23 573:9
courtroom 494:17
courts 415:17
cover 351:23
covered 352:21
COVID 336:16
CP 414:4 428:13
CPR 480:5,20 481:4 483:19 484:7 495:9,20,21 526:12 527:8 528:2,11 529:2 559:21 566:13 579:10
CPR's 526:7
create 322:16 361:2 482:21
created 474:7,8,10 482:25 502:9 504:15
credit 429:25
credits 571:5
criteria 506:25 507:21
criterion 545:20
critical 390:15 495:3
cross 320:14 365:2 367:14 370:3 390:23 522:6 575:25 579:24

0

Transcript of F
cross-examination 311:15 330:14,17 332:13,20,23 333:1,3,6 368:21, 25 372:7 374:24 375:3 390:22 391:1 396:13,17 397:3 448:2 453:12 500:6,9, 12,15,22 507:10 524:25 525:1,14 535:18 552:14,24 553:1,16 570:14 582:10,14,15,18, 19,20 583:3,4,5,6, 9
cross- examinations 332:17 500:18,19
cross-pollination 321:22
crossarm 558:5 568:15
crossarms 535:6 566:14
crunching 313:1
CSR 484:11 495:12 566:1
CTS 452:17
Cunigan 487:14, 24 488:16 496:17 550:4,5,10,14,19 551:17 552:17 553:18 564:22,25 570:16 572:1 573:24 578:18 583:8
Cunigan's 488:17 494:14
cured 412:22
curious 277:14
current 273:4

roceedings Index
290:24 291:1 292:12 294:4 303:11,20 325:18 366:21 369:8 380:23 385:21 406:22 430:22 449:21 452:1 482:16 484:3 486:23 561:24
cursory 336:12
Curtis 327:11
curve 486:21,23 487:12 489:7 493:23 494:4 503:4,5 505:7,9 507:5 508:8 545:12 547:25 561:4,6 566:23 569:1 575:6,11
curves 481:15 509:20 518:19 554:8,12 560:21 562:16 569:21 575:4
cus 387:16
customer 279:19, 21 280:8,13 283:2,10 288:9 292:15,20,24 293:2,4,24,25 294:10,12,21 295:1,7,18 296:7, 8,13,19 297:1,4, 10,15,17 298:12, 19 299:3,8,10,16, 21 300:15,17 301:23,25 302:5 303:6 305:23 308:12 309:12 314:5 315:8,11 343:11,15,16,21, 23 344:1,10,15 345:12,14,18,20,

24 346:24 347:1,

5,21 348:7,8,20,

Index: coupled..customer-specific 22 349:8,22 350:4,21,25 351:3 352:3,17,21 353:20 354:2,17, 21,22,23,25 355:1,7,19,22 358:13 359:21 360:7,11 371:15 382:3 387:3,4,10, 17 393:14,15 394:2,4,12,16 397:11,12,14,18 398:11,13,18 399:21,22 401:11, 12 404:17 407:18 410:8 413:4 417:4,9,11,13 423:3,6,7,8,9,10, 12,13 426:15,25 431:24 432:15,16 434:4,18 435:23 436:6,12 438:7,9 440:10,12 441:24 442:7,8 443:14 448:19 450:18,19, 21,22 451:13,17, 18 456:18 457:21, 22 458:7,8,9,11, 12,18 459:3 467:2 473:2 506:20 507:15 534:7 customer's 298:7 343:14 401:14 434:25 customer-owned 425:1 426:10 customer-related

282:8 292:16,17, 18,23 293:3 296:6,9 314:5 344:16 409:25 450:19

customer-specific 280:4,6,21 281:3 301:14,16 325:24 476:15



customers 277:6, 8 278:5,17 279:7 280:11,15,16,18, 22 281:8 282:1,23 283:5,12 285:22 293:11 295:13 296:3,14 297:2, 18,21,25 298:15 299:3,6 301:23 302:1,8 303:2,4,8, 21 304:11 305:9, 10 306:12 307:6 308:24 309:8 312:12 316:12,16 323:4 324:4,6 326:22 336:15 339:3 340:12 341:3 344:6,13 347:20 348:11,24 351:21 354:3 356:2,8,14,18 357:21 358:19 359:3 360:11 363:5,12 375:13. 15 392:6,7 393:11,12,21 394:7 398:17 400:12 401:2 406:10,12 409:24 410:15 420:13 426:20,21 432:24 433:2,5,22 434:20,21,24 435:24 436:5 437:3,4,5,6,9,10, 23 438:21 439:2, 18,24 440:6,24 441:3,9 442:10, 18,20 443:16,22 444:6,8,12,25 445:4 448:10,25 449:5,6,11,13,17, 22 456:19 457:3, 4,6 459:2 466:23 482:1 534:2,11, 14,15

customers' 278:2 286:8 436:19 437:1 570:8

cut 540:19

cutting 489:10 490:6

cycle 309:9 324:12,20 437:25

D

daily 473:22 509:4 damaged 557:19,

danger 433:22

dark 418:4

23 558:1

darn 464:11

data 276:25 278:19,25 279:4, 5,7,11,12 280:2,4, 14 281:13 282:11, 16,24 283:3 288:21,22 289:4 292:12 304:25 305:7,8,23 306:3 307:20 310:3,5,14 312:7,10 313:1 314:25 319:11 324:11,16,22 325:6,8,12,14,21, 24 326:3,5,10,11, 16,18,25 327:2 331:8,9,14,17,24, 25 336:12,17 388:22 389:8,10 390:14 391:21 396:4 400:8 409:20 410:7,13 411:23 412:1 414:19 418:5.6. 10,23 421:5 427:20 431:5,12, 13,18 432:1

447:3,10,12 448:12,13,15 449:16,19,24 461:3,6 465:3,10 466:6 468:5,11,13 470:10 471:13,19 472:17,19,21,23, 24 474:6,7,12 476:10 483:23 484:8 486:17,18 488:19 491:14 492:1,2,3 493:1,9 494:1,2 497:1 501:8,9 502:10 503:4 504:16 506:3 507:16 511:5 513:25 514:2,9,23 515:19 516:16 518:6 519:19,24 522:17 530:4,18 532:7 533:10,14 534:17, 19 543:16,21 544:1,2 545:25 546:17,21 547:2, 5,11 558:23 560:19,20,23 561:2,5,7 562:16 563:9,11,17 564:8,24 565:2,9 566:21,22 567:4, 14 571:3,23 572:9,14,15,17,20 573:1,25 574:1, 12,19 575:5,9,16 577:6,11

data's 282:19 358:3 497:5 566:24

database 494:2 529:2,6,13,25 530:11 536:12 537:19,21 559:16, 17,22 571:4 577:15

databases 536:21 555:1 date 485:3 492:24 510:6 518:13 dated 468:2 **Dave** 428:4

day 273:8 307:16, 21 325:10 353:6 356:4 427:22 441:20 463:21 474:8 507:25 516:14 580:13 581:11

day/night 356:1

Daylight 473:23

days 307:9 312:22 358:17,19 367:23 462:18

deal 346:16 362:17 391:18 404:10 416:16 432:25

dealing 429:22 430:2 441:12

dealt 441:9

debits 571:5

decade 420:18 427:16

decades 282:7 562:13

December 303:17 474:17

decide 458:17

deciding 387:9,17

decimal 370:24

decision 332:10 343:21 346:10 429:16 439:16,17

decisions 413:16



437:7,8 446:12,21

439:8 539:15,24
decks 572:18,20
decline 439:6 440:24
declining 354:6
decoupling 346:25 362:1,2
decrease 380:13 381:24
dedicated 280:23
deem 346:6
deemed 335:24
deeply 432:20
default 305:17
defective 511:18
defer 389:20 397:23 483:5
deferred 323:18
deficient 301:12
defined 484:16 495:15
defines 375:13
definition 484:20
definitions 484:16 486:3
Definitively 526:11
defy 579:10
degree 402:23 503:11 513:22 522:3
delay 359:24
delayed 462:17
delaying 509:10
delivering 282:3
delivery 315:22

Transcript of
547:4
delta 356:21
delve 398:10
demand 282:2 283:10,24 293:4, 18 294:6,18,21 295:1 298:4,6,7, 10 375:15 400:20, 25 401:7,20 404:22 430:2,3 434:3 449:9 450:24 451:20 454:18,22,24 455:12,21 456:4, 7,8 458:7,8,9 472:25 473:22,25
demand-carrying 392:13
demand-related 282:8,20 294:18 295:8 300:19 409:25
demand-side 347:18
demands 280:17, 18 282:12 294:19 295:18 375:11 455:11,13 456:12
dense 278:25
density 279:10
department 385:21 539:9
departments 520:23
depend 350:12
dependent 307:10 351:21
depending 327:25 353:13 426:16 428:18 478:18
depends 357:19

446:19 468:21 562:15 577:7
deploy 307:4
deployed 303:15 308:10 312:9 355:11
deployment 303:18 355:15 359:1 439:24
deploys 481:18
deposed 335:6,10 337:19
deposition 335:22,24 338:19 341:5,20 354:15 397:24
deposits 397:15, 20
deprecation 487:2 532:20
depreciate 481:1 554:6
depreciated 485:22 495:4
depreciation 480:4,14,21,23 481:16,19 483:24, 25 486:25 494:1,3 503:1,6 518:21 519:6 529:18 533:4,6 554:3 560:20,21 566:21 570:24,25 571:3 575:12,13
deregulated 339:7
describe 334:2 343:13 379:10,21, 22 421:2 467:22 517:25 537:1 546:22 551:11 561:14 565:12

	397:18
15	describing 422:6 537:3
	description 363:8 469:16 477:1 485:1,8 526:16 527:19 532:22,25
3	descriptions 468:1
5,10	design 276:14 289:15,16 292:2 294:22 295:21 298:17 332:4
:19 5	336:10 346:11 358:4 363:8 385:20 404:1,3,13
5,	408:3 409:4 440:20 443:5
37:2	449:8,25 538:24 545:3
:1	designated 367:1
	designed 299:5,9 354:8 357:20 362:9 394:11,14 398:12 442:20 463:2 537:22
3 :24, :1,3	designs 276:23 354:5 452:7
. 1,0	desire 578:24
:21 :3	detail 399:11 404:4 450:9,11 502:11 503:6,11 508:24 511:15 545:24 554:1
39:7 2 ,21,	detailed 294:20 304:13 308:22 415:9 481:7,10 553:19
	details 316:10
	determinant 407:21



determination 302:5 514:19
determine 380:22 483:24 490:12 494:3 495:4 496:7 518:2 537:17,18 545:13 560:21 561:5 575:10,12
determined 481:15 486:24 490:4 518:23 537:14 546:18,22
determines 570:25
determining 482:6 489:21 517:4 566:5 578:14
detrimental 323:5
develop 292:6 406:9 453:19 503:3 539:9 549:17
developed 276:9 286:2,7 292:11 456:20 461:11 464:21 503:16 509:22
developing 505:9
development 300:6 456:21 549:9
device 315:14 387:9,16 466:2
devices 293:15 315:10,12,16 395:13 401:17 458:25 517:21
devoting 340:3
dialogue 342:2

Diana 327:10

dictate 375:11

Transcript of
differ 452:2
difference 324:19 334:11,17 358:9 381:5,14,16,19 383:3 391:6 457:2 561:15 568:23
differences 284:18 373:21 392:9 407:23 410:24 429:14,15 448:15 452:3 455:2 456:19 464:23 490:15
differential 359:9 438:18,21,23 439:5,15 440:2,8 456:23
differentials 356:16,18 357:18 359:5 443:2
differentiate 427:21
differently 284:6, 12 285:12,13 413:7 426:1 491:12 494:5
differing 441:10
difficult 355:25 357:15 449:1 577:10
difficulties 346:16
difficulty 274:18 418:2 420:23 533:17
digital 537:22
diminished 362:10,11
diminishes 363:1
diminishing 347:23,24
direct 280:19,20

Proceedings I
292:14 296:5 305:18 323:24 329:1,6,7 330:4 341:24 365:9 366:17,23 367:12 368:4 369:5 372:14,25 373:17, 23 374:16 385:16, 24 386:15 388:9 389:11 405:14 406:17 408:8,10 413:19,20 432:8 435:13 460:5 463:19 487:15 488:18 499:1,8,22 523:18,24 524:1, 16,17 526:19 527:2 538:1 545:19 546:9 550:16 551:1,3,8 552:16 572:5,18 582:6,9,14,18 583:3,8
directed 572:13, 14
directing 389:13 440:15
direction 290:12 296:22 324:12 352:15 418:4,5
directionally 442:6
directives 349:15
directly 280:14 305:6 316:18,20 352:12 494:18 495:1 548:4
director 523:21
dis 358:24
disagree 334:18 335:1,18 341:7

358:24 418:14 427:25 508:16

540:20
disagreeing 494:8
disagreement 414:14
disagreements 324:24 414:13
discovered 417:21
discovery 331:9, 25 491:2,25
discriminatory 449:21
discuss 503:2
discussed 301:15 322:19 384:12 396:2 418:21 431:11
discussing 446:5
discussion 293:9 312:7 324:10 325:1,9 326:6 360:6 361:13 388:19 427:9 435:18 450:5 454:6 457:9 459:4 460:24 468:14 476:8 549:11
discussions 361:4 557:15
disjointedness 348:18
dismiss 339:14
disparage 337:7
dispersion 486:23
display 488:2,4
dispute 319:5 491:16 496:15
disputes 324:13, 20,22 325:4



disregarding
432:14document 379:7,
8,11,21,23 469:25distinct 323:10515:16 519:22
520:3 546:1
547:6,14,15 572:6distributed 373:5
404:10573:7

distributed 373:5 404:10 distribution 279:4, 12 293:9,12 294:25 295:6,23 300:7,10,19 302:6 324:16 334:20 335:3,17 336:3 337:24 338:2,7 352:9 375:6,22 387:8,15 391:21 392:13,21,23 393:1,7,19 395:9, 10,11 398:19 399:15,20,24 400:1,9 401:6,8 402:5,17,20 403:6 411:3 413:1 414:6 415:24 416:8,11 436:14 446:6 447:19 450:21 454:18 456:13.20 457:11,17,23

distributive 339:11

546:2 562:12

458:3,5 465:5,15,

23 470:2 545:21

divergence 411:16

diverging 338:14 diversity 284:20

divest 466:18

dividing 387:16

divvy 353:7,8

docket 289:22 326:7,8,13 338:17 358:4 404:9 412:23 426:17 464:22 documents 461:10 520:24 551:7 552:4

dollar 283:20 286:19 352:20 391:6 431:19,20, 22 432:3 434:17 505:15 531:15 535:9,24

dollar's 536:12

dollars 283:14 347:17 351:11 414:13 492:12 495:6 505:19 536:15 538:17 549:17 557:3

dots 436:16,21,24 437:14,15

double 302:1 314:17

doubt 311:1 335:15 356:9 420:20 491:11 535:2

downloaded 312:15

downtown 546:5 572:23

draft 545:18 546:8

drag 444:4

dragging 357:14

drastic 569:11

draw 474:11

dress 580:2

drive 286:4 393:7 456:12

driven 300:5 375:23

driver 295:7 296:2 336:2 337:24 338:1,7 375:6 411:2

drivers 281:25 283:8

drug 473:20

dry 492:7

due 342:8 384:4 443:1 490:13,15 528:24 560:25 579:11

duly 275:17 328:24 366:15 385:14 498:24 523:16 550:14

duty 294:17 497:7

Ε

earlier 301:15 352:18 358:11 364:1 366:5 382:18 384:3 450:6,12 458:22 476:8 544:13 556:25

early 361:5 452:15

earned 346:17

earnings 362:5

ease 440:24

easier 361:18 576:23 577:3 578:1,5,9

easiest 448:9 455:14

496:22 543:25

elaborate 448:8

452:3

electing 530:15 **electric** 273:10,12 276:10 336:15 343:22 348:16 350:5 394:14 442:7 482:4,6 484:12 489:22,24 490:1 electricity 506:18 electrification 344:18 electronically 390:6 **elects** 356:20 element 277:4 350:10,11 439:7 537:23 **elements** 276:18 283:11 405:2,24 406:19 409:24 410:22 442:10 527:23 534:19 eligibility 344:6 eliminating 443:15 **email** 287:4 358:21 468:1 477:21 518:7 520:11 546:11 572:25 emailed 274:17 476:17 **emails** 367:22 embedded 332:5 337:14 349:13 351:8 362:21 422:3 embedded-cost 321:17,23 338:6

emergency

502:17

Empire 336:13 414:22,24 415:7 employed 366:18 385:17,19 499:2,4 523:19 550:20 employees 537:12 **enable** 347:20 349:22 432:1 **enabled** 277:12 379:24 encompass 309:13 encourage 322:10 353:12 362:9 413:18 442:5 482:23 encouraged 354:5 encouraging 353:1 end 278:25 297:25 303:17 319:10 339:10 340:9 349:6 363:5,12 401:21 403:3 404:16,19 454:21 484:10 492:16 545:6 **end-use** 400:12 energy 274:11 282:3,12 283:10 285:21,23 286:3, 8,9 293:5 295:5, 20,25 296:1 300:4,5,7 312:12 334:21,24 335:3, 16 336:4 337:25 338:8 339:11 344:1,3,17 349:1, 3 350:5 352:24 375:7,8,10,15 404:22 411:2 413:2 427:21 430:13,15 440:16,

17 442:19.21 444:19,20 448:14, 20 451:22 454:9, 15 455:1,10 22,23,24 464:3,7, 8 465:7,9 472:24 497:25 510:13 532:17 547:4 energy-related 282:9,21 410:1 engage 277:8 engineer 517:13 550:24 engineering 518:2 engineers 470:2 **enhance** 278:10 **ensure** 353:12 426:15 497:8 **entails** 542:14 enter 273:15 274:19 327:9 421:18 453:20 516:18 530:11 **entered** 319:23 453:20 563:20 entire 493:14 531:2 537:21 **entirety** 286:4,22 **entity** 361:20 402:8 **entity's** 376:2 **entries** 502:13 570:17,18,21,22 571:6,7 entry 274:8,10 507:2 environment 411:18 412:4

epiphanic 492:20 equal 342:7,16 343:5 350:13 369:20 407:13 456:17 463:18,21, 424:25 426:8 427:1 535:7 **equally** 342:21 **equate** 504:3,5 equates 347:1 equation 281:11 equipment 281:22 294:15 295:6 556:8 equipped 306:11 432:25 equivalently 301:22 ER-2021-0240 289:14 ER-2022-0337 273:12 **ER-85-160** 429:7 **ER-85-17** 429:7 **erode** 363:16 erosion 324:2 346:21 errata 335:23 error 386:24 492:9 493:18,22 essence 545:4 essentially 295:5 310:23 352:14 381:8 403:2 404:15 405:23 establish 505:11 established 337:19 474:9,10 509:8



estimate 398:25 481:20 489:17 494:10,11,12 504:19 528:12 529:19
estimated 490:10 504:21 528:3 532:6
estimates 464:3 480:23 481:20 482:6 489:21 490:11 503:3 554:4,8,12
estimating 528:16 529:14,17
estimation 507:4 532:12,15
ET-2018 287:18 476:12
ET-2018-0132 288:8 431:1
Ethan 274:23
Eubanks 546:11 572:25
EV 322:24 350:4,7
evaluate 278:16 432:4
evaluation 390:16 545:18 546:8
evening 443:16,17 478:11
Evening/morning 304:23 305:4 306:24 307:6 308:13 437:11,12, 18,19 438:5,16 440:4 441:8,19 442:12

evenly 373:5

event 497:7

520:21 579:23

-	Transcript of
events 43	0:2
eventually 570:6	522:2
Evergy 33 354:1 355 415:7 438 439:1 441 443:4,11	5:11 3:12 :16
everybody 374:7 400	
everyone's 17 573:10	•
evidence 330:9 337 368:12 38 388:17 39 471:22 47 488:16 49 496:17 50 522:20 52 538:10 54 552:13,22 573:22 57 576:3,12,	7:11 33:13 90:20 78:6 91:7 90:2 24:23 48:13,20 2:567:17
evidentiary 388:24	y
evolves 2	81:22
evolving 3	349:24
EVS 344:1	18
EW 404:9	405:7
exact 302 312:16 40 415:13 42 526:16 52)5:22 26:24
examination 320:23 320:23 320:12 36 379:1 385 454:4 499 523:18 54 550:16 57 582:5,6,9	29:1 66:17 5:16 6:1 500:4 19:5 71:24

rooccarings	ma
18 583:3,6,8,10	31
EXAMINATIONS 582:2	exh 289
examine 563:2	318
examined 575:18	319
	36
examples 337:24 353:3 403:7 463:9	38: 38:
	388
exceeds 401:1	39
Excel 496:23	420
exception 343:6	45
426:25 490:21,22,	469
23	47 47
exceptions 416:7	47
•	19
excerpt 321:2,11 526:20 527:7	16.
	54
excess 285:16,17	9,2
294:15 339:3,21	56
375:18	57
exchange 303:25	573
335:13 337:22	57
338:3 412:5 419:2	exh
467:1	55
exclusively 457:3,	exh
5	13
excuse 291:6	36
296:17 297:13	11
371:16 372:9	478
373:13 377:11	22
385:22 460:24	52
461:25 504:9	55
506:5 517:17	exis
executed 279:25	30
executive 358:15	310 394
exercise 318:24	410
398:24 426:3	450
461:4,15	55
exerts 450:19	exis
exhaustive 421:24	exis
exhaustively	30

5:17 ibit 274:19 9:8 317:2 8:8,9,12 9:17,18 367:16 8:2 382:6,15,19 3:8,9,12 6:17,18,19 8:10 389:4,24 0:2,17,19 0:20 423:24 8:22 467:20 9:5,15 470:13 1:12,18,21 5:13 476:10 8:3 522:16,18, 543:13 548:14, ,17,19,25 9:22 551:1,2,4, 22 552:13,19 7:5,12,16 1:18 572:8 3:17,18,21 4:9,16 ibit's 469:17 2:21 ibits 329:10, 20 330:8 7:2,10 368:7,9, 388:9,13,14,16 8:5 499:9,20, ,24 500:1 4:2,12,15,19,22 2:16 st 293:17 5:11,14 306:20 0:3 321:21 4:22 398:17 0:25 450:15 6:10 505:3 8:4 sted 450:16 sting 281:13 5:2 324:2 393:19 394:16



440:3 517:5 562:3 exists 290:12,14 411:23 458:3 506:6 517:9 532:7 547:11 **expect** 311:10 394:6 403:17 474:1 560:24 578:13 579:23 expectation 309:2 425:25 479:4 505:14 **expected** 303:14, 18 485:23 **expense** 373:16, 17 570:25 575:13 expenses 373:4 426:1 experience 308:19 362:23 557:21 558:3 experiences 307:9 experiencing 336:9 **expert** 276:14 316:7 expertise 579:21 **explain** 292:16 364:11 379:11 409:17 435:11 448:10 450:11 454:14 545:23 572:19 explained 398:11 482:8 explaining 382:18 450:8 569:16 explains 381:2

explanation

394:19

explicitly 463:2 exploration 420:12 explore 577:8 explosive 492:5 **expose** 358:5 **exposed** 357:19 exposure 346:12 expound 295:9 445:1 **extends** 360:20 extension 400:10 extensions 432:2 extensive 360:6 375:14 **extent** 322:11 325:6 336:13 369:24 372:23 398:22 411:9 415:22 442:6 472:17 565:12 574:8 **extra** 390:5 extracted 574:12 extreme 339:8 482:21 F fabricated 492:17 494:1,2 fabrications 492:16 **FAC** 324:6 461:11 463:25 face 346:15 352:7 facilitate 419:7 421:16 559:13

facilities 280:23 448:19 449:9 450:20 451:19 462:25 463:1 facility 284:23,24 458:1 facility's 404:18 fact 329:16 384:7 399:19 417:23 448:21 482:2 491:24 501:17 502:6 504:15 530:5 568:1 factor 442:19 448:14 455:9,11 factories 466:24 **factors** 286:21 375:24 402:16 facts 341:16 538:9 factually 311:10 fail 374:9 **failing** 391:20 392:4 failure 301:13,17, 18 failures 402:3 fair 278:13 355:21 419:2 fairly 280:5 298:25 317:19 348:10 356:18 **fall** 403:16 **falling** 557:19 558:1 falls 415:2 familiar 295:21 310:7 313:14 321:9 330:19,23

339:23 469:11

532:16 565:2

Index: exists..field **family** 348:23 **FAQS** 304:16 **Faruqui** 276:13 308:17 444:1 **Faruqui's** 308:18, 21 fashion 504:10 509:25 faulty 566:24 favor 570:8,9 **favors** 492:9 feasible 557:8.22. 23 **February** 303:1,11 474:18 **Federal** 484:18,19 532:17 feedback 278:6 343:3 352:25 560:23 **feedbag** 493:21 feeds 493:19,21 feel 310:15 311:5 407:17,21 504:7 feeling 519:11 feet 357:14 535:4 fell 474:21,24 felt 290:4 **FERC** 482:19 496:21 546:25 **FERC's** 481:22 **ferret** 412:6 field 279:15 493:12 502:12,13 503:2 505:21 506:8,24 521:24 538:22 539:3,4,8, 15,25 541:5



545:17 554:22 555:11,18,25	find 387
558:5 559:8 560:2,7 566:22 569:4 576:18,23 577:3	fine 40° 424 57°
figure 282:25 284:20 505:21 506:17,21 508:5 569:13	finis 384 fire
file 273:12 369:14 418:25 468:22 509:15 579:8	firm fit 4
filed 291:1 303:1 310:5,19 319:11, 14,15 329:8 342:6	fits
366:5,22 372:16	fix-a
382:25 383:4 385:23 390:4,10 395:18 466:21 479:17,18 496:22 499:7 523:24 550:25	349 357 502 509
files 339:25	fixtu 432
filing 310:16,24 374:2,3,5,16	flat
388:23 389:13	flavo
404:11 final 380:21	fleet 5,2
finally 527:21	fleet
financial 340:13	452
financially 323:5 349:5 351:16	Flen 518
find 294:23	flexi
302:14,19 303:6	flow
369:11 398:16 404:6 406:3	flow
424:17 425:7,15 434:6 446:10,16	fluc t 346
450:10 457:2	focu
460:9 505:20 506:12 529:24	408
533:22 555:12,25	focu

finding 336:11 387:7
fine 301:3 312:20 401:18 409:3 424:8 542:25 573:15 580:9
finished 275:2 384:24 475:23
fire 401:4 452:16
firm 327:11 366:20
fit 431:18 459:13, 16
fits 361:12 442:21
fix 403:1 570:7
fix-all 447:18
fixed 298:5,6,9,12 349:12 350:14 351:23 352:9,19 502:8 503:15 509:8,21 533:8
fixtures 395:10 432:10
432:10
432:10 flat 436:2
432:10 flat 436:2 flavors 428:15 fleet 285:19 286:4,
432:10 flat 436:2 flavors 428:15 fleet 285:19 286:4, 5,22,24 427:12 fleets 430:22
432:10 flat 436:2 flavors 428:15 fleet 285:19 286:4, 5,22,24 427:12 fleets 430:22 452:1 Flemming 499:4
432:10 flat 436:2 flavors 428:15 fleet 285:19 286:4, 5,22,24 427:12 fleets 430:22 452:1 Flemming 499:4 518:21
432:10 flat 436:2 flavors 428:15 fleet 285:19 286:4, 5,22,24 427:12 fleets 430:22 452:1 Flemming 499:4 518:21 flexibility 469:25
432:10 flat 436:2 flavors 428:15 fleet 285:19 286:4, 5,22,24 427:12 fleets 430:22 452:1 Flemming 499:4 518:21 flexibility 469:25 flow 375:15
432:10 flat 436:2 flavors 428:15 fleet 285:19 286:4, 5,22,24 427:12 fleets 430:22 452:1 Flemming 499:4 518:21 flexibility 469:25 flow 375:15 flowchart 353:5 fluctuations

Proceedings
Focusing 554:16
folks' 492:7
follow 297:7 501:14
follow-up 364:10
food 347:5
foot 535:5,11 556:19
footnote 378:12 381:2
foresee 451:16
forget 389:20 446:6 472:3
forgive 291:4
forgot 383:24 384:15 472:4
form 409:7 431:10 511:19 513:9
formal 290:12
format 313:19
formula 381:3
forward 276:18 277:21 278:2 281:7 307:17 324:12,17 326:7 336:23 340:25 346:4 347:17 348:1 351:17 353:16 358:4 359:9 361:21,23 428:10 495:18 536:1,19 537:5 562:2,7 570:6
fossil 285:9
found 302:23 391:24 434:23 460:17 577:24

foundation 404:25

501:22,25

foundation's 516:2
foundational 283:11,16
four-month 309:23
fourth 460:22 527:18
frame 304:10 309:13 438:3 450:15
framework 292:5, 9 293:8 337:9 452:8
framing 360:16,25
frankly 443:8 449:17 458:10 461:17 465:9
free 346:15
Friday 335:6 384:16
friendly 370:3
front 458:23 473:5 531:19 532:19 547:16 555:19 564:10
frustration 314:19
fudge 352:14
fuel 295:19
fueled 285:9
full 306:2 335:12 355:15 359:1 397:22 429:25 496:2,8
fully 355:11
fumbling 418:4, 15,16
function 294:13 315:8 463:3



	Index: Functionalizedgreat		
Functionalized 413:21	generalizing 340:18	480:10 487:18 526:22 538:11	14,19,22 513:8, 10,12 514:24
furnish 490:10	generally 292:15	542:21 565:3	515:1,5,9,11
fuse 315:19	294:25 308:1 334:1 343:19	giving 298:15 310:1 348:14	516:6,10,13,21 519:9,14,17
future 323:21	381:25 457:12	361:24 429:25	520:9,17 521:9,14 522:4,11,12
324:8,9 353:10,15 358:3 362:22	467:6 480:25 542:5	431:22 439:4 glaring 391:13	525:15,18 540:6,
410:13 439:9 468:19 483:25 530:20 536:14	generated 350:7 528:4 563:6	goal 376:17 560:15	8,10,18 541:14,17 542:10,18,20 543:1,6,10,12,20 544:2,5 548:9,13,
562:2	generating 391:11,12	goals 532:1	21,23 550:4,13,16
G	generation 284:6,	Golly 428:22	551:21 552:12 564:16 567:6
G-E-O-F-F 329:4	7,8,9,14 285:25 286:22 389:22	good 273:3,18 282:19 290:7,16	571:14,17,22,25
gain 351:4	404:10 416:9,10,	312:4 313:14	573:12,15,23 576:2,5,8,10,11
gained 362:17	13 427:17,19	325:23 330:19 331:12,17 332:2	578:17 582:7,10,
gallon 348:15	429:24 430:1,6 452:13 458:1	334:22 337:8	11 583:8,10,13
Gannett 499:4	466:18 473:13,17	343:16,18 345:17	Graham's 501:2,5
518:21	generations	347:7 350:3 355:21 360:22,25	534:20
garage 394:4	351:13	369:2,3 406:14	grant 443:20
Garrett 327:11	generator 285:8,	410:17 411:18	granted 463:16
gas 284:23 285:11,12 350:22 416:10 gathered 507:16	10 Geoff 328:18,24 329:4 330:5 582:13 geographic	412:5 422:3,4 427:24 435:1 443:24,25 444:7,9 447:7 449:25 472:16 475:10 480:13 488:11	granular 277:1 278:19,25 279:5 282:15,24 283:2 324:16 417:3,18 granularity 282:18 312:7,8
gave 339:6 341:5 347:2 463:9	284:19 Gerbes 347:4	541:12	granulized 473:2
544:13	348:14 351:19	Google 538:4	graph 435:6,7,11,
gee 428:22	get along 508:8	Gosh 353:23 Governor 273:5	21,25 473:11
geez 391:14	give 275:15 276:8		474:5
general 274:5 285:2 290:19 333:14 343:2 345:17 359:18	278:5 281:14 298:16 299:3,6 309:17 311:21 324:2 339:16	Graham 273:24 475:25 476:2,3 479:14,24 480:2 483:12 487:18,23 488:3,13,14	graph's 435:20 graphs 304:15 386:12 389:7,10, 14 390:9 472:1,12
361:23 411:23 414:8 426:18	344:21 345:20 370:8 402:11,12	491:18,20 497:11,	gray 436:3
427:25 429:20 430:18 485:8 527:19	417:1 418:10,18 420:3 424:16 438:22 439:2,7,18 444:6,16 448:11	14 500:24 501:15, 18,21,22 505:16, 25 507:9,11 508:12,18 512:11,	great 289:9 397:9 428:23 444:3 447:20 461:16 528:25



greater 353:13 21 478:9,21 22 happening 451:16 356:20 458:14 479:2,11 480:13 gun 384:1 hard 447:8 478:10, 483:9 488:10 greatest 326:22 15 562:9 **gut** 357:8 498:9,19,21 green 414:1 hardening 546:3 499:1,19 500:3 572:21 574:21 508:10 512:9 Н arid 299:18 341:3 513:2 515:7 **harder** 437:14 343:22 546:5,6 516:1,8 520:2,24 half 279:7 310:20 572:24 574:24 497:6 578:1,6 522:8,23 523:4, 342:20 381:19 **grocery** 350:19 **hat** 420:18 490:8 15,18 524:12,24 **halfway** 381:22 gross 315:6 536:2 538:9 hate 580:2 382:2 539:17 540:16 grossed 413:5,17 **head** 275:22 **hamper** 344:17 541:22 543:23 353:23 354:24 grossing 414:10 549:2,4,6,19 hand 275:12 358:1 391:18 550:1 553:14,17 ground 415:21 328:20 339:15 393:16 562:18 567:9 365:14 379:8 ground-up 410:7 **heading** 527:20 570:13,15 571:11 385:8 417:20 573:6 575:24 groundbreaking **healthy** 336:18 471:6 496:5 579:2 580:9 419:5 347:9 498:12 523:8 582:5,6,9,12,15, 543:7 550:6 groundwork hear 318:10 330:6 19 583:4,6,9,10, 564:19 406:14 345:7 368:8 376:4 13 **handed** 314:10 379:16 383:9 group 274:11 **guess** 275:21 388:14 398:3 515:12 572:6 460:25 461:1 276:7 288:1 297:8 471:17 491:3 486:1 497:25 **handing** 313:10 315:21 329:24 499:23 503:22 518:24 556:23 564:22 341:20 344:21,22 512:18 522:16 557:13 558:8,19, 353:16 354:10 handle 319:21 524:19 552:18 24 560:4,5 355:2 361:5 handled 441:17 **heard** 278:12,13 grouping 485:25 369:19 370:11 451:12 501:9 312:24 316:6 371:8 382:17 **groups** 342:5 332:25 433:4 handling 563:15 384:11 389:1 428:10 577:22 494:20 534:20 391:9,20 398:22 **hands** 361:16 538:3 540:13 growth 465:21 418:7 424:6 406:12 473:3 555:3 576:12,25 425:13 426:18 handwritten 431:16 445:1 hearing 273:9 **Grubbs** 273:18,19 409:21 468:4 447:1 448:9 318:11 330:5,7 289:6 317:9,14 457:15 460:17 365:9 368:8,10 318:1 320:11,21, hanging 490:8 468:21 473:22,24 382:15 383:8,11 24 327:5 328:14 529:4 504:19 515:1 388:13,15 390:2, 333:4,7 342:23 happen 307:12 532:6 535:11 345:3 350:3 18 419:23 433:11 356:8,11 434:22 537:4 568:10 363:23 364:15 462:14 471:14,20 489:5,6 508:21 477:14 478:2,4 375:1,4,25 397:2, **guidance** 338:15, 513:20 498:15 499:25 4,25 424:6 433:9 20,25 340:7 341:8 happened 307:14 453:10,13,24 522:15,18 524:18, 501:11 504:7 310:21 427:9 20 525:20 548:17, 467:17 469:6 506:18 513:19 465:21 468:8 18 552:18,20 471:15 476:7,21, 527:24 530:6,17, 492:22 511:21 24 477:2,6,8,11, 567:15 573:18,20



23 455:10,12,15, 17,18 456:2,3,5, 25 457:1,4,5 473:21 474:9,11, 12,13 506:21 house 292:25

household 394:3, 13

457:24 458:1

housekeeping 476:5 478:7

how's 454:15,16 532:9

huge 348:2 351:11 362:4 443:20 444:12 456:19

hundred 352:20 363:18 414:22,24 434:21 435:22 436:16,19,25 437:5,6 535:3

hundreds 308:22 496:24 502:17

Hutchinson 365:8

high 297:17 306:13 348:21 349:8 351:3 432:25 447:14 455:8,9,13 535:8 556:25

high-cost 457:4

high-volume 531:15

higher 278:4 283:20 294:5 299:3 413:10 434:8 438:18,23 439:14 440:8 456:22

highest 308:8 414:22,24 432:21, 22 454:22,23 455:16,19,20 456:6

highlighting 313:15 318:20

highly 341:15 highway 393:8

hint 442:11

hire 446:23

hired 559:9,13

historic 417:7 453:5 462:22

historical 284:25 337:16 338:5 362:12 452:3

535:21 536:18

historically

276:23 307:14 336:5 416:20

history 536:21

hold 354:23 418:24 519:4 526:25

holding 511:1 holdover 551:20 holistically 285:19 **Holsman** 398:4,7

286:7

9 448:16

481:7

homogeneous

heavier 294:17 **heavily** 297:16

heck 415:18 432:4

575:19 581:12

hearings 433:5

hearsay 433:10

494:23,24

heat 350:6

439:9

heating 354:6

heartburn 361:22

Heinz 327:11

held 273:5

helpful 282:24 327:2 338:21 455:2 480:18 567:19

helps 315:22 561:5

hesitate 493:20

Hey 275:7 306:4 420:2

Hick 459:25

Hickman 275:23 287:2,12 316:7,9 317:1,24,25 318:9,16 319:1 334:19 335:2,15 391:24 395:20 397:15,21 413:12 420:3 427:4,7 459:7,25 517:19 565:13

Hickman's 283:22 313:11,15,19 314:12 315:3 395:2,4,19 428:1 459:12,18 460:6 463:22

home 349:3 442:8,

homogenous 411:1 448:5,11 485:19,21 556:25

honestly 298:24 413:7

Honor 300:24 320:22 332:16,19, 22 333:4 356:15 366:14 370:6 371:20,23 383:21 384:10 396:16,22 397:2 398:1 453:10 471:16 476:7 478:10 479:12,14 497:14, 23 498:1,4 500:8, 11,14,17 513:10 516:7 522:23 524:24 525:8,16 540:8 542:18 543:1 548:23 549:2 550:1,13 552:12 553:3,7,

hop 433:7

573:6

10,14 571:14

hope 410:12 461:5 478:21 479:24

hoped 404:24

hoping 404:13 434:6

hopping 433:8

	Transcript or	Proceedings Index:	Hutchinson'sincorporated
Hutchinson's	identify 280:7	381:21 406:11	improved 313:1
365:8	307:19 496:14	561:20	in-service 517:13
HV 396:8 422:12,	503:7 505:1,6	impacted 359:16	518:2,3 526:8
13 460:7	506:5 513:16	426:20	571:9
	514:2 515:25	1_01_0	
hyperbole 415:25	517:3 518:25	impacts 284:21	inaccurate 387:1
hyphenated	530:1 531:24	438:8 441:12	575:17
432:22,23	534:6 537:12	473:2	inaccurately
,	539:5 546:1	impeach 516:15	501:10
hypothetical	547:18 556:3	-	
549:15	558:11 574:16	impeachment	inappropriate
	identifying 224:4	516:20	320:15 370:1
	identifying 324:1 510:21 514:7	imperfect 350:24	400:2,3,5,7
		-	421:19
ice 465:21	529:20 541:3	impetus 346:2	incentive 350:16
ID 400.40 E44.40	571:20 572:12	348:2	364:1,18
ID 488:19 511:12,	578:3,8	implemented	,
21 517:14 518:3	identity 540:20	395:20,21 537:24	incentives 322:10
537:8,13,17	IDS 542:17 554:19	implication 290:3	323:8
540:14 541:21	556:5,8 558:6	296:24 321:15	inch 387:7,14
542:2 554:23	559:25	290.24 321.13	include 302:1
555:12,16,21		implications	427:16,19 526:13
556:1,13,20	ignore 468:9	321:13	·
557:24 558:4,9,	ignores 455:8	implies 452:17	included 386:25
10,20 559:21		_	397:21 489:25
560:3 566:14,15	Illinois 465:16	imply 532:2	517:18 572:20
idea 308:7 347:10	466:16,20	important 277:5	includes 280:18
350:20,21 354:24	illuminate 346:8	281:17 283:15,19	545:8
393:16 399:8,15	illuminated 325:2	325:8 358:3	
412:16 417:4	illuminated 325.2	370:12 409:15	including 387:9,
426:18 437:9	illustrate 345:22	428:11 456:16	15 441:20 452:2
ideally 331:13	487:13	!	481:24 487:1
469:1	illustration 347:2	importantly 487:9	490:2 526:8
		imposing 450:21	533:14 565:14
ident 505:5	illustrative 492:6	impossible 490:25	inclusion 406:20
identical 437:21	image 538:5	491:3,23 505:22	income 533:4,6,9
identically 313:23	imagine 348:25	534:25	inconsistent
	359:16	impracticability	579:11
identification	imaginad 500:12	536:20) 3/3.11
329:9 415:3	imagined 509:12		inconvenient
515:18 555:17	immediately	impractical	508:6
565:14	367:24 421:10,14	482:20 490:12,21,	incorporate
identified 282:20,	438:19	25 491:23 534:25	521:25
21 379:22 450:25	impact 298:7	535:2 536:17,18,	
504:24 517:21	308:21 339:13	24	incorporated
518:17 559:14	353:14 356:17	improperly 358:18	506:4
574:18	357:21 369:16		
	307.21.300.10		



incorrect 295:10 425:6
incorrectly 356:2
increase 296:22 341:23 342:8,10, 18,20,21 343:4,5 369:9,10,21 370:17 371:2 372:18 373:1 380:6,9,12,17,20, 22,24 381:4,5,11 382:1 383:4 407:14 409:3 426:9 427:1 429:17 438:9
increases 356:21, 22 380:5,16 382:23 424:25
increasing 347:21 353:14,15 387:3
incredibly 400:24 448:22 449:8
incur 293:22
incurred 281:21 292:19 294:15 295:14
incurrence 296:4
incurs 300:10
independently 314:8
INDEX 582:1 583:1
indicating 274:18 287:5 289:1 462:16
indispensable 283:16
individual 284:23, 24 382:3 449:16 481:8 485:20 517:3 518:1

476:11,16 481:10 484:25 495:8 502:8,23 506:2,25 508:2 511:11 514:9 517:9 519:25 521:25 530:12 533:22 536:13 538:7,23 539:7 545:3,4,7,8 546:18,21 547:24 548:1 553:19 558:7 561:23 574:5 577:16
information's 444:11
informed 332:9 481:20
informs 306:17,20
infrastructure 279:20 281:3,9 293:13 294:1,3,9 301:14,16,21,24 398:12 401:13 409:12,13,14 417:11,14 450:23
infrastructure's 282:13
inherent 346:9,15
inherently 298:10
initial 342:18 532:15
initiated 289:22
innocuous 362:15
innovative 299:1
input 292:13 411:19 502:23 528:7
inputs 292:6,7,11
inquire 366:11 578:24
inquired 517:11

	Index: incorrectintended
0	inserts 358:22
25	insisting 494:21
	inspect 510:18
	inspected 512:5,6
	inspecting 510:23 511:17
8 4	inspection 511:4, 14 513:15,21 514:5,11 542:7,8, 13 565:15
	inspections 503:2 513:20 514:10 548:3
	inspects 510:17 513:25
20	installation 309:10,22 438:20
)	installed 437:25 529:6 538:19 539:1,6 541:4 560:9
3	installing 526:17 529:4
_	instance 485:16 563:9
5 0	institutions 340:24
	instruct 327:3 420:19
5	instructions 402:15 482:5 485:4,11
	instructive 283:3
	insufficient 432:5
	insulated 349:3
1	integrated 286:1
	intend 358:4 488:3
	intended 322:9 323:6 442:12



	Index: intendingjudge
	Jermaine 273:18 469:12
	Jim 468:2
	job 429:22 509:16 519:22
	jobs 446:24
5	John 273:13 482:8,24 498:10, 16,24 499:7,23
5	582:6
	judge 273:2,14,21, 23 274:1,6,13,25 275:7,10,15,20
, 5	287:3,10,22 288:3
4	289:9,10 291:5,9,
	13,21,24 300:21 301:2,6 311:11,
	20,25 313:6,7
	315:13,25 316:24 317:5,12,17,21
	318:4,7,14,25
	319:2,8,22 320:7,
	13,18,19 325:2
	327:7,12,17,19,22 328:11,15,19,22
	329:21,24 330:3,
	10,13,16 332:12,
	13,17,20,23 333:5 345:6,10 359:25
	360:7 361:5
1	364:1,3,12,20,22
1	365:1,4,7,16,21
	366:1,3,8,10 367:15,19,25
	368:6,13,16,19,22
	369:23 370:7
	371:21,24 372:2,
	3,6 374:24 376:3, 5,7,9,16 377:8,9,
	10,12,16,18,21
	378:23 379:12,15,
	18 382:8,11,12,16
	383:7,16,19,22 384:2,14,23
	385:45 7 10

intending 407:6	intro
intent 279:23	304
281:6 319:22	intro

281:6 319:22 327:24 422:10 442:2,14,15 443:13 461:6

intentional 472:2

interaction 323:25

interest 298:15 326:16 340:13,21 482:1 579:21

interested 298:19 305:10 306:3 312:18 565:17

interests 297:23 299:2

interim 409:16 443:22 453:19

intermediate 418:3 428:16

international 452:20,21

interrupt 394:19 395:5

interval 276:25 440:1

intervals 312:10, 14

intervenor 370:4

intervenor's 370:5

intervenors 486:25

intraclass 406:23

introduce 281:11 289:3 295:5 305:14 325:25 407:4,6 408:21 423:24 496:24

introduced 407:2

introduces 301:19 304:4,9

introducing 280:19 281:4

372:10

introduction 407:16 540:12

intuitively 357:15

inventory 483:18

484:7,15,20 486:10 492:17 493:2 495:14 496:3,8 532:21 562:3 569:24 570:1

investigation 576:18,21

investment 324:9 347:18 348:2 353:1,15 362:9

investments

335:17 336:3 337:24 338:1,7,8 346:11 351:11 375:6 465:7,9 487:2 496:20 517:11 530:16 545:22 546:24

investors 362:20

invoked 483:13 497:2

involve 411:12,19

involved 333:13 415:25 493:22 494:11 541:6

lowa 486:21 487:11 545:12 547:25

ironic 451:9

irrespective 293:4 297:3

isolated 395:2

issue 288:1 289:17 291:17 328:13 344:20 352:12 355:5 357:17 360:17 379:7 391:3,15 392:5,19,22 394:10 417:11 441:13.14 446:25 459:18 464:24 472:18 475:23,25 476:2 478:25 479:1,3,9,10,18, 20,21,23 480:3,4, 11 481:1.2 483:1 492:7 501:6 520:4 523:5 549:25 563:6 568:10,12 575:20 579:6,10, 22 580:14,21,23 581:2,4,5,6

issues 326:2 353:2 357:14 361:15 391:16 403:14 459:11 479:18

583:12

item 517:6 518:4 535:23

items 510:15 517:20,23 518:14 521:16 532:23 536:10 573:24

itself's 493:19

J

January 329:7 474:18

Jeff 273:23

Jefferson 359:21 Jennifer 273:19

LEXITAS

385:4,5,7,10

386:8,13 388:8, 12,18 389:2,23 390:1,3,7,13,21, 23 392:16,20 394:18 396:13,17, 19,20,23,25 397:1 398:2,5,6,9 405:21,25 423:21 424:4,8,11 425:20 426:6 433:13,18 445:18,21,23,25 447:22 448:1 453:8,11,25 454:7,13 457:9,24 461:24 462:4,6 467:14 469:4,8,13 470:7,12 471:5,9, 17,23 472:4,8,11 474:20 475:4,7,9, 17,21 476:1,3,19, 22,25 477:4,7,9, 13,19,23 478:2,7, 17,22 479:5,13,17 480:3 483:7,10 487:17,21 488:1, 8,12 491:18 497:11,15,19,21, 24 498:2,6,11,14, 18,20,23 499:21 500:5,9,12,15,18, 22 501:1,20 502:3 503:19,23 507:6 512:14,20,23 513:7,11 514:18, 25 515:3,6 516:9, 11,17 519:4,9,16, 20 520:10 521:1, 12 522:6,10,14, 21,24 523:2,7,10, 14 524:14 525:1, 4,6,9,11,13,17,19, 24 530:15 531:10 532:5 535:13,17 536:4 538:11 539:19 540:2,5,18 541:14,24 542:19, 21,22,25 543:4,

10,18 544:24 548:5,15,21,24 549:3,21,24 550:2,5,8,12 551:16 552:15,23 553:1,4,6,8,12,15 555:19 562:20,22, 23 563:1 564:11, 18 565:1 567:2,7, 10,18,21 570:10 571:13,16,20 573:12,16 576:1, 4,6,9 578:18,25 579:13,16 580:2, 10,24 582:3,7,9, 15,20 583:4,7,9

judge's 516:5 539:18 540:17

judgment 352:10 481:20 505:9 554:9

judgments 554:13

juggling 349:23

July 303:14,16 468:23 473:14 474:17,23 475:1

jump 383:25 489:7 544:17

jumped 503:19

June 473:14 474:5,6,14,22 475:1

jurisdiction 284:2 484:13

iurisdictions 321:10 353:19

justification 545:21

justifies 502:1

justify 354:25 491:10

K

K-L-I-E-T-H-E-R-M-**E-S** 385:13

KCR-2022-0337 519:23

keeping 344:15 482:15 503:25 505:23

Keevil 273:23

291:5,11,14,19 311:19,24 313:7,9 316:3 317:15,20, 24 318:2,6,15 319:2,7 320:2,17 321:12 330:16,18 332:11 360:3,5 363:25 364:3,5, 16,21,24 365:24 366:3,9 369:23 372:8 374:23 382:16,24 383:6 385:3,6,16 386:12,14 388:8, 18 389:3,5,23 390:3,10,21 405:16,19 420:10 423:21 424:5 454:3,5 461:22,23 462:5,7 467:13 469:4,19 470:7, 16,21,25 471:4,23 472:5 474:20 475:7,15 582:4,

key 276:18 494:19 545:5 566:5

14,16,19 583:3,6

kick 409:3

kicking 444:4

kilowatt 295:20,24 311:7 435:7

kind 275:22 276:24 277:9,10 278:10 279:12 281:14,19 283:7 284:11,22 286:19 298:9 299:5 305:13 306:13 308:20 315:20 321:16,18 323:2, 17 324:19,22 325:2,3 326:19 351:1 358:2,11,24 366:10 398:14 402:13 406:21 407:3 412:15 417:1,24 418:5 419:23 428:3 431:18 446:22 451:9 452:6 456:14 462:13 463:16 506:22 554:21 555:2,15, 17 568:11 575:8

kinds 377:22 578:12 580:7

Kliethermes 385:12

knee-jerk 354:21

knowing 418:5

knowledge 278:3 388:2 453:14 467:9 468:24 472:15 522:3 534:5 542:8 552:10 556:5 575:22

kv 393:2 423:9,10, 11,12,13 517:15, 22

kwh 435:25 449:6, 7,9 464:1,2

L

L&ps 464:5



L-A-N-G-E 385:13	544:4 548:11,12	legislation 466:17	508:23 509:13
L-A-N-S-F-O-R-D 523:13	549:21,23 555:5 576:14 582:8	length 473:20	513:14 541:20 577:18
L-I-N-N-E 385:13	laptops 461:12	lengthy 409:7 457:10	lines 334:2 387:2
labeled 397:16 473:12	large 280:8,13,14, 18,22 301:23	lens 340:15	526:6 551:19
labeled 397:16 473:12 labeling 556:18 lack 402:22 483:1 lag 322:18,20,23 323:15,16 362:11 508:3 laid 374:6 404:11 452:9 501:15,25 516:3 529:18 landed 296:24 landfill 416:10 Lange 320:1,3,12, 14 384:17 385:4, 5,6,7,12,13,14,17 386:10,20 388:9, 21 389:6 390:22 391:3 392:19,22 397:5 405:18,20 423:23 425:23 433:14 448:4 453:15 454:6 462:8 467:11 469:11,21 471:1, 25 475:23 518:6 520:12 583:2	large 280:8,13,14,	lens 340:15 letting 544:3 level 279:1 281:14 284:14 292:22 293:22 299:6 300:9 306:13 401:13 456:16,18 457:8 458:8,9,19 473:1 502:24 levels 278:4 291:1 369:8 389:22 465:6 leverage 279:8,9 LGS 342:18 371:6 406:22 455:23 lieu 398:25 421:13 446:12 470:1 life 485:23 493:23, 24 496:20 546:25 554:10,14 557:19 558:2 562:10 lifestyle 277:10 light 447:1 517:7 lighting 343:7 371:13,15 425:1	424:15,21 489:7 526:6 551:19 561:13 Linhares 274:14 332:24 372:1 396:24 498:4 500:17 525:10 553:10 link 555:1 linking 559:22,25 Linne 385:12 list 315:18 367:16 479:18,22 480:1 526:6 574:10 576:16 listed 478:17 516:2 550:2 literal 392:9 469:23 literally 415:12 446:20 493:19 litigated 289:20 291:17 297:16 lives 503:13 LLC 499:5
Lange's 287:13,23 288:6 299:14 300:22 470:9 language 386:24 419:12 421:10,15 425:18 Lansford 482:3,24 489:16 496:16 523:6,7,12,13,16, 19,23 524:18,25 525:21,22 536:6 540:11 542:1	leave 389.2 421:17 487:19 ledger 532:21 left 275:1 384:24 407:3 418:7 428:25 429:6 465:20 527:18 legacy 305:17 legal 367:22 legally 441:6	426:10,25 458:10 lightning 315:18 488:25 lights 349:7 liken 419:25 limited 305:7 412:10 451:12 462:1 542:9 limits 326:19 lineman 507:13	load 279:5 282:10 286:14 300:8,11 301:25 307:9,23 308:8,9 309:5 310:4 312:10 318:4 319:11 339:10 357:25 388:22 389:8,10, 18 390:14 401:14 427:18 429:21 443:18 448:14 449:15 454:19 455:8,9,11,18



Index: L-A-N-G-E..load

464:5 466:23,24	516:14	455:21 456:6	maintain 484:13
472:17,20,23	lot 277:24 280:21	Luebbert 468:2	495:13 503:10
473:13,14,16	293:9 297:14	475:15,18	maintained
loads 443:14	325:9 326:25	lumpy 351:11	406:20 556:6
lob 426:2	327:1 336:8,13		maintains 496:19
	339:21,23 349:2,	lunch 327:25	546:23 547:4
local 433:5,11	14,20 350:5	384:5,8,20 419:17 467:16	maintenance
location 481:11	353:17 354:20 356:2 359:20		539:14,24 541:7
485:2 488:21	362:11 363:12	luxury 340:2	574:7
494:21,22 495:2 517:9,12 518:22	393:22 405:13		major 201:12
520:4,7,20	408:2 409:8	M	major 281:12 392:21 402:1
530:19,24 531:12	413:24,25 415:18	MADKE 000:4	510:5
532:22 533:17,22	417:2 423:25	M-A-R-K-E 329:4	
534:7 545:1	427:9 432:4 457:5	M-A-U-R-I-C-E	majority 356:14
553:20,23 554:1	460:24 494:16	365:19	make 310:16
557:25 565:19,23	loud 359:19	M-I-T-C-H-E-L-L	314:23 316:6
566:7	Louis 274:16	523:13	321:19 324:19
log 306:6	466:25 546:5	made 277:24	326:17,21 327:8 331:3 332:9
long 306:23	572:23	288:23 290:5	338:12 341:7
348:24,25 349:25	love 419:23	325:16 346:18	346:18 347:15
353:16 358:16		349:23 351:15	349:22 351:15
404:5 405:11	low 344:15	352:21,22 358:12	356:11 367:23
473:20 478:13,19	354:21,22 415:5 440:1 455:10,11	369:18 374:16	386:21 387:23
496:25 503:17	531:15 535:9	413:16 415:15,16 417:22 429:13	391:15,20,22
512:17 580:13	557:1,3	452:18,21 454:8	394:8 396:4 399:2
long-term 442:13	low-cost 360:10	459:21 483:20	406:14 408:11,24 423:24 428:24
longer 435:3	457:5	484:24 492:25	434:16 439:8,17
478:25 494:6		493:3,4,14 512:17	440:1 442:18,20
561:2	low-to-no-cost	519:13 539:15,24	443:10 449:18
looked 304:2	391:10,11	563:9 572:14	459:15 463:10
311:4 314:7 315:3	low/no 462:25	magnify 506:22	464:15 466:7
357:25 374:7	463:2	magnitude 561:14	471:4,6 479:7,16
404:15 417:1	lower 413:10		492:4,8 499:13
419:17 479:15	438:21 489:8	mailed 343:25	501:18 503:8,14 513:5 514:19
511:25 530:6	lowest 434:18	mailer 303:25	519:10 521:6
loop 352:25	454:23,24 455:16,	304:8 309:23	524:6 544:25
493:22 560:23	19	440:14	551:6 580:2
losing 476:9	loyal 428:6	mailers 304:25	makes 292:17
loss 423:21 470:8	LPS 342:20	mailing 304:7	343:21 350:3
	371:11 380:13	main 391:8 395:19	357:12 402:10
losses 451:22,24	381:24 382:1	502:14 506:13	408:2 411:1
lost 362:17 444:11	406:22 449:4,6,8		430:18 433:25



Index: loads..makes

443:4 569:22 making 325:17 347:8 351:21 356:8 392:6 396:8 402:7 429:16 432:2 466:3 521:3 567:4 man 521:25 **manage** 534:6 management 347:18 518:16 521:18 522:1 545:6 **manager** 518:12 managing 298:19 mandatory 441:15 444:5 manner 297:24 337:6 480:7 481:2 491:15 501:11 502:7 534:12 563:12 manual 294:22 295:22 336:22 337:3,8 399:11, 13,14 401:24 402:2,6,9,14,19 429:12 451:14 manual's 321:2 manuals 294:23 Mapquest 538:4 **Maps** 538:4 March 329:8 335:7 337:19 marginal 321:2,4, 7,13,16,20 332:7 347:11 351:8 422:5 marginal-cost

321:15

mark 281:7 316:25 487:19 515:2 **Marke** 327:16 328:18,19,24 329:4,5 330:5,11, 19 333:9 345:5 360:6 365:4.6 432:14 439:22 582:13 Marke's 428:9 **marked** 329:9 382:6 386:16,17, 19 420:19 467:21 499:9 515:13 522:9 524:2 564:22,23 572:7 573:8 **market** 337:1 346:7,13,15 347:12 351:24 361:7,13,14 362:14 432:21 marketed 360:10 433:1 marketing 360:19 439:21 **mass** 416:15 481:3,5,10,17,25 482:10,14,17 483:3 484:22 485:7,16,17,24 486:5,6,21 492:12 495:21 517:10 518:14,17 520:4, 6,19 521:15,16 526:7,13 527:11 528:13 530:16,22 531:13,14,25 533:1,20 534:12, 17 535:22 536:16 540:21 545:5 546:19 553:20,21, 24 554:17 555:9 556:6,11,18,24

match 372:18 431:18 493:11 545:16 567:1 334:9 374:13 materials 438:1 **math** 461:13 mathematically 459:20 **matter** 273:9 476:5 493:16 566:7 **matters** 347:15 353:16 478:8 579:4 Matthews 428:4 **Maurice** 365:18 366:15 379:20 582:17 max 473:13,18 22.24 Mcdonald's 419:25 MCU 274:24 332:21 371:22 525:7 553:6 Meal 420:1

557:13 559:10 meaning 450:24 560:4,16 562:1,3, 521:8 11 563:2,15 566:2 meaningful 567:22 568:1,3 324:19 570:17,21 571:7 means 315:14 574:1,20 575:1 327:25 446:20 484:21 514:2 meant 283:18 309:5 394:1 **matches** 313:22 418:18 459:9 498:20 materialized 331:2 **measure** 292:25 materially 311:6 measurement 298:8 **MECG** 274:12 332:18 368:14,24 384:3 396:18 479:4,6 498:2 500:10 525:4 553:4 293:17 329:24 **MECG's** 376:23 356:10 425:24 580:21 mechanism 361:10 362:15 mechanisms 323:9 346:25 362:12 meet 282:2,3 285:20 286:2.7 294:19 295:18 339:13 344:6 453:3 510:25 511:9 **maximum** 473:18, meeting 461:15,16 526:9 meetings 355:23 meets 277:9 420:8 mega 448:18 396:21 500:13 members 448:5 memory 287:14 302:14 304:18



314:24 374:8 336:24 338:16 **mentally** 381:15

mention 320:5 465:20

mentioned 361:4 503:24 537:15

menu 420:2

Mertens 518:12

mess 334:5 338:13

meter 276:24 292:24,25 303:2, 22,23,25 304:4,6, 9.21 305:2 309:10,16,22 310:3 312:15,17, 23 343:24 359:22 438:20

metering 276:20 277:12 312:23 429:23 441:3,9

meters 278:9,20, 22 302:8 303:15 312:13 336:3 355:12 375:7 410:3 437:24

method 299:16,20 300:1,3,12,17 375:18 415:9,20 427:4,15 428:3 429:8,10 456:20 461:18 462:9

463:9 481:18

486:14

440:6

methodological

324:21,24 325:4 326:2

Methodologically 292:4

methodologies 285:15 333:18

339:24 340:23 methodology

334:23 336:7,21 339:17 341:10,18

347:22 415:2 427:16,19 481:22

545:18 546:8

methods 284:13 294:24 428:16,17 429:9 482:10 530:24

metrics 301:25

Metro 465:11 466:9,10,11 467:4

Metropolitan 274:22

Mia 347:18 349:2 430:3 461:11

mic's 372:10

microphone

379:13 476:1 491:19 520:13.14 543:19

middle 436:4 526:23

midnight 473:25

Midwest 274:11 497:25

MIEC 274:9 327:11 332:14 366:13 368:11,13 383:12,20 396:14 497:19 500:6 525:2 553:2 582:17

MIEC's 287:4 327:8 365:11 384:25

mild 300:8 439:4

mile 422:12,13,16,

17.18.20

milk 348:15

million 303:4 425:12 534:1,2 535:4 557:3

millions 492:11 549:17

mimic 347:11 361:7 440:23 561:4

mimicking 361:13

mind 276:19 314:19 328:2 338:18 347:14 355:5 381:15 390:17 407:24 461:4 475:18 478:24 479:16 480:9

minds 358:23

mine 378:12

mini 479:10,19,21 480:11

minimal 348:10 421:25 464:23

minimization 406:23 426:15

minimize 341:9,12

minimizing 408:14

minimum 294:9, 10 316:4,10 392:23,25 393:25 394:1,2 398:12, 17,19 399:15,20 400:1,9 401:1,6,8, 19 402:16,20 416:23 420:11,15 457:11,16 458:8,9 459:14 460:11,14, 16,18 468:14 470:9 471:13,18

20 274:7,14 288:15 321:4 328:12 330:21

333:2,14 344:5 353:24 354:12 371:25 372:4

374:25 385:19 387:3,6,13 394:23

396:23 399:20,23

	Transcript of	Proceedings	Index: Missouri'sNAACP
413:21 430:21	431:18	month 296:10	438:23 476:13
431:2 466:16,22	model 457:15	303:2 304:24	478:25 479:20
468:16 480:12	moderate 440:4	309:9 339:13	499:19 503:22
483:5 486:14,15		348:16 355:18	513:3 524:12
494:8 495:12 498:3 500:16	moderated 439:18	356:12,24 357:1	573:13 581:2,6
523:21 524:22	modern 276:19,20	433:6 435:1 437:24 449:10	moved 341:19
525.21 524.22	299:18 300:3,6	451:13 463:22	346:3 361:23
545:25 553:9,13	404:1,2 406:5	474:8,13,14 534:7	399:20 445:5
555:11,24 563:3	modernization	545:6	462:12 477:12
565:18 575:3	276:2,4,5,16		516:18 522:10
582:2	277:5 281:8,10,	month's 438:10	524:13
	16,19 330:24	month/hour	movement 408:24
Missouri's 273:11	331:4 336:10	474:10	442:4
289:25 290:4	340:6,22 341:3	monthly 276:24	moves 573:8
301:12 333:17 342:9 344:7	405:17 406:6	409:20	
372:13 373:16	410:12 411:11		moving 277:21
380:3 389:10	412:9 419:3,20	months 304:18,21	281:7 336:23
391:4 427:12	421:16 423:20	305:1,7 306:5,16	347:17 353:6,15
428:8 448:22	426:17 450:6,13	358:10 437:6 444:9,14 445:9,16	355:17 359:9 370:21 377:6
452:2 466:19	460:25 461:1	474:11,16,25	522:11
483:16 484:3	464:22 468:18		
500:1 515:19	469:3 471:14,19	months' 305:22	MPSC 477:3
522:17 543:15,21	modernize 404:12	Moore 273:19	515:14,19 522:17
misspeaking	modernized	300:24 493:10	543:21 547:3,6
434:16	277:22	moot 366:8 580:7	548:16 564:1,23
mistake 544:25	modified 341:19	morning 273:3,18	MSPC 543:16
mistaken 299:21	modify 438:14,16	278:18 312:4,5	multi-step 537:6
300:16 302:22	440:3 441:11	330:19 369:2,3	multiple 345:23
	554:17 555:8	388:19 439:22	402:3 543:24
misunderstand	560:16 561:25	459:15 479:8	566:1 577:22,24
409:9	moment 287:4	581:6	multiplies 464:6
misunderstood 331:18	314:15 335:4	morning's 476:8	multiplying
Mitch 482:3	348:13 391:23	mortality 505:10	451:19
496:16 524:18	402:11 424:16 492:20 525:15	motion 365:22	Municipal 465:18
576:14	538:12	366:4,7 452:6	mute 425:22
Mitchell 482:24	Monday 468:3	move 319:17	muted 425:22
523:5,12,16,23	money 324:5	320:16 324:17 340:25 351:17	
582:8	356:11 475:10	358:4 361:21	N
mitigate 352:4	503:10	369:9 371:1	
406:25 408:5,15		376:16 378:4	NAACP 274:21,24
440:9	monopoly 346:5	379:25 380:25	332:21 371:21
mix 295:1 410:5	351:10	406:4 424:12	396:20 497:22
1111/2 200.1 710.0			500:13 525:6



	<u> </u>		
553:6	neighborhood	normalized 473:2	392:3 396:9
naivety 291:4	283:4	note 384:11	434:12 455:25
names 467:25	net 326:24 429:23	476:13 555:12,25	456:17 485:19
	441:3,9 463:1,23	560:3 580:21	487:21 488:4 492:25 567:12
narrow 557:8	network 375:14	noted 482:2	568:7
narrower 505:17	454:17 546:5	notice 309:17	
NARUC 294:22	572:24	438:10 475:5	numerous 559:7
321:1 336:22	neutral 360:24		nutshell 486:7
337:3 340:21	369:7 376:14,19	noticed 327:7 474:20	568:11
399:11 401:5,24	newly 494:1		
402:2,6,9,14,18		noting 560:8	O
415:2 429:11	news 452:21	November 518:13	OWEEE 227.44
Nathan 274:3	niche 344:20	nuance 285:2	O'KEEFE 327:11
natural 285:11,12	nobody's 488:6	nuclear 284:7	object 317:19
346:5 351:10	522:10	285:14	369:23 418:19
nature 351:8	noise 425:21		420:21 470:14
373:25 481:7	nomenclature	number 296:20 303:6 311:1	objecting 488:6
NCP 285:17	442:17	312:16,18 314:7,	objection 330:4
375:18 427:4,11,		11 315:1,2,6,7,16	362:25 363:23
15,16,19 428:3,	non-mass 557:25	346:20 355:12	364:23 384:10
13,14	non-peak 441:25	357:23 358:22	433:9 461:22
nearby 487:20	non-summer	375:13 396:4	470:23 471:3 477:17 501:19,20,
Nebraska 361:20	444:16	401:21 403:10	22 502:5 508:10
	noncoincident	404:10 420:1,3,4, 5,6 442:20,22	512:9,17,20,24
necessarily	451:20	444:12,25 451:11	516:1 520:2,16,25
291:23 337:6 339:12 351:19,20	nonlighting	456:3 459:2	521:13 524:14
436:11,12 463:6	342:22 406:25	469:16,19 477:4	536:2 538:9
464:25 504:2,4	nonproductive	481:6 483:13	539:17 540:3,16
512:1 554:24	279:2	489:2,4,8,9	541:23,25 548:15 552:15 567:6,7
necessity 482:15		490:13 511:22	573:16 575:24
	nonresidential 278:8,12,16	515:14,20 517:22	579:2,12 580:20
needed 276:3 282:13 288:2	289:15,16 406:24	540:14 541:21 543:3 547:19,21	objection's 576:9
295:17,18 324:11	412:11	548:10 551:1,2,4	580:7
325:7 358:20	nontrivial 414:9	555:22 564:16	
406:14 464:15	444:17	565:17 569:5,20	objections 318:8 319:24 320:10,16
468:6 539:5,10		572:1 576:25	330:6 368:6,8
negative 401:21	nonvalue 474:2	577:10,13,16	383:7 384:6,8
517:23	nonvariable	578:3,8,10	388:12 390:1
negatively 357:22	414:23	numbers 312:25	424:4 471:12,18
358:19	Noranda 467:1	314:16,22 319:5	477:13,25 478:3
-	İ	1 245.42 247.46	100.24 522.44 46
nogligible 492:22	normal 539:14,24	345:12 347:16	499:21 522:14,16
negligible 482:22	normal 539:14,24	352:14 368:2	524:19 552:18



Index: naivety..objections

567:3,10 573:18 580:18 581:8 objective 379:25 391:14 502:14 obligation 274:15 327:23 343:17 344:5 384:5 oblivious 348:11 observed 514:9 obtainable 484:24 **obvious** 292:23 464:7 occasions 566:2 occur 307:18 308:9 436:14 549:11 558:17 occurred 308:4 473:25 492:23 occurrence 295:17 occurring 559:5 occurs 504:25 **October** 300:9 odds 430:5 of-use 276:15 359:24 364:19 off-peak 304:10, 12 offer 317:2 329:19 388:8,24 389:1,3, 24 423:23 467:16, 17 469:4 470:13 548:13 552:13 579:14 **offered** 464:13 467:16 469:18 477:10 516:15 567:3

offering 329:21

470:19 477:10 578:22 579:18 offers 337:8 **offhand** 539:20 **office** 273:6 274:4 441:5 448:16 457:25 497:15 549:7 582:13 offsetting 324:7 414:1 older 568:22 omitted 450:8 on-peak 304:9,11 on-the-record 580:16 one's 422:22 520:19 **OPC** 330:8 341:21, 22 342:1 345:13 356:25 431:11 463:7 579:5,9 **OPC's** 328:8 open 412:5 435:5 446:10 462:19 526:3 557:15 **opened** 290:10 **opening** 338:22 407:8,10 479:19. 21 480:10,11 483:10 494:20 497:10,18,20,23 498:1 501:3,5 505:17,25 513:6 534:20 580:23 583:12,13 **openings** 478:13, 19 479:10 498:7 580:15 operate 339:5 351:9 393:2

operates 342:24 346:14 operating 337:6 350:1 363:17 396:6,7,8 430:19 448:16 449:11,13 operational 547:4 opinion 288:15,17 299:1 337:10 341:16 355:2.10 357:8 358:16 411:14 441:10 470:9 502:2 **Opitz** 274:12,13 332:19 338:24 339:6 368:14 369:1 370:6,7,11, 14 371:19 373:15 384:10 396:19 470:18,23 498:1 500:11 525:5 553:5 580:20 582:18 **Opitz'** 338:22 372:12 **Opitz's** 379:24 opportunities 346:17 opportunity 299:4 310:18 324:3 370:8 390:8 411:12 420:25 439:8 450:6,10 461:2,5 469:9 470:14 471:10 544:6 579:7,8 **oppose** 357:1 **opposed** 299:15 407:12 480:18 529:20 **opt** 445:14 **opted** 444:15

option 360:10 361:25 363:14 445:8,17 560:6 **options** 278:16 304:5 305:6 306:8 445:16 **orange** 436:8 order 287:8 289:21,23 290:13 310:6,12 311:21 319:12,15,19 322:19 330:14,23 333:11 384:13 386:4 388:22 389:8,13 390:23 406:25 417:18 418:10,23 420:1 421:18 426:19 428:22 438:7,20 440:5 445:3,4 453:20 464:21 472:2 478:16 479:10,22,23 496:2 504:11 538:2.17 554:19 555:13 556:2,7,21 558:14 559:9 574:5 579:6 ordered 310:4 330:24 419:19 480:6 483:4 484:5 ordering 438:8 **orders** 468:10 562:2 orient 315:2 original 510:8 538:6 564:21 originally 276:11 465:13 outcome 285:5 outdated 391:21 outgrowth 415:9



outlaid 372:25 outlier 336:17 **outline** 557:14 outlined 392:10 419:10 459:24 481:22 outlines 564:5 **outset** 326:12 outstanding 365:23 overcome 392:15 overhead 315:11 391:25 395:10 401:16 422:12,16, 18,22,25 423:2,4, 6,8,9,10,11,12,13 458:25 517:20 535:4,5,11 542:3, 17 overlaid 369:10 **overlay** 406:10 407:2,16,18 408:1 409:5 426:21 438:16 overlook 414:2 Overnight 437:20 444:13,18 445:5, 14 overreach 398:14, 22 402:23 overrule 502:4 521:12 536:5 541:24 overruled 462:6 516:20 576:9 overtime 494:5 overview 417:1 418:8

owned 532:24 Ρ **p.m.** 307:24 308:1, 7 441:20 pace 502:10 pages 496:25 paid 537:24 pain 426:24 paper 313:11,12, 15,20 314:12,16 317:1,10,25 318:5,10 389:11 395:2,4,19,25 397:16 460:6 543:3 **papers** 340:22 405:13 446:21 517:19 paradigm 276:25 350:2 430:14 paragraph 288:8, 16 301:10 302:4 430:25 484:17 parameters 487:2 paraphrase 430:10,11 pardon 320:11 477:11 555:5 560:5 paren 403:11 parenthesis 545:10 parenthetical 363:6 part 281:9 301:17, 18 319:16,20,23 331:7,23 349:19 Owensville 465:18 351:7 352:4,5 394:15 406:21

429:18 431:7 472:2 484:14,16, 18,19 485:5,11 486:2 491:17,20 495:9,14,19 507:20 509:4 510:12 511:4 517:8 532:16 533:1 545:1,2,19 565:16 575:10 participating 332:25 462:20 participation 273:6 322:15 461:20 462:10 particulars 490:10 **parties** 289:14 290:13,20 291:6,9 296:20 297:17 324:16 379:4 384:7 390:12 454:25 469:6 470:10,13 472:20 475:14 480:17 578:25 579:1,7,23 580:5 **parties'** 289:12 334:3,8,12 407:20 parts 351:6 party 317:6 403:15 425:12 480:10 567:3 **pass** 509:16 **passed** 324:6 past 296:20 353:4 363:17 393:24 451:8,11 paste 460:5 **pasted** 395:3 pattern 308:3 patterns 486:23

Paul 273:24 498:17 518:12 **pause** 512:17 pawn 493:20 pay 295:14 343:17 344:11 350:7,22 387:10,17 459:3 **paying** 348:15 349:6 350:11 352:20 363:5.12. 15 405:12 433:6 442:10 444:14 448:20 **payoff** 356:22 peak 282:2 294:19 295:18 307:9,23 308:5,8,25 309:4, 5 428:16,18 429:9,10 441:19, 23,24,25 443:14, 17 445:10 449:13 450:24,25 453:3 456:12 462:21 peaker 452:14 peaking 285:11,12 286:12 peaky 455:7 penalized 456:8 pending 513:4 penny 439:4 **people** 276:7 277:18 298:23 428:6 461:12 487:25 510:2 519:20,21,24 542:21 percent 303:10, 16,19 314:4,11, 17,23 315:8,10 316:1 342:20 357:20 369:20



370:22,23 371:1, 3,5,7,10,12,14,16 376:13,17,19 378:4 380:1,7,10, 12,20,25 381:4,8, 10,12,14,16,17, 18,22,23,24 382:1 391:25 392:1 396:5,6 401:1 403:12,16,19 407:13,25 408:19 426:3 444:18,20 448:14 458:24 460:7,8,9,10,14, 15,18,19,21 percentage 302:11 303:4 342:7,16 370:20 380:5,9,19 382:22 424:24,25 426:9 427:1 465:4 percentage-wise 561:16 percentages 313:13.18 318:19 425:14 426:5 444:17 446:20 459:6 460:2,12,22 510:14 percents 396:2 466:1 perchance 526:1 perfectly 544:23

perform 437:10 461:2 530:23,24 561:19,21 performance 284:11,22,25

performs 293:21

518:20

period 306:7

307:8 333:19

389:19 439:5,7

440:17,18 441:14, 23 442:2 473:13 532:24 periodically 292:8 periods 282:17,22 308:5 309:24 438:14,17,22 439:3 440:23 441:24,25 442:22 456:21 532:18 permit 446:19 permitting 438:13 **person** 276:3 291:23 312:24 416:1 480:9 519:12 568:9 personal 557:21 558:3 personally 443:21 personnel 326:20 502:13,19 505:21 506:8,24 520:23 521:24 555:11,25 558:6 559:8 560:3,7 personnel's 502:14

perspective 276:8 286:6 322:22 324:15 340:15 343:14,23 347:13, 22 375:16 412:7 434:24 520:6 perspectives 277:18 298:22

perverse 350:16 364:1,18

pertinent 517:8

phase 422:19,23, 24 423:1,2 517:15,22

phone 509:12 **phone's** 314:19 photographs 509:13 **phrase** 288:1 361:8 513:8 phrased 466:9 513:1 physical 279:14 532:23 554:22 physically 401:2 518:4 568:20 pick 391:9 536:10 569:2,8 581:3 **picked** 442:17 452:16 465:17,19

492:5 520:12 569:5

picking 425:20 467:1 picture 438:1 510:3,4 **pie** 353:7,8

piece 304:2

pieces 327:4 386:22 388:1 395:22 431:17 464:14 495:8 566:6 575:17

PISA 346:25 361:25 362:4

pizza 351:20

place 279:6 331:1 340:19 347:11 398:21 452:10 502:9 516:14 518:1

placement 436:5

places 293:5 536:22

placing 307:5 **plainly** 392:11 plan 297:4 298:3, 18 304:23 306:24 308:13 359:18 388:25 432:21 433:25 434:1,2,7, 13,17,25 435:2 438:16,18,21,23 439:15 441:19 443:13,15,17 444:3 445:5 486:20 510:13 **planned** 361:23

planning 286:1,6 430:14 446:17 456:13 470:12 541:7

plans 276:11 298:2 299:5,8,11 306:18 308:23 309:8 345:15 353:21 387:4 432:17 433:1,23 436:14,20 437:1 438:15 441:2,12 444:23

plant 315:6 317:25 318:6,7,9 337:4 392:14,23,25 416:12 427:17 465:5,7,9,16 482:4,6 483:18,22 484:6,13,15,20,21 485:4,11,12 486:10 489:14,22, 24 490:1 492:17 493:1,15 494:7 495:13,14,18 496:5 518:13,15, 24 521:17 522:2 526:18 527:9 529:3 531:2,4,5 532:20,21,24 533:3,6 542:4



545:7,8,11 558:8, 19,23 559:4 561:15,22 563:7 571:1,8,9 575:13, 16
plant's 485:5
plants 337:2,5 400:11 452:22
play 323:13 502:15 506:4
pleading 386:2,11, 13
plenty 579:7
Plescia 327:10,14 332:15 366:14,17 367:9,17,21 368:3,15,18,20 377:11,14 378:25 379:2,14,17,19 382:4,10,14 383:14,18,21 396:15 497:20 500:7 525:3 553:3 582:18,21
plotted 435:24,25
point 287:16 289:1,15 290:2, 16,20 295:15 299:24 304:22 313:14 317:19 320:8,9,20 321:19 327:16 333:21 334:4 337:5 361:17 366:12 370:25 380:14 387:1 409:1 418:2 439:22 461:8 474:23 478:8,11 487:13 488:5 494:19 496:15 503:22 519:10 538:12 541:19 548:24 563:13,14 577:6 580:8

Transc	ript of
pointed 318:17 441:13	
pointing 299:23 475:4	}
points 358:2 461:17 488:19 546:21 577:11	
pole 282:25 283 293:10 393:9 400:15 504:23 506:13,14,19 507:14,16,18 508:25 509:5,1 511:10,18,21 512:2,3 513:17 514:5,10 526:1 528:24,25 529: 14,16,20,23 530:2,19 533:1 23 536:13 538: 539:1,5,16 540 542:6,7,8,11,13 14 544:2 547:2 548:16 558:5 561:1 568:18,1 22 574:22 576: 577:4,5,9	4 10, 8, 7 :1 3, 1
pole's 536:14	
poles 293:13,23 294:5,16 314:4 315:7 336:3 337:24 343:24 375:6 392:1 393:20,22 395: 432:10 446:6 458:24 460:6,1 466:1 488:24 493:4 504:22,2 505:2,10,11,13 506:7,11,12 510:12,17,18,2 24 511:3,6 514 527:10 529:4 531:16 533:16, 535:6,25 536:1	9 0 5 0, :1

10000aii igo
538:5 540:13 542:2,7,12,15 545:9,13 547:15, 19,20 555:22 556:9 557:18 559:18,20,21 565:10,14,20,23 568:17 572:2 574:22 577:1,23
policy 296:18 297:12 298:23 299:8 323:3,23 346:3 347:7 349:14 403:20
poll 544:1 569:6
pool 280:15 286:18,19
pooled 286:20
pop 445:24
popular 428:5
portfolio 277:7
portion 285:22,23 343:17 414:25 431:23 458:17 459:1 527:3
portrayed 501:7
posed 512:10
posing 549:16
position 296:11 341:21,25 342:3, 11,12 343:9 345:13,18,23 369:25 376:1,2,23 419:9,10 421:8 423:17,19 424:2 426:12,14 430:20 432:16 502:22
positive 323:15 517:24
possesses 565:18 possibly 465:13

467:3 **postage** 343:25 **Poston** 342:2 potential 278:14 338:13 557:11 potentially 348:8 356:21 363:14 460:1 566:24 power 293:4 315:22 343:2 400:11 461:7,16 483:22 486:20 505:24 531:2,4,5 545:7,8,11 558:23 559:4 practical 481:8 482:15 485:21 492:1 practically 555:10, 24 practice 348:10 462:22 484:4 preceded 429:11 precedes 465:11 **precise** 303:6,7 precision 312:23 560:18,19 562:7, 14 precooling 442:8 predicated 341:6 376:13 predictive 308:21 predicts 308:19 preferences 277:9 **prefers** 318:23 **prefiled** 329:6,7 390:4 575:18 preliminary 579:4



	Index: premiseprojected		
premise 425:25	preview 447:1	384:4 395:16	processes 482:9
427:10 453:3 459:2	previous 292:3	prioritizing 408:1	produce 295:19
preparation 276:9	446:4 475:3 551:20 576:19	priority 347:12	323:14 326:25 333:11 340:22
		407:22	441:12
prepare 329:5	previously 274:15 384:12 486:12,14	prob 348:9	produced 339:17
prepared 310:9,11 379:24 385:23	487:7	problem 327:21	373:20 473:22
386:1,9,10 389:6,	prewarming 442:9	394:20 400:21 418:1 509:19	474:3 547:25
9 418:22 472:12	price 278:11	511:8 516:19	548:3
518:12	347:23 348:19	535:21 570:3	produces 284:14 340:9
preparing 310:13	405:12 439:18,19	problematic	
presence 275:9	452:20	392:12	producing 282:2 340:13 373:13,14
present 305:5	priced 348:12	problems 295:4	455:1
309:18 372:4 478:14 555:3	prices 569:12	361:2	product 486:5
579:16	pricing 352:23	procedural 579:6,	production 375:18
presentation	353:9,10,11,16 355:25	10	403:6 413:1,23
366:6 555:4 579:3	primarily 278:22	procedure 489:17 513:14,18,24	414:20,25 415:11, 23 416:12 417:7
580:17	339:25 388:22	514:1,4,6,8,11	427:12 429:20,25
presented 290:24	466:24	procedures	453:5 462:25
337:13 341:24 389:15 395:3	primary 283:9	509:17	productive 461:14
400:23 413:12	316:5,12,16,21 334:16 361:6	proceeding 273:5,	468:14
431:20 435:3	387:8,15 391:3	14 274:17 285:19 454:10 550:25	professional
444:12 449:15 478:12 479:3	392:13,19 393:6,		550:24
480:16 546:9	11,12,15 396:7 398:20 399:9	Proceedings 273:1	profit 346:19
presents 346:23	401:3 422:16,17	process 278:8	profound 339:13 357:21
president 366:21	447:15 457:17,22,	286:1 303:20	
499:6	25 458:12 460:7, 20	304:1 306:14	program 323:4,11, 14,18,20,21
presiding 273:14		310:13 327:1 331:7,23 345:25	542:8,9,13
presupposes	principle 295:13 351:18,19 363:1	346:7 355:14	programs 347:19
442:1	principles 285:3	461:7 474:15	progress 277:25
pretend 468:8	321:18 349:20	482:14,17 495:21 503:14 504:12,20	341:7
pretty 288:23	351:15 355:4	509:8 514:5	project 340:25
297:16 304:15	363:16	517:25 521:22	399:14 506:8,23
306:10 307:22 325:3 345:18	printed 405:9	537:2,6,20,21	508:1,25 510:8 532:14
430:1 448:21	419:16 467:15	538:2 541:8 546:18 557:17	
464:7,10,19	prior 308:17	560:18 579:11	projected 303:13
478:19 537:25	311:23 317:7	000.10070.11	493:24
	327:23 328:6		
	1	1	1



projects 493:23 proliferation 339:10 354:8 **promise** 521:9 promotes 401:25 promotional 354:10 **proof** 490:22 **proper** 358:25 509:6 properly 325:12 511:2 property 447:4,6,7 465:1 480:5,7,8, 20 481:2,3,5,11, 13,17,24,25 482:10,15,16,17 483:3 484:22 485:8,16,17,24 486:6,21 489:25 494:6 502:22 503:3,7 507:1,2 508:3 514:14 517:5,6,10,18 518:14,17,22 519:1 520:4,5,6,7, 8,19,20 521:16 526:7,14,21 527:8,11 528:8,14 530:16,22,24 531:12,13,14,25 533:1,21 534:12, 17 535:22 536:16 541:3 545:5 546:19,20 553:20, 21,22,24 554:1, 17,18,20,23 555:9,10,14,17 556:6,11,18,24 557:13,25 558:15, 21 559:8,10

560:4,12,16,17

15 566:2,13

562:1,4,11 563:2,

567:23 568:1,3 570:17,21 571:7 575:1 proportionately 372:24 373:2,24

proposal 309:7 360:9 361:9 437:23 554:16 555:8 557:11 559:10 560:15 561:25 562:6

propose 358:6 475:11

proposed 322:2,6, 9,23 341:22 345:11,16 355:17 379:5 380:6,18 382:15 432:15,18, 19 441:2,18 442:25 443:3,7 456:23 468:25 471:13,19 482:18

proposing 334:15 349:18 434:18 450:3 562:8

proposition 349:4 354:17 434:24

propounded 544:16

pros 348:6 350:3

prove 309:2

proves 449:19

provide 282:14 283:17 289:8 292:21 297:20 308:16 343:18 362:14 403:4 405:21 431:8 484:22 503:17 509:6 539:8 566:11 572:17 579:5

provided 326:6 372:11 373:14 389:11 395:25 437:5 474:3 476:11 517:8 518:15,20 521:17 547:2,5,14 558:7 576:16 579:9

providing 277:6 283:1,12 297:23 322:13 324:15 430:1 446:11 464:20

provision 288:13 431:3

proxy 346:7,13 362:14

public 273:24

PSC 340:6 576:18, 20

274:2,4,5 311:22 328:8,16,22 329:22 330:2,13 340:3 342:24 345:13 356:25 358:6,8 372:4 385:20 390:24 433:5,11 476:22 497:16,17 500:20 525:11 549:8 552:24 564:12 582:13

publication 429:11

publications 399:13

pull 280:13 300:24 311:21 531:22

pulled 456:3

pulling 310:14 399:11

pump 350:6

purchase 343:16 pure 295:5 493:11, 16 545:16 purely 298:22

410:2

purported 459:15 purports 394:25

purpose 299:9 311:8 406:18 421:13 432:5 468:20 470:19 528:22

purposes 468:17 473:9 486:1 492:6 493:16 515:18 516:20 533:4 546:22 566:8 569:19

pursuant 464:20 476:12

pushed 349:13

pushing 463:5

put 282:7 286:18 323:17 348:1 359:12 360:22 405:10,14 425:11 445:11 454:22 468:12 488:1,3 492:3 496:17 505:16 506:4,18 509:16 539:11 542:6 575:22 576:2,22

puts 445:15

putting 307:5 340:6 351:12 420:17 433:22 491:12 494:5

Q

qualifications



344:22 quality 501:8
quality 501:8
502:15 503:4 504:17 510:1
quantify 402:21 546:1
quantities 532:22 545:10,14
quantity 485:9 486:3 488:21 517:16 526:8,16 527:16,18 533:23 558:7,10,20 566:3,16
question 275:22 277:13 288:4,14 289:11,18 291:6 300:14 316:15 317:6 331:18 334:22 345:17 348:4 355:21 356:23 358:12 364:4,6,10 370:10,12,13 372:12 373:9 376:10,12 377:19 378:3 379:18,25 382:17 389:1 395:16 396:10 399:16,17 403:24 418:7 423:23 425:9,13 427:23 431:6 432:9 437:16 438:4 439:11,13 445:2, 24 446:13 447:19 451:4 462:9,15 471:24 478:9

512:10,25 513:1,

516:22 517:1

518:9 519:15

520:19 521:22

4,9 514:23 515:24

529:8 532:6 536:7 538:14 539:19,22, 23 541:2,15,18 544:9,16 545:23 548:4 554:11 555:23 556:16 563:25 565:12 572:12,13 574:8 575:9 576:1,15 579:25 580:7

question/answer 433:15

questioning 319:10 320:25 321:25 322:17 364:17 549:7

questions 274:20 275:3,4,19 287:3, 12 306:12 311:12, 16,17 312:1 313:4 319:8 320:18 325:18 327:6,13, 15 332:15,22 338:12 345:3,6,7, 9 349:17 360:1.2 364:13 365:2 367:5 368:15,24 371:20,23 372:1 376:4,5,8 377:14, 20,23,24 378:10, 22.24 379:3 382:5 383:15 388:4,20 394:17 396:15,22, 24 398:1,3,4,8 399:7 424:5 427:4,8,14,25 441:1 445:19,20 446:2 447:14,16, 23,24 453:9 454:1 461:25 462:2,3 471:24 472:10 483:4,7,8 497:12 499:15 500:5,7,

516:5 519:18 522:5 524:8 525:3,8,10,18,20, 21,23 535:14,15 536:3 539:18 540:4,6,17,22 548:9,22 552:3 553:3,7,8,10,12 562:18,20,24,25 570:11,12 571:12 572:2 573:14 578:11,12 579:1, 19,22 580:3,5 582:3,7,9,15,20 583:4,5,7,9

quick 326:4 356:24 433:19 472:9

quickly 473:8 478:20 502:18 575:13

quote 334:5 487:3 489:18,20 496:18 546:16

quotes 352:12

R

r-u-b-a-k-e-r 365:20

RA 415:1

radio 428:7

raise 275:12 328:20 365:13 385:8 498:11 523:8 550:6

raised 298:24 325:15 439:22

ran 401:3

random 436:4,12 437:5,6 560:25 569:20,23

Index: quality..rate randomly 437:3 487:8 range 312:25 413:7 517:23 rank 455:15,19 **RAP** 399:13 402:19 rate 273:8 276:2.4. 5,10,11,14,16,23 277:5,9,11,22 281:7,9,15,19 282:10 289:13,15, 16 290:19 291:7. 10 292:1 294:22 295:21 297:4 298:1,3,16,18,20, 23 299:5,8,11 304:5,22,24 305:2,4,5,9,17,25 306:4,7,18 307:2, 6 308:14,23 309:19 310:2 315:1 322:2,8,14, 25 323:18,22,25 324:4 330:21,24 331:4 333:14 336:9,10 339:14 340:6,21 341:17 342:9 343:4 345:15 353:21 354:5,11 358:3 360:10,22 363:8 372:14,21,22 373:4 380:6 385:20 387:4 404:1,2,12,13,23 405:1,16 406:5,6, 19,22 407:14 408:3 409:4,23 410:9,12,22 411:11 412:9,11, 12,13 418:11,13, 20,25 419:2,19 421:11,14,16



423:20 426:1,16,

17 427:21 429:16,

14,17,25 502:4

503:21 507:7,8

508:11 513:9

Transcript o
444:14 445:16 449:21,25 450:1 453:17 480:15,23 481:19 483:25 489:11 497:8 570:24
rating 284:7 454:23,24
ratio 505:10
rationale 354:24 398:23
reaction 354:21 357:9
read 276:25 321:12 421:3 423:17 424:1 430:9 461:7 467:15 474:19 495:16 515:17,23 516:19,22,24 518:8,11 519:23 521:10,19,20 539:21,22 544:18, 19,20,24 546:12, 15 547:8,12 564:20 565:3 572:11,13,15 573:4
readily 484:23
reading 408:9 521:4 573:10
reads 387:2 544:24 551:13
ready 384:25 461:13
real 307:14 355:2 357:7,21 433:19 447:2 472:9
realistic 532:1
realistically 458:11

reality 461:19 462:10
realize 350:24
realizing 509:9
reason 281:24 290:7 311:1,10 319:5 323:13 356:9 399:23 402:1,18 478:24 486:13 488:25 509:21 535:25 536:9,11 581:7
reasonable 290:1, 5 326:23 336:5 338:16 358:23 373:25 387:5 398:21,24 399:4, 12 409:23 412:7 420:12 426:4 427:11 447:13 449:18 450:18 464:3 468:15 470:1 492:14 497:8 505:14 507:4 578:16
reasonableness 392:5
reasons 335:15 347:8
rebuilding 387:7 465:23
rebuttal 299:14 300:22 302:23,24, 25 365:9 366:23 367:12 368:3,4 385:24 386:17,25 387:19 388:10 392:10 396:2 399:10 402:13,25 404:14 405:4,7 424:13,17 425:3 435:3 459:24 482:9 496:13 499:8,22 523:25

524:1,16,18 526:3 531:17,23 533:15 551:2 552:16 561:8,9 579:8,9
recall 287:21,25 304:1 320:25 321:25 322:17 324:10 335:6,13, 21 337:18,19,22 338:3 343:18 448:4 454:12 457:12 539:20 541:2 549:11
receipt 502:1
receive 303:21 304:7 306:16 342:18 575:10
received 287:4 318:12 330:8 343:3 368:12 379:3 383:12 388:17 390:19 471:21 478:5 500:2 522:19 524:23 548:19 552:22 563:11 567:16 573:21 580:5
receives 575:15
receiving 477:17 558:18
recent 288:23 302:13 399:13 402:19 429:12 456:24 481:16 486:24
recently 304:2 314:8 417:21
recess 384:20 475:18
reciting 488:4
recloser 517:15, 22



reclosers 315:19

recognition 449:11,12

recognize 321:20 347:6 379:11 380:16

recognized

281:25 296:17 323:14 342:4 453:2

recognizing

326:18

recollection

289:24 304:3 386:6 469:14

recommend

296:21,22 341:15 375:17,21

recommendation

342:7 355:5 369:16,17 370:16, 21 378:3 404:12 438:24 495:17 556:17 565:23 566:8

recommendations

334:4 369:4 372:11 373:14 408:4

recommended

334:4 373:23 381:25 407:1 426:16 438:6 443:11

recommending

342:16,17 408:14 426:19 496:1

recommends

406:23

reconcile 546:7

record 273:3,16 288:9 289:4 317:8 318:11,25 319:16, 21,23 325:3 327:9 328:9,10,12 330:5,7 331:8,24 365:10,17 367:11, 24 368:8,10 382:7 383:8,11 384:21, 22,24 385:11 386:16 388:11,14, 15,24 390:2,14,18

422:11,13,15 433:10 439:11 447:4,6,7 465:2 466:12 467:8,23

469:17 471:1,14, 20 473:10 475:19,

20,22 476:4,13 477:12,15 478:4

480:5,8,16,20 481:2 483:18,19 484:6,7,21,23,24

486:10 490:3

492:18,20,21,22,

24,25 493:14 494:6 495:18

498:15 499:20,25

502:7 504:19 506:10 508:2,6,23

511:5,13,20 512:6 513:17,19 515:18,

24 517:6,18 519:1 522:15,18 523:11

524:13,19,21

528:8 529:12,14 532:8 533:12

534:9 548:18

550:9,18 552:18,

20 553:22 554:20, 24 555:10,15,17

558:15,21 560:12,

17 563:21 564:8 566:13 567:15

572:7 573:9,18,20

574:5 577:4 579:14 581:11

record's 544:23

recorded 288:13 401:16,17 416:11,

14,15 465:1

480:7,22 486:5,9, 12,14 487:7

490:20 492:12,15

493:6 495:9,22,23 502:21 505:20

508:4 511:12

519:19 527:12,15,

17,24 532:3,5,7,9 545:13 548:1

556:20 563:7

569:4 577:22

recording 481:3 483:3 486:3,15,16

487:6,8 491:14

495:21 504:10 513:21,25 514:9

519:24 526:15

532:15 558:25

566:19

recordkeeping

481:12 483:16

574:6

records 312:11

409:21 481:24

482:16 484:14,15, 21,23 490:5

495:13,15,18,25

496:19,20 501:12, 13 502:13 503:3,7

507:2 511:25

514:14 517:10

518:18,24 526:21

527:8 528:11

529:3,5 530:4

532:18,22 533:3,6

534:8,11,13

536:18 542:5

546:20,23,24 547:2,4 554:18

563:2 565:11,13,

18 575:6

recover 324:3 410:22 451:3 568:24

recovered 281:20 351:12 352:10

362:24

recovering 323:11

recovery 298:9,12 323:21 346:13

353:13 362:8,19

recross 360:2 377:19,23 378:23 445:19 447:23 453:8,25 535:14

540:5,7 549:7 570:11

Recrossexamination

312:2 313:8 360:4 377:25 540:9,25 541:16 582:4,7, 10,11,16 583:10

Red 360:23

redesign 309:14

redirect 320:19,23 365:2 377:13,15,

17 378:24 379:1 383:17 424:7,9

454:1,4 462:2

475:6 516:6,8,9

522:7,22 549:1,5 571:13,24 576:4

5/1:13,24 5/6:4 582:5,12,21

583:6,10

redo 464:17

reduce 409:22 443:14,17

reduced 308:24 389:14 443:2

489:3,4

reduces 424:23

reducing 441:24

reduction 424:22



	Transcript of	Proceedings	index. reductionsreplaced
445:10 480:24 493:7 554:4	regard 287:17 335:9,10 343:11	relation 374:13 380:9	427:5,7 434:10 469:15 471:25
reductions 324:7,	354:13,16 392:21 450:22	relationship 406:18 454:21	483:13 519:18 555:21
refer 279:3 483:19	regional 448:17	relative 286:9	remind 319:13 424:10
reference 425:10	regularly 510:16, 23	380:19 399:3	reminding 580:25
459:6 484:17 489:19 501:23	regulated 554:4	relay 538:23	remove 528:11
577:12	563:3,5,15	relevance 514:18	529:12 531:3
referenced 469:24	regulation 346:1	relevant 290:25 331:7,23 407:20	removed 474:2
565:6	352:2 361:7 363:1 483:17	429:14 562:8,14	517:7 518:4 529:14,16,21
references 484:24	regulations 484:4,	reliability 447:3	530:2 538:7,19
referred 319:11 425:18 451:5	18,19 489:2	reliable 447:10	539:2 541:4 571:1
452:16 467:4	495:20	502:14	removing 436:13 539:16 540:1
484:11 530:7 546:17 572:7	regulators 345:25 362:13	reliant 533:13	renew 274:14
referring 278:23	regulatory 273:14	relied 362:12,13 394:23 465:10	332:24 371:24
300:1 378:8,14	322:18,20,23	482:13 565:13	396:23 498:2 500:16 525:9
386:5 417:10 419:14,16 520:25	323:15,16 340:24 362:7,11 363:16	relies 481:15	541:22 553:8
559:6 565:10	399:14 523:22	545:19	579:2
refers 484:17	532:17	Relo 466:9	renewable 285:8 286:14 415:4
refined 452:9	reign 417:24	rely 310:1 333:10 337:16 533:9	427:17
reflect 276:21	reiterate 482:18 494:13 495:11	relying 429:15	renewables
277:2 282:22 458:9 471:1 496:4	rejected 429:8	439:20 509:20	284:16,18,21 452:23
reflected 314:25	relate 431:24	remain 445:8 511:19 568:24	renewed 579:12
465:13 493:1	related 283:24	remaining 280:15	rental 350:23
561:2 573:7	294:11,18,21	342:21 451:3	renting 350:21
reflecting 296:2 465:2	295:1 299:20,21, 22 300:17,18	580:23	repeat 370:9 462:8
reflective 276:24	314:5 315:11	remaining-life 551:15	536:6 561:3
278:11 296:23	322:3,7 363:19 382:17 395:8	remains 301:12	repetitive 463:14
reflects 281:20	574:19	489:13	rephrase 374:19
296:9 450:20 486:23 493:15	relates 283:1	remarks 505:17	replace 460:18
refresh 287:14	302:6 345:23 514:14 546:17,20	remember 276:1	506:9 507:15,18 511:10
314:24 465:14	relating 302:4	287:13 327:12 336:1 363:3	replaced 505:1,2
refreshing 325:17	531:14	364:20 417:13	509:1 510:11 538:19 539:1,6



Index: reductions..replaced

	·	1 100 000 ulligs
541:4	564:8,24 565:2	requires 348:17
replacement	567:4,14 571:23	351:14 486:3,8
574:7	572:9,14,15	490:18 491:22
_	573:1,25 574:1	492:3 494:22
replacing 492:14,	578:20	495:12 553:19
15 502:11 507:14	""" " " " " " " " " " " " " " " " " "	DEC 455.04
539:16,25	requested 324:16	RES 455:24
replicated 308:17	343:4,5 389:12	research 282:10
replicated 500.17	390:14 437:5	389:10,19 429:
reply 573:5	490:11 518:6	449:16 454:19
report 533:25	546:10 549:10	472:17,20,23
576:24 577:4	572:25	473:15,17 507:
370.24 377.4	requesting 344:10	·
reported 447:6	417:2,17 509:7	reserve 289:7,8
roportor 275:0		571:2,10
reporter 275:9 476:18 487:20	requests 331:9,25	reserved 476:10
	387:3	
539:21,23 573:9	require 359:17	residence 344:
583:11	380:11,13 481:10	residential 276
reporting 509:10	486:8 489:2	277:8 278:1
		280:10 283:4,5
reports 565:15	554:18,24 555:2	296:8,14 297:2
577:11	559:25 560:2	299:11 303:21
represent 342:25	required 482:19	306:23 308:12
421:2	483:16 491:15	316:12,19 343:
	495:8 496:21	345:15 353:21
representations	502:12 527:15,23	
468:9	530:5 532:4	355:7 370:18
representative	546:25 553:21,23	371:2 376:14
431:21 449:16	554:1 557:12	380:11 381:7,1
represented	558:13 577:12,16	22,23 387:4
393:25 415:22		401:11,12 432:
472:18	requirement	434:21 435:23
4/2.10	290:25 315:2	441:2 474:3,14
representing	324:3 353:5,6,11	534:1
280:5 311:5	369:6,14,22	residual 343:17
represents 336:17	370:17 372:14	reciliones, E4C.
416:24 468:5	373:17 402:4	resiliency 546:6
473:11	407:11 409:2	572:24 574:24
473.11	424:23 425:12	resolution 579:
request 288:22	451:3 456:25	resolving 290:4
289:4 367:10	459:17 502:24	
383:5 387:7,14	requirements	resource 285:4
411:24 412:1	344:7 374:2	286:1,6 391:12
421:5 476:11	410:21 412:21	446:16
486:18 515:19	456:11 481:12	resources 284:
516:16 522:17	510:1 511:1,9	326:20 339:11
543:16,21 546:17	526:6,10	391:11 415:5
547:3,6 563:10,18	J20.0, 10	J 31.11 410.0
,		

48:17 6:3,8 1:22 :22 3:19 24 282:10 429:21 4:19 ,23 507:17 89:7,8 476:10 344:11 276:11 :1 3:4,5 297:2 3:21 8:12 343:1 3:21 :18 :14 1:7,13, :4 432:17 5:23 :3,14 43:17 546:6 4:24 579:22 290:4 285:4 91:12

284:16

438:13 **respect** 323:19 430:23 511:21 574:6,13 respected 340:24 respects 374:22 respond 370:9 379:24 520:9,15 respondent 516:2 responding 416:6 response 291:16 299:18 310:6 319:12,14 364:1, 17 372:11 373:15 378:2 386:4 388:21 389:7 395:16 417:24 430:2,4 431:9 454:6 467:14 472:1 476:11 477:2,7,14 478:3 486:18 493:9 496:16,22 515:19 516:16,23 517:7 518:8,11,12 520:20 522:17 543:13,16,21 546:7,14 547:2,5 548:16 559:19 563:10,18 564:5, 23,24 565:9 567:4,13 571:23 572:9 573:10,17, 19,25 574:3 responses 393:17 responsibility 342:19 406:24 407:15 408:3,15

409:1 410:19 429:9,10 442:24 443:20

responsible 517:4 518:1 560:8



	Transcript of	Proceedings	Index: responsiverule
responsive	retired 481:18	308:15 309:2	risk 346:9,22
414:19	482:7 486:9	496:2	356:21 361:19
rest 396:7	488:24 489:1,22,	return 424:22	363:2,14 436:10
1631 330.7	24 490:17,19	568:25 575:15	riskier 433:25
restate 426:24	493:6,12 504:7	581:4,5	434:1
462:8 512:23	505:14 506:10	301.4,5	434.1
554:11	517:5 518:14,17,	returns 489:12	riskiest 433:22
restaurant 351:20	23 519:1 521:17	revenue 290:25	risks 346:16,22
401:4	530:20 531:1	315:1 324:1,3	·
	536:14 537:16	341:23 342:19	risky 433:1 434:23
restudy 292:8	545:10,17 555:13	346:12 353:5,6,11	Robinett 564:14
result 280:24	556:1 558:20	369:4,6,14,22	578:21,23 579:1,5
334:13 445:6	559:24 560:9	370:16 372:13,17	580:6,11
449:25 455:1	563:7 571:8,9	1	,
460:23 510:12	575:14	373:16 374:1	robust 412:5
		376:13,19 379:4	447:9
resulted 465:22	retirement 447:12	382:15 383:4,9,10	robustness
466:17	465:3 481:25	391:12 406:23	426:17
resulting 492:13	482:10 483:23	407:11,14 408:3,	
•	484:6,14,21,25	14 409:2 410:19,	ROE 346:17
results 281:4	486:17,20 488:20	21 412:21 424:23	roll 279:9 357:10
289:1 296:12	490:3 492:22	425:12 442:23	360:18
302:2 325:25	494:4 495:14	443:19 451:3	
333:11 334:7,13	508:4 517:15	456:25 459:16	rolled 278:10
341:24 374:12	518:19 527:20	revenues 273:11	rolling 359:16
389:19 395:3,21	528:24 532:8	323:20 324:2	room 272.5
403:3,5,8,13,17,	545:9,15 546:19	380:14 413:2	room 273:5
18 407:24 408:18,	554:17 555:9	414:1 462:24	355:15 461:7
23 412:6 413:8	560:12,16,18	463:24	557:5
425:24 426:4	561:25 569:15		rot 511:3,6
428:12 459:13,16,	570:17,21 571:6	review 334:22	rough 393:16
22 460:5	574:7 575:5	503:2	10ugii 393.10
reswear 275:6	576:24 577:4,5	reviewed 342:12	roughly 302:7,10
reswear 275.0	578:2,7	420:9 434:20	303:4 328:5
retain 439:6	,		380:20 456:2
440:24 533:3	retirements 480:7,	reviewer 391:14	round 325:10
534:18	22 481:3,21	revision 557:11	
retained 431:5	482:14 483:17,21		route 362:2
	493:3 495:6,7,19	revisions 499:12	routine 438:10
retains 506:1	518:18 528:13,17	524:5	509:5
retention 418:24	535:22 559:11	revitalization	
532:18,24	560:25 563:6	546:4 572:23	row 403:9 422:7
•	566:19	574:24	473:18 474:8
retentions 533:1	retires 487:5	#0140md 240.0	489:9 530:12
retire 452:23		reward 346:9	rows 467:25
493:25 528:10	retiring 482:17	356:22	473:20 529:5
529:9 558:24,25	495:21	rework 309:25	
568:16 578:9	retrospective		rule 483:13 486:2,
000.10070.0			7,8 487:5 489:19,



self-selecting

23 490:7,18,21,22 491:9,10,11,13, 15,21,22 492:2,3 494:22 495:11 496:10 497:2,7 504:3,5 512:20 531:9 548:7 569:17,19 575:23 577:12 580:8 rules 370:2 461:11 481:23 482:20 484:9,10 494:9 495:15 510:17 522:13 531:11 579:10 run 361:20 400:15, 16 457:25 503:18 running 336:25 400:10,15 runs 301:11 349:14 **Rupp** 275:7,8 324:11 338:24 359:13 376:5 445:21,22,24 446:1,3 447:20 464:12 562:22 583:5 Rupp's 326:16 Ryan 545:19 546:9 572:18 S **S-P** 498:17 **safe** 511:2

safeguards 518:1 **safety** 315:23 512:5,7 **sale** 452:17 sales 444:19,21

Transcript o
sample 340:17 436:12
sampling 511:24 569:20,24
Sarah 317:15 353:25 385:3,12, 14 388:9 518:6 583:2
satellite 538:5
save 324:4 338:13
saver 306:24 308:13 360:10 433:8 434:2 435:8 437:11,13,18,19, 20,21 438:16 441:19 444:13,14
savers 298:3 304:24 305:4 306:1 307:6 308:6 360:21,24 363:6 433:7 438:5 440:4 442:12 443:17 444:13,18,20,22 445:5,14,15
savings 324:5 360:16 361:1 473:23
SB 361:24
scale 372:25
scaled 383:2 459:7
scales 396:1
scaling 380:18 459:5,9,16
schedule 315:3 380:4 406:19 410:9 479:15 532:17 547:15
schedules 283:22 406:22 481:16
scheduling 478:9

scope 363:24 364:13 461:22,24 516:4 536:3 539:18 540:16 575:25
scratch 292:3,6 320:13 468:13
screaming 444:4
season 444:16
seasonal 462:12
seasons 305:25 439:10 462:21
seated 328:22 365:16 385:10 498:14 523:10 550:8
secondary 391:19,25 392:1, 7,8 396:6 422:18, 20 447:15 458:3, 12 460:8,15,19
section 405:16 435:12 530:2,17 542:3 547:20
sections 531:11
secure 315:23
seeded 466:23
seek 306:21 323:17 391:5
sees 323:8
seized 454:25
select 481:17 486:20 545:15 558:19
selected 297:4 437:3 473:19 518:3,18
selection 442:2
self-proving

491:4,6

436:6
self-selection 436:13
selling 463:24
send 293:3,6 505:21 507:1 558:6
sending 440:14
sends 545:6
Senior 550:24
sense 283:23 290:5 331:3 357:12 391:15,22 394:8 402:7,10 408:2 428:24 430:18 431:22 432:3 443:5 452:18 466:3,7 503:8,14 569:22 576:22
sentence 397:22 521:20
separate 286:13 336:21 416:16 431:17 440:14 484:23 532:25 533:3,5,11
separately 430:16, 17 535:6 546:3 547:3 572:21
sequence 309:22
serial 568:6
series 519:18
serve 341:4 344:6 393:20,21 394:6, 12 398:13 401:14 452:25 457:24 465:5 507:15
served 316:12,16, 18,20,21 375:13



390:11 392:6,7
393:12,14 394:2
•
400:25 401:7
410:10 423:3,6,7,
9,10,11,12,13
9,10,11,12,13
service 273:12,25
279:13,16 280:2,
25 281:14 282:5
283:1,12,17
• •
285:13 288:10
289:12,19,24,25
290:19,23 291:8,
10,11 292:1,9,10,
21 293:8,15,19,20
295:12,15 296:7,
12,16 301:20
315:6 321:5,8
331:5 333:8,9,18
334:3,12 336:25
337:13 338:14
340:1,3,4,9,14,16
341:18,24 342:6
343:16,18,22,24
344:10,12 361:24
370:22 371:1
372:16 373:20
376:18 377:6
378:5,6,7,17
380:2,3,5,7,12
381:1,10,12,20
383:1 385:20
390:16 391:4
394:24 401:10,23
403:22 407:23
409:11,20 412:16,
18,19 413:20,21
414:15,17 416:21
•
422:19,21,25
423:1 448:6 459:5
485:3,9 486:4
· ·
493:1,15,23,24
496:6 502:15
503:17 504:17
506:5,20 509:6
510:10 511:19
517:7 518:5 519:2
532:3,10,11

Transcript
554:9,14 558:2 561:15,23 566:3 571:1
servicemen 520:21
services 401:15 430:14,16
serving 410:8,14 458:6
session 433:15
set 307:23 308:6 339:2 344:7 367:6 451:20 452:6 473:17 474:7,12 479:7 485:4,10 552:4 569:20
sets 410:16 431:18 446:20
setting 279:16 283:9 345:11,12 569:17
settled 291:17 307:3
settlement 374:21 379:4 380:16,23 382:15 383:10
SGS 316:15,19 371:4 401:11,12 406:22 455:23
shape 511:19 561:4,6
shapes 339:10 357:25
share 387:10,18
shared 288:21,22
shareholder 489:12
sheet 314:9 335:24

19 443:14,18 561:9
shifted 430:15
shifting 297:25 344:16 346:22 350:14 363:2,21 364:9 441:25
shoes 519:13,21
shore 447:11
short 336:8 353:16 405:10,11 435:2 480:20
shortcoming 392:14
shortcomings 429:18
shortened 309:13 357:5 438:2
shortly 304:6
show 289:1 304:25 305:15,16 369:15 447:12 455:4 490:24 491:22 529:6 530:1 542:22
showing 397:11 435:16 436:18,25 512:6 532:22
shown 318:19 492:20
shows 313:12 435:7 493:2 527:9
shuffling 543:3
sic 303:2 318:16 489:20 496:22 497:22
side 278:8 313:16 356:7 357:10 415:23,24
Sierra 274:21,24

332:21 371:21 396:20 497:21 500:13 525:6 553:6
signal 347:23 348:19 352:23 439:18,19
signals 278:11
signatories 480:17
signature 335:23
signed 335:23,24
significant 283:25 292:12 295:3 324:24 327:2 334:14 403:14 465:22,24 466:23
silly 405:14 410:1
similar 292:5 316:15 325:16 360:17 378:11 392:6 414:21 426:3 437:19,21 438:25 441:12,15 448:21 453:20 464:19 482:11 485:25 504:10
similarities 410:24
similarly 315:9 542:15
similarly-situated 449:22
simple 449:8 509:24 554:25 559:15 577:17,18
simplicity 355:4
simplified 485:24 509:24
simplifying 333:10



shift 284:5 376:14,

simply 282:14 380:8,18 402:20 414:10 481:8 494:9 559:22

simulate 483:22 559:3

simulated 483:23 560:22 563:13 575:5,16

simulating 484:7 486:17 558:23,25 563:11 566:19

simulation 559:5

single 311:1 394:12,13 422:23 423:1,2 484:23,24 503:7 506:6,23 507:2 528:6,9

sir 328:14 333:22

345:4 377:11 476:24 507:12 512:19 513:13 516:23 525:22 526:5 543:7 544:6,11 570:20

sit 337:3 352:7 361:16,17 461:7 580:3

site 576:20

sitting 357:13 443:6 465:16 505:4

situated 511:2

situation 363:11

situations 485:19 502:17

size 294:2,14 316:4,10 342:9 360:11 375:11 393:16,25 394:1,2 398:18 410:15 451:17,18 460:16, 18 490:15 501:16

sizes 401:19 449:1

skip 456:1

skipped 377:21

slash 517:13 523:25 545:20,24 546:1 547:11 551:3 572:20

slide 572:18,20

slight 380:13

slightly 309:3 462:17

slip 308:2

small 280:10 301:25 343:2 356:18 393:11 394:13 401:11 443:24 444:6.24 448:17 490:13

smaller 380:17 458:14 465:19

561:16,20

smallest 398:18 400:15,16 401:13 451:10

smart 305:25 308:6 435:8 437:21 444:13,20 445:15 465:7,8 546:6 572:24

smelter 458:21 467:1

software 481:18 483:22 487:11 489:6 504:19 530:13 537:23 547:25 548:5,6 563:6

solar 284:6 416:10 429:23 472:18

solution 442:13 509:23

solutions 482:12

solve 464:8 473:18

somebody's 425:21 512:16

something's 466:3

sophisticated 278:5

sort 353:5 360:24 392:4 393:13 400:22 419:8 421:11 426:2 436:3 439:21 448:18 461:3 469:24 473:3 529:18 537:8 540:11 569:20

sorts 406:9 428:14

sound 309:10 311:23 351:16 421:24

sounds 317:10 357:4 362:15,16 369:25 398:14,20 449:20 474:25 475:1 531:6

source 322:22 399:7 572:19

SP 371:8

space 278:15 350:6 354:6

space-heating 354:2

Spanos 478:12,17 482:9,24 496:12 498:10,16,24 499:2,7,23 500:3 501:2 502:6

565:11,22 574:22

speculate 521:7 541:9

speculation 538:10



spell 329:2 365:17	385:1,3,19 386:3	432:16 437:23	state 296:6 321:9
385:11 498:15	388:21 389:7	441:2,10 471:13,	329:2 361:20
523:11 550:9	402:1,21 403:11,	18,21 475:23	363:17 385:11
anand 425:4	17 404:11 406:7,	495:17 496:16	387:13 428:9
spend 435:1	23 407:20 410:6	517:8 573:21	455:2 533:15
Spent 349:1	411:5 414:3,16,17	stage 309:21	550:8,17 574:11
split 358:9	415:14,19 416:1 417:2,17,22	staged 305:13	stated 446:10
spoke 358:15	420:17 424:24	stakeholders	486:8,19 496:18
spoken 357:11	426:8 427:1 429:8	331:14 362:13	statement 341:25
409:7	431:11 432:20	331.14 302.13	342:12,13 376:1,2
	438:1,6 441:5	stamp 504:23	407:8,10 421:8
spot 319:3 509:14	445:3 446:12,13,	505:2 510:5	423:18,19 425:5
spread 281:1	14,24 447:2 454:2	stand 275:5	429:13 454:8
284:21 382:15	456:23 464:4	365:11 385:4	491:4,6 493:13
383:10,11 466:22	469:25 470:3,19	420:15 479:25	494:9,20 508:11,
·	472:1 475:24	488:17 491:18	12,20 521:11,15
spreadsheet	472.1 475.24		532:2 563:25
409:22 496:23		493:2 496:18	580:23 583:13
555:20	483:10,14,19	498:10 523:6	
spreadsheets	486:18 487:1	standard 339:20	statements 362:6
461:16 555:1	492:4,8,9,11	504:2,18	419:10 424:2
	493:9 494:21,24	standards 501:24	433:2 479:20,21
SPS 342:20 371:8	496:1,6,11 497:3	504:1	513:6 583:12
406:22 455:22	498:18,19 500:23	504.1	states 292:14
	507054744		States /9/ 14
squared 454:20	507:9 517:11	standpoint 352:18	
squared 454:20	522:19 525:13,18	-	299:14 339:23
St 274:16 466:25	522:19 525:13,18 548:19 549:10	start 279:6 289:21	299:14 339:23 340:2,8 439:24
	522:19 525:13,18 548:19 549:10 550:2,3,12,20	start 279:6 289:21 292:3,6 301:10	299:14 339:23 340:2,8 439:24 484:11,20 489:17
St 274:16 466:25	522:19 525:13,18 548:19 549:10 550:2,3,12,20 552:21 559:8,12	start 279:6 289:21 292:3,6 301:10 326:9 328:7	299:14 339:23 340:2,8 439:24 484:11,20 489:17 493:8,10 496:12
St 274:16 466:25 546:5 572:23	522:19 525:13,18 548:19 549:10 550:2,3,12,20 552:21 559:8,12 565:4 571:13	start 279:6 289:21 292:3,6 301:10 326:9 328:7 358:21 384:25	299:14 339:23 340:2,8 439:24 484:11,20 489:17 493:8,10 496:12 531:21,23 532:20
St 274:16 466:25 546:5 572:23 stable 298:8 349:11	522:19 525:13,18 548:19 549:10 550:2,3,12,20 552:21 559:8,12	start 279:6 289:21 292:3,6 301:10 326:9 328:7 358:21 384:25 398:21 421:21	299:14 339:23 340:2,8 439:24 484:11,20 489:17 493:8,10 496:12 531:21,23 532:20 545:1 561:18
St 274:16 466:25 546:5 572:23 stable 298:8 349:11 staff 273:22,24	522:19 525:13,18 548:19 549:10 550:2,3,12,20 552:21 559:8,12 565:4 571:13 583:2	start 279:6 289:21 292:3,6 301:10 326:9 328:7 358:21 384:25 398:21 421:21 439:4 456:11	299:14 339:23 340:2,8 439:24 484:11,20 489:17 493:8,10 496:12 531:21,23 532:20
St 274:16 466:25 546:5 572:23 stable 298:8 349:11 staff 273:22,24 280:3 281:5	522:19 525:13,18 548:19 549:10 550:2,3,12,20 552:21 559:8,12 565:4 571:13	start 279:6 289:21 292:3,6 301:10 326:9 328:7 358:21 384:25 398:21 421:21 439:4 456:11 468:7,12 480:3	299:14 339:23 340:2,8 439:24 484:11,20 489:17 493:8,10 496:12 531:21,23 532:20 545:1 561:18 stating 517:8
St 274:16 466:25 546:5 572:23 stable 298:8 349:11 staff 273:22,24 280:3 281:5 295:25 299:16,17	522:19 525:13,18 548:19 549:10 550:2,3,12,20 552:21 559:8,12 565:4 571:13 583:2 staff's 279:17,18, 22 284:3 295:4	start 279:6 289:21 292:3,6 301:10 326:9 328:7 358:21 384:25 398:21 421:21 439:4 456:11 468:7,12 480:3 490:1 544:22	299:14 339:23 340:2,8 439:24 484:11,20 489:17 493:8,10 496:12 531:21,23 532:20 545:1 561:18 stating 517:8 statistic 518:19
St 274:16 466:25 546:5 572:23 stable 298:8 349:11 staff 273:22,24 280:3 281:5 295:25 299:16,17 300:3,6 310:5,10,	522:19 525:13,18 548:19 549:10 550:2,3,12,20 552:21 559:8,12 565:4 571:13 583:2 staff's 279:17,18,	start 279:6 289:21 292:3,6 301:10 326:9 328:7 358:21 384:25 398:21 421:21 439:4 456:11 468:7,12 480:3 490:1 544:22 580:18 581:8	299:14 339:23 340:2,8 439:24 484:11,20 489:17 493:8,10 496:12 531:21,23 532:20 545:1 561:18 stating 517:8 statistic 518:19 statistical 482:13
St 274:16 466:25 546:5 572:23 stable 298:8 349:11 staff 273:22,24 280:3 281:5 295:25 299:16,17 300:3,6 310:5,10, 11,12,15 311:20,	522:19 525:13,18 548:19 549:10 550:2,3,12,20 552:21 559:8,12 565:4 571:13 583:2 staff's 279:17,18, 22 284:3 295:4 301:18 309:7 310:23 319:18	start 279:6 289:21 292:3,6 301:10 326:9 328:7 358:21 384:25 398:21 421:21 439:4 456:11 468:7,12 480:3 490:1 544:22	299:14 339:23 340:2,8 439:24 484:11,20 489:17 493:8,10 496:12 531:21,23 532:20 545:1 561:18 stating 517:8 statistic 518:19 statistical 482:13 505:8 518:19
St 274:16 466:25 546:5 572:23 stable 298:8 349:11 staff 273:22,24 280:3 281:5 295:25 299:16,17 300:3,6 310:5,10, 11,12,15 311:20, 23 313:6,16 316:6	522:19 525:13,18 548:19 549:10 550:2,3,12,20 552:21 559:8,12 565:4 571:13 583:2 staff's 279:17,18, 22 284:3 295:4 301:18 309:7 310:23 319:18 321:14 334:7,12,	start 279:6 289:21 292:3,6 301:10 326:9 328:7 358:21 384:25 398:21 421:21 439:4 456:11 468:7,12 480:3 490:1 544:22 580:18 581:8	299:14 339:23 340:2,8 439:24 484:11,20 489:17 493:8,10 496:12 531:21,23 532:20 545:1 561:18 stating 517:8 statistic 518:19 statistical 482:13
St 274:16 466:25 546:5 572:23 stable 298:8 349:11 staff 273:22,24 280:3 281:5 295:25 299:16,17 300:3,6 310:5,10, 11,12,15 311:20, 23 313:6,16 316:6 317:11 318:1,9,	522:19 525:13,18 548:19 549:10 550:2,3,12,20 552:21 559:8,12 565:4 571:13 583:2 staff's 279:17,18, 22 284:3 295:4 301:18 309:7 310:23 319:18 321:14 334:7,12, 13,23 336:7	start 279:6 289:21 292:3,6 301:10 326:9 328:7 358:21 384:25 398:21 421:21 439:4 456:11 468:7,12 480:3 490:1 544:22 580:18 581:8 started 307:5 394:17	299:14 339:23 340:2,8 439:24 484:11,20 489:17 493:8,10 496:12 531:21,23 532:20 545:1 561:18 stating 517:8 statistic 518:19 statistical 482:13 505:8 518:19
St 274:16 466:25 546:5 572:23 stable 298:8 349:11 staff 273:22,24 280:3 281:5 295:25 299:16,17 300:3,6 310:5,10, 11,12,15 311:20, 23 313:6,16 316:6 317:11 318:1,9, 10,12,14,18,21	522:19 525:13,18 548:19 549:10 550:2,3,12,20 552:21 559:8,12 565:4 571:13 583:2 staff's 279:17,18, 22 284:3 295:4 301:18 309:7 310:23 319:18 321:14 334:7,12, 13,23 336:7 340:23 341:22	start 279:6 289:21 292:3,6 301:10 326:9 328:7 358:21 384:25 398:21 421:21 439:4 456:11 468:7,12 480:3 490:1 544:22 580:18 581:8 started 307:5 394:17 starting 273:16	299:14 339:23 340:2,8 439:24 484:11,20 489:17 493:8,10 496:12 531:21,23 532:20 545:1 561:18 stating 517:8 statistic 518:19 statistical 482:13 505:8 518:19 554:9,13 559:4
St 274:16 466:25 546:5 572:23 stable 298:8 349:11 staff 273:22,24 280:3 281:5 295:25 299:16,17 300:3,6 310:5,10, 11,12,15 311:20, 23 313:6,16 316:6 317:11 318:1,9, 10,12,14,18,21 319:11 320:4	522:19 525:13,18 548:19 549:10 550:2,3,12,20 552:21 559:8,12 565:4 571:13 583:2 staff's 279:17,18, 22 284:3 295:4 301:18 309:7 310:23 319:18 321:14 334:7,12, 13,23 336:7 340:23 341:22 342:11,12 360:8,	start 279:6 289:21 292:3,6 301:10 326:9 328:7 358:21 384:25 398:21 421:21 439:4 456:11 468:7,12 480:3 490:1 544:22 580:18 581:8 started 307:5 394:17 starting 273:16 279:8 289:15	299:14 339:23 340:2,8 439:24 484:11,20 489:17 493:8,10 496:12 531:21,23 532:20 545:1 561:18 stating 517:8 statistic 518:19 statistical 482:13 505:8 518:19 554:9,13 559:4 statistically 481:17 562:8,13
St 274:16 466:25 546:5 572:23 stable 298:8 349:11 staff 273:22,24 280:3 281:5 295:25 299:16,17 300:3,6 310:5,10, 11,12,15 311:20, 23 313:6,16 316:6 317:11 318:1,9, 10,12,14,18,21 319:11 320:4 321:1,7,25 322:17	522:19 525:13,18 548:19 549:10 550:2,3,12,20 552:21 559:8,12 565:4 571:13 583:2 staff's 279:17,18, 22 284:3 295:4 301:18 309:7 310:23 319:18 321:14 334:7,12, 13,23 336:7 340:23 341:22 342:11,12 360:8, 14,15 385:1	start 279:6 289:21 292:3,6 301:10 326:9 328:7 358:21 384:25 398:21 421:21 439:4 456:11 468:7,12 480:3 490:1 544:22 580:18 581:8 started 307:5 394:17 starting 273:16 279:8 289:15 290:16,20 292:2	299:14 339:23 340:2,8 439:24 484:11,20 489:17 493:8,10 496:12 531:21,23 532:20 545:1 561:18 stating 517:8 statistic 518:19 statistical 482:13 505:8 518:19 554:9,13 559:4 statistically
St 274:16 466:25 546:5 572:23 stable 298:8 349:11 staff 273:22,24 280:3 281:5 295:25 299:16,17 300:3,6 310:5,10, 11,12,15 311:20, 23 313:6,16 316:6 317:11 318:1,9, 10,12,14,18,21 319:11 320:4 321:1,7,25 322:17 330:15 334:14,20	522:19 525:13,18 548:19 549:10 550:2,3,12,20 552:21 559:8,12 565:4 571:13 583:2 staff's 279:17,18, 22 284:3 295:4 301:18 309:7 310:23 319:18 321:14 334:7,12, 13,23 336:7 340:23 341:22 342:11,12 360:8, 14,15 385:1 388:16 390:19	start 279:6 289:21 292:3,6 301:10 326:9 328:7 358:21 384:25 398:21 421:21 439:4 456:11 468:7,12 480:3 490:1 544:22 580:18 581:8 started 307:5 394:17 starting 273:16 279:8 289:15 290:16,20 292:2 295:15 384:16	299:14 339:23 340:2,8 439:24 484:11,20 489:17 493:8,10 496:12 531:21,23 532:20 545:1 561:18 stating 517:8 statistic 518:19 statistical 482:13 505:8 518:19 554:9,13 559:4 statistically 481:17 562:8,13
St 274:16 466:25 546:5 572:23 stable 298:8 349:11 staff 273:22,24 280:3 281:5 295:25 299:16,17 300:3,6 310:5,10, 11,12,15 311:20, 23 313:6,16 316:6 317:11 318:1,9, 10,12,14,18,21 319:11 320:4 321:1,7,25 322:17 330:15 334:14,20 335:2,16 337:13	522:19 525:13,18 548:19 549:10 550:2,3,12,20 552:21 559:8,12 565:4 571:13 583:2 staff's 279:17,18, 22 284:3 295:4 301:18 309:7 310:23 319:18 321:14 334:7,12, 13,23 336:7 340:23 341:22 342:11,12 360:8, 14,15 385:1 388:16 390:19 391:3 401:22 403:20,23 406:5	start 279:6 289:21 292:3,6 301:10 326:9 328:7 358:21 384:25 398:21 421:21 439:4 456:11 468:7,12 480:3 490:1 544:22 580:18 581:8 started 307:5 394:17 starting 273:16 279:8 289:15 290:16,20 292:2	299:14 339:23 340:2,8 439:24 484:11,20 489:17 493:8,10 496:12 531:21,23 532:20 545:1 561:18 stating 517:8 statistic 518:19 statistical 482:13 505:8 518:19 554:9,13 559:4 statistically 481:17 562:8,13 statistics 302:13
St 274:16 466:25 546:5 572:23 stable 298:8 349:11 staff 273:22,24 280:3 281:5 295:25 299:16,17 300:3,6 310:5,10, 11,12,15 311:20, 23 313:6,16 316:6 317:11 318:1,9, 10,12,14,18,21 319:11 320:4 321:1,7,25 322:17 330:15 334:14,20 335:2,16 337:13 338:11 340:3,8	522:19 525:13,18 548:19 549:10 550:2,3,12,20 552:21 559:8,12 565:4 571:13 583:2 staff's 279:17,18, 22 284:3 295:4 301:18 309:7 310:23 319:18 321:14 334:7,12, 13,23 336:7 340:23 341:22 342:11,12 360:8, 14,15 385:1 388:16 390:19 391:3 401:22 403:20,23 406:5 407:1 409:10	start 279:6 289:21 292:3,6 301:10 326:9 328:7 358:21 384:25 398:21 421:21 439:4 456:11 468:7,12 480:3 490:1 544:22 580:18 581:8 started 307:5 394:17 starting 273:16 279:8 289:15 290:16,20 292:2 295:15 384:16 408:13 412:21,22	299:14 339:23 340:2,8 439:24 484:11,20 489:17 493:8,10 496:12 531:21,23 532:20 545:1 561:18 stating 517:8 statistic 518:19 statistical 482:13 505:8 518:19 554:9,13 559:4 statistically 481:17 562:8,13 statistics 302:13 statute 402:4 stay 478:25
St 274:16 466:25 546:5 572:23 stable 298:8 349:11 staff 273:22,24 280:3 281:5 295:25 299:16,17 300:3,6 310:5,10, 11,12,15 311:20, 23 313:6,16 316:6 317:11 318:1,9, 10,12,14,18,21 319:11 320:4 321:1,7,25 322:17 330:15 334:14,20 335:2,16 337:13 338:11 340:3,8 355:17 357:13	522:19 525:13,18 548:19 549:10 550:2,3,12,20 552:21 559:8,12 565:4 571:13 583:2 staff's 279:17,18, 22 284:3 295:4 301:18 309:7 310:23 319:18 321:14 334:7,12, 13,23 336:7 340:23 341:22 342:11,12 360:8, 14,15 385:1 388:16 390:19 391:3 401:22 403:20,23 406:5 407:1 409:10 412:18 413:11	start 279:6 289:21 292:3,6 301:10 326:9 328:7 358:21 384:25 398:21 421:21 439:4 456:11 468:7,12 480:3 490:1 544:22 580:18 581:8 started 307:5 394:17 starting 273:16 279:8 289:15 290:16,20 292:2 295:15 384:16 408:13 412:21,22 438:18 444:6	299:14 339:23 340:2,8 439:24 484:11,20 489:17 493:8,10 496:12 531:21,23 532:20 545:1 561:18 stating 517:8 statistic 518:19 statistical 482:13 505:8 518:19 554:9,13 559:4 statistically 481:17 562:8,13 statistics 302:13 statute 402:4 stay 478:25 steam 285:10
St 274:16 466:25 546:5 572:23 stable 298:8 349:11 staff 273:22,24 280:3 281:5 295:25 299:16,17 300:3,6 310:5,10, 11,12,15 311:20, 23 313:6,16 316:6 317:11 318:1,9, 10,12,14,18,21 319:11 320:4 321:1,7,25 322:17 330:15 334:14,20 335:2,16 337:13 338:11 340:3,8 355:17 357:13 360:2 365:22	522:19 525:13,18 548:19 549:10 550:2,3,12,20 552:21 559:8,12 565:4 571:13 583:2 staff's 279:17,18, 22 284:3 295:4 301:18 309:7 310:23 319:18 321:14 334:7,12, 13,23 336:7 340:23 341:22 342:11,12 360:8, 14,15 385:1 388:16 390:19 391:3 401:22 403:20,23 406:5 407:1 409:10 412:18 413:11 416:1 419:9	start 279:6 289:21 292:3,6 301:10 326:9 328:7 358:21 384:25 398:21 421:21 439:4 456:11 468:7,12 480:3 490:1 544:22 580:18 581:8 started 307:5 394:17 starting 273:16 279:8 289:15 290:16,20 292:2 295:15 384:16 408:13 412:21,22 438:18 444:6 484:9 508:14 580:19 581:9	299:14 339:23 340:2,8 439:24 484:11,20 489:17 493:8,10 496:12 531:21,23 532:20 545:1 561:18 stating 517:8 statistic 518:19 statistical 482:13 505:8 518:19 554:9,13 559:4 statistically 481:17 562:8,13 statistics 302:13 statute 402:4 stay 478:25 steam 285:10 step 295:12
St 274:16 466:25 546:5 572:23 stable 298:8 349:11 staff 273:22,24 280:3 281:5 295:25 299:16,17 300:3,6 310:5,10, 11,12,15 311:20, 23 313:6,16 316:6 317:11 318:1,9, 10,12,14,18,21 319:11 320:4 321:1,7,25 322:17 330:15 334:14,20 335:2,16 337:13 338:11 340:3,8 355:17 357:13	522:19 525:13,18 548:19 549:10 550:2,3,12,20 552:21 559:8,12 565:4 571:13 583:2 staff's 279:17,18, 22 284:3 295:4 301:18 309:7 310:23 319:18 321:14 334:7,12, 13,23 336:7 340:23 341:22 342:11,12 360:8, 14,15 385:1 388:16 390:19 391:3 401:22 403:20,23 406:5 407:1 409:10 412:18 413:11	start 279:6 289:21 292:3,6 301:10 326:9 328:7 358:21 384:25 398:21 421:21 439:4 456:11 468:7,12 480:3 490:1 544:22 580:18 581:8 started 307:5 394:17 starting 273:16 279:8 289:15 290:16,20 292:2 295:15 384:16 408:13 412:21,22 438:18 444:6 484:9 508:14	299:14 339:23 340:2,8 439:24 484:11,20 489:17 493:8,10 496:12 531:21,23 532:20 545:1 561:18 stating 517:8 statistic 518:19 statistical 482:13 505:8 518:19 554:9,13 559:4 statistically 481:17 562:8,13 statistics 302:13 statute 402:4 stay 478:25 steam 285:10



Index: spell..step

Transcript of Proceedings			Index: stepssugges	
	365:5 377:10	storms 465:22	studies 292:1	16,23 460:4,23
	383:23 409:16	557:22	321:2,21 326:23	462:1 463:11,23
	412:14 418:3	otroight 224:24	331:5 333:10	464:13,15,17,18,
	443:22 444:7	straight 334:24	334:3,8 337:13	24 465:12,20
	453:19 522:25	352:7,20 362:7	338:6,15 340:1,4	466:5 480:21
	549:21 558:12	544:17	342:6 355:13	486:25 487:1
	578:18	strategic 510:13	411:13 412:17,20	494:3 503:1,6
	otomo 404:40	strategy 309:25	413:8 428:15,23	529:18
	steps 404:12		429:6,7,19 448:6	-1
	493:22 501:14	straying 300:13	463:17 483:24	studying 404:21
	Steve 317:16	street 457:25	486:25 518:21	stuff 326:21
	433:4	506:11,14,18	560:21 566:21	336:13 339:12
	Steven 275:3,17	, ,	atualy 070.40	377:22 398:10
	582:3	strict 402:5	study 279:13	537:5
		strictly 296:15	280:3,25 281:4	subject 424:13
	sticker 558:4	297:7	282:6 284:11,19	484:12 544:3
	stickler 470:6	strike 365:22	285:13 289:13	580:12
		488:25 513:3	290:19,23 291:12	
	stipulated 289:19	551:18	292:3,13 293:15,	subjects 430:24
	stipulation 287:17	551.16	20 294:7,11,20	subledger 533:7,8
	288:7,16 366:4,7	strikes 557:22	295:4 296:7,12,	
	369:14,22 372:15,	stroke's 312:20	16,25 301:12,20	subledgers 533:7
	18,20,21 373:18		308:22 313:13	submit 418:20
	374:1,3,5,6,16,20	strokes 311:8	314:4 315:10	461:8 469:23
	383:4 407:11	strong 345:18	316:5 321:5,14,	submitted 320:12
	425:11 431:1,3,7,	355:2 357:7	15,17,24 325:11,	386:2 421:6
	10 480:15,18	otruole EC1:1	15,17 334:8,12,13	543:24
	stipulations 443:2	struck 561:1	336:25 340:9,14	343.24
	468:10	structure 276:21	349:18 372:16,20	subsequent
		277:2 281:18	373:20 374:12	483:24 512:6
	stone 339:2	412:11 441:8	380:3,7 383:1	substantial
	stop 340:10	448:22	391:4 392:25	304:15 306:10
	353:18 392:2	structures 277:25	393:25 394:1,2,	
	393:3 467:12	341:17 351:9	23,24,25 395:2,	substations 546:3
	478:10 490:17	404:13 412:12	17,20,24 396:11	572:22
	507:17	426:16 441:11	398:14 400:1,3,7, 9,23 401:23	subtract 489:10
		450:4 452:7,10	402:5,17,20	Subway 401:4
	stopped 507:14	468:15	, ,	_
	stopping 377:16		403:18,22 409:11 410:7 411:14	succinctly 486:8
	stops 478:15	struggle 339:4	410.7 411.14	sufficient 311:8
	<u>-</u>	struggled 349:17		569:19
	store 350:19	411:20	416:22,23 417:7,	
	stored 312:15	etrugalina 250:0	23 428:22,24	suggest 296:25
		struggling 350:9 406:3	446:6,11,14,19 447:5,9,17	319:13 321:14
	storm 502:16		1 ' '	337:9 339:20
	504:25 505:4	stuck 275:22	457:11,15,16 458:13 17 10	412:11 418:21
	510:12	406:21	458:13,17,19	438:13 557:12
			459:5,7,9,13,14,	



suggested 453:18 482:2 487:14 356:5 464:19 570:4 488:18 489:18 **symptom** 324:23 494:14 499:8,23 suggesting **system** 279:15 523:25 524:17 421:12 445:3 280:17 282:1,14 526:12,19 527:1, 284:21 292:21 suggestion 2,3 551:3 552:17 360:23 293:5,6,10,18,25 565:6 566:12 294:9,10,25 568:13 579:8,9 suggests 296:7 295:23 296:2 481:5 **survey** 282:5 315:17,23 316:4, suite 277:7 285:20 survival 489:7 21 325:19 375:11 387:8,15 391:21 **summary** 579:12 survives 319:24 393:1,7,19 **summer** 305:24 surviving 575:15 394:11,14 398:17, 307:8 339:14 19 399:15 400:19 survivor 481:15 464:1 401:1,2,6,8 486:21,22 487:11 402:17 416:11 supplemental 493:23 494:3 430:19 447:15,16 493:9 523:24 503:5 505:7,9 450:22 451:6 524:16 564:4 507:5 508:8 454:18 456:9 509:20 545:12 supplied 472:22 457:11,17,23 554:8,12 562:16 supply 504:16 458:3,5 459:14 575:4,6,11 460:11,14 465:23 **support** 341:22 suspect 441:6 470:3 481:9,19,22 354:21 357:5 449:24,25 482:4,19 486:20 358:7 545:21 **sustain** 364:22 492:23 493:4 supporting 572:17 433:13 540:2 509:8 518:16 521:18 522:1,2 **suppose** 488:24 sustaining 493:19 527:25 529:9,11. supposed 412:8 swing 569:11 16,24 530:3,19 432:1 531:1,8 533:8,20, **switch** 310:2 **Supreme** 415:17 23 537:9 538:24 324:4 559:15,17 539:10 545:6,7,21 surcharge 346:23 switches 315:18 546:2,3 547:1 416:13 577:23 surprise 353:22 548:6 549:9,18 553:19 554:19 surprised 354:11 **switching** 322:2,9, 556:7,21 558:14 14,25 323:22 surrebuttal 559:15 572:21 324:1 355:18 287:13,23 288:7 574:21 578:14 sworn 275:13,14, 302:12,17,22 **systems** 450:15 17 328:20,21,24 329:6,8 330:5 465:19 502:8 365:14,15 366:15 333:22 342:3 503:15 509:22 343:13 366:23 385:8,9,14 558:14 560:1 367:12 368:5 498:12,13,24 574:10 385:24 386:18,23 523:8,9,16 550:6, 7,14 388:11 397:6 405:7,12,17

Т

table 397:9,19,22 403:9 404:14 421:6 422:6 424:14,21 425:13, 15,16,17,18 459:18 467:24 544:9

tag 538:6 542:6,11 547:19,21 555:12, 21,22 556:1 559:19,20,23 560:3 577:9,10, 13,15

tagging 554:25 557:7 559:16

tags 542:14 556:9, 13 557:18,24 572:2

takes 340:18 460:14 464:4 488:16 496:18

taking 284:3 347:11 365:11 391:23 403:13 409:20 466:4 471:8 512:4

talk 336:9 395:17 409:24 448:10 476:6 520:14 535:10

talked 281:19 285:18 321:12 339:21 364:16 468:18 479:6

talking 279:10,11 283:13 287:2,11 311:9 313:24 346:5,10 348:22 359:8 363:25 364:17 400:19 404:4 428:19

sympathetic

433:17 435:6,15

436:9 444:2	tended 367:13	testimony 275:23	that'll 462:6
467:12,18 485:15	tender 330:11	288:2,6,7 292:14	519:15 573:15
514:15 540:13	368:16,20 390:22	296:5 297:14	theoretical 297:6
558:12	552:13,14	299:23 300:22	
talks 303:25 304:3	,	301:4 302:12	theoretically
401:5	tendered 500:4	308:16,18,20	539:12
	524:25	312:6 319:15	thereof 468:15
taller 294:4,16	tension 342:5	321:12 325:10	490:14
targeting 326:21	10,000 070,0077,44	329:6,13,16	4hina 201.17
	term 276:6 277:14	333:22 342:4	thing 281:17
tariff 385:20	280:21 315:14	343:13 352:11	331:12,17 332:2
404:21 443:1	397:23 417:12	353:4 365:23	336:19 339:1
tariffs 273:11	484:16 495:15	366:24 367:3	341:13 399:17
344:8 463:25	559:2	369:5 370:2	415:4 416:18
task 505:23	termed 279:17	372:14,25 373:24	418:1 419:16,23
task 505.25	364:18 403:23	385:24,25 386:7,	421:11 428:25
tasked 357:9	417:3	15,16,17,18,22,25	438:10 446:22
tax 533:4,6,9	terminology	387:20 388:1,9,	447:13 453:18
. ,	402:22	10,11 390:4	467:20 469:13,24
technical 291:23	402.22	392:10 396:2	473:1 474:20
technically 319:14	terms 349:10,17	397:6,10 399:10	537:5,7 538:3
320:3	350:4 355:15	400:22 402:13,25	549:23 559:3,6
tookuisian 040:47	356:6,7,12 357:13	403:7 404:8,14	566:17 577:13,14
technician 312:17	360:19 400:15	405:5 406:1,2,17	581:5
technique 551:14,	436:10 444:24	408:10 413:19,20	things 276:7 282:7
15	terrible 429:22	419:11 424:14	284:19 292:22,24
technological	430:2	432:8 433:4	315:18,20 316:8
278:20		435:3,13 446:4	336:6,18,21
	terribly 467:7,8,10	450:7 459:24	337:10 343:23
technology	test 374:8,9	460:3 462:14	346:4 350:13
276:19,20 277:12	389:21 474:21,24	469:20 482:3	351:17 353:11
312:24 348:3		487:15 488:15,18	354:14,16 358:23
482:12 546:6	testified 275:18	489:19 494:14	391:22 393:22
572:24	276:13 328:25	499:8,23 501:23	399:5 405:10
telephones 356:1	366:16 385:15	507:19,20 523:24,	406:7 409:9 413:7
<u>-</u>	430:12 450:9	25 524:16,17,18	416:3,17,20,22,23
telling 309:15	470:22 498:25	525:25 526:3,12,	419:6,21 423:24
363:13 430:6	523:17 550:15	20 531:23 545:19	442:16 463:15
454:13	testify 430:8	546:10 551:1,2,3,	468:11 486:9,11
tells 300:6 304:12	470:20 513:5	8 552:17 557:14	497:5 511:3
466:2	579:17 580:1	561:8 566:12	534:23 535:25
ten 333:14 403:9,	testifying 320:12	568:13 572:19	565:21,25
10 451:16 510:11	499:3,6 520:6	575:18 579:6,14	thinking 277:10
	,	580:14	thinking 277:19 311:14 326:17
ten-year 333:19	testimonies 367:6	texted 327:14	350:22 354:1
tend 297:17	499:13,16 524:1,		
	6,9 552:1	TH-1 459:18	Thomas 334:19



Index: talks..Thomas

335:2	287:8 303:10	355:18,22,25	443:7
	306:7,17 307:21	359:2 360:19	
Thompson	309:13,15,24	361:9 363:20	tomorrow 366:6
274:23,25 332:22	326:10 328:13	364:8 407:1,17	384:13 479:3
371:23 396:22	337:6 338:13	408:25 426:21	480:16 580:15,18,
497:23 500:14	340:4 345:4 349:2	433:25 434:1	22 581:1,10
525:8 553:7	356:4,25 357:1,6	441:15 444:5	tons 461:24
thought 277:5	358:7,14 359:11		
320:5 321:17	367:11 384:6,9,20	timeline 326:8	top 349:5 353:23
329:25 350:19,20		timely 505:20	358:1 422:7
354:20 366:10	388:24 390:12		437:13 460:4
367:17 368:18	398:1 404:5,22	times 304:11,12	544:23
390:15 394:1	406:15 408:23	307:9 308:25	topic 287:14
	413:17 414:3,16	349:21 380:11,20	297:16 514:16
405:20 416:3,5,19	415:15,16 438:2,	381:14,16 421:9	578:23
472:5	8,14,17,22 439:3,	530:7	
thoughtful 298:25	5,7 440:17,18,23	timing 344:2 375:7	topics 278:15
thoughts 326:4	442:2,19,21 443:8	443:23 468:22	tornados 557:22
thoughts 320.4	448:20 450:15	443.23 400.22	
thousands 394:7	452:12,22 456:21	tinker 403:18	total 282:3 295:20,
398:13	461:8,17 462:13	443:8,9	24 296:1 303:4,8
three-month	465:6 467:17	tinkering 408:2	336:4 337:25
358:13	469:2 473:23	_	338:8 375:7
330.13	474:8 475:10,13,	title 366:21 385:21	387:11,18 431:22
three-period	24 477:24 479:25	481:5 499:3	436:12 455:21
440:19 443:4	480:24 481:1	515:16 523:20	456:4 460:8
threw 429:6 451:1	496:1 506:9,23	574:23	474:3,13 534:3
	508:5,23 510:2	titled 318:9	totality 285:25
throughput	520:11 525:17		343:3
295:24 296:1	536:23 537:15,17	today 273:3,15	
throw 345:22	549:20 552:12	287:6 302:25	totally 370:1
355:9 356:10	554:5,6 560:22	303:1 329:14,17	TOU 322:3,6,8,20,
361:16 363:9	563:8 565:5	331:2 339:5 346:1	25 406:10,22
	569:1,7,14 573:10	355:6 367:7,20	415:15,19,20
thrown 428:19	576:8	372:11 388:6	429:8 437:7,8
tie 554:19,21		430:19 443:1,6	444:14,19,21
555:2,14,15	time- 276:14	450:2 452:7	456:21,23
558:13	359:23 364:18	458:23 466:6	450.21,25
	time-based	478:12 483:15	towers 395:10
tied 319:4 494:18	404:23 451:2	484:3 493:2	432:10
495:1 512:2		499:16 524:9	track 322:8 362:16
566:15,16	time-of- 332:4	540:14 555:6	368:23 476:9
ties 456:14	359:3 433:22	556:7 567:20	483:17 484:5
	time-of-use	575:19	
till 328:1	276:10 282:17		495:9 502:10
Tim 274:12	297:11 299:12	today's 274:20	504:16 506:15
	308:23 324:4	277:12,23 450:15	519:12 535:25
time 273:4 278:5	340:7 347:19	told 274:15 405:10	536:9 537:5
282:17,22 284:11	350:10 354:18	411:24,25 412:2	538:17 559:24
	330.10 334.10	,_0	



Index: Thompson..track

561:5 566:9 tracked 323:19,20 362:24 535:21,22 565:24 tracker 322:2,5,7, 9,14,23 323:1,10, 22 324:1 361:9 trackers 323:3,25 346:25 tracking 362:15 483:20 495:5,6 533:17 535:11 536:16 549:10 561:5,7 566:9 tracks 488:19 tradition 468:23 traditional 428:3,4 train 537:12 training 442:17 443:24 transaction 537:20 transactions 533:9 transcript 335:13, 19 338:4 424:1 433:10.11 transfer 394:14 465:11 466:10,11 467:4 transformer 282:25 343:25 transformers 293:14 294:3.17 416:12 567:22 568:6 577:23 transition 309:8 437:24 438:5 440:7,21,22 453:16

translate 530:3.18 **Transmission** 414:2,3 transmit 560:4 transparent 331:14 traveled 444:2 treat 284:12 301:21 treated 285:11,13 286:16 448:6 treating 568:2 treatise 295:22 treatment 286:13 391:10 416:8 **treats** 284:6 567:22 tremendous 503:9 trend 399:19 413:9 436:3 triangle 393:4 trickle 274:9 triggered 491:21 **triplex** 458:21 **trouble** 287:6 true 382:2 388:1 449:3 454:12 457:6 462:11 470:17 472:14 513:13 548:7 552:9 **True-up** 487:15 488:18 489:18 523:25 524:1,17 527:2 551:3 truth 297:19 **turbine** 286:12 turn 397:5 451:25

493:24 520:13 543:14 575:12 turned 367:17 turnover 441:4 **two-part** 446:18 two-penny 439:5 two-period 440:19 two-thirds 302:7 355:14 359:3 twofold 362:25 type 281:20 285:4 325:21 422:8 486:22 510:6 520:8 546:17 556:14 557:13 **typed** 303:9 **types** 276:15 277:25 280:23 315:20 410:1 481:12 577:24 578:3,7,10 typically 393:12 422:11.13 typo 469:22 U **UG** 574:24 **Uh-huh** 337:15 417:8,15 Ultimate 298:3

306:1 308:6 360:9.21 363:6 433:7,8 434:2 435:8 444:13,22 ultimately 347:14, 25 350:8 355:24 363:4 386:25 unacceptably 301:12

unavoidable 434:5 unclear 409:7 431:20 underground 395:11,12 422:14, 17,20,22 423:2,14 535:12 546:4,5 572:22,23 574:23 undergrounding 465:24 underlining 348:2 underlying 324:23 325:5 372:20 373:3 382:20 446:21 447:3,10 453:4 466:5 472:16 undermine 344:17 undermining 347:25 understand 279:18 282:11,12, 13 297:9 304:11 314:24 338:12 355:25 357:12 360:15 376:22,23 392:17,18 409:16

412:24 428:11 462:18 464:9 480:19 490:8 507:12 514:22 521:21 535:20 536:20 537:12

understanding
278:3 279:21
309:11 331:10
360:18 388:20
409:10 453:22
479:11 504:21
577:21

understanding's 306:15



	Transcript of Proceedings		Index: understandsvintage
understands	unusually 307:13	463:17 488:20	variations 298:6
505:10	upcoming 412:8	503:10 519:7 532:23 554:4	variety 294:23
understood 309:5 418:18 508:14	updated 389:21 446:14 479:17,18	utility's 490:4	315:20 vast 356:14
562:1	updating 446:11	utilization 415:20	vehicle 442:7
unduly 449:21	upgrades 546:4	417:5,6	venue 358:25
unexpected 406:25 408:6,15	572:22	utilized 339:24 565:15	verbatim 421:8
unfair 491:13	urge 326:1	utilizing 502:25	verify 318:17,19
uniform 355:7	usage 277:1 283:2 293:1 298:19	503:16 530:17	564:18
481:9,22 482:4,19	305:24 308:12,24,	579:21	version 440:4
527:25 547:1 553:18	25 309:4 323:12,	v	446:14 566:12
	13 363:21 364:9		versions 329:22 356:1
unintended 353:14	407:19 434:5 439:3 441:24,25	vague 404:6	
Union 273:10	443:14,17 451:6	520:25 521:2	versus 283:5 284:16 285:8
	usages 435:23	valid 361:3	298:23 305:17
unique 430:23	user-friendly	validate 310:25	309:19 334:8
unit 286:14 393:5 458:20 481:11	419:12	validly 321:21	351:8 354:3 381:13 558:25
484:25 485:1,2,3,	users 339:10	valuable 446:16	vertically-
4,6 488:20 490:13 517:5,15 527:20	USO 496:21	valuation 474:10	integrated 412:25
545:9 569:15	USOA 526:6 532:4	499:5	vested 340:12
unit's 284:8,25	547:1	values 288:10	view 281:2 286:5
484:14 495:13,19	util 504:8	372:13,15,19 373:3,16,18,19	420:11 422:4,5
United 274:22	utilities 347:8	374:5 431:20,21	450:8 505:18
units 285:11,12,14	362:5 411:21	454:20 460:13	viewed 285:19
393:3 453:15	430:5,21 451:10 452:1 464:20	474:3 481:17	294:25 322:12
481:6 484:22	465:18 482:11,14	496:5 561:15	viewing 330:2
485:25 490:14,16 532:23	490:10 502:9,19	Vandas 325:11,15 394:22,25 395:2,	509:23
	503:16 504:9	17,24 396:10	views 300:4
universal 359:17	563:3,5,15	416:22 446:8	vintage 485:10
universally 362:24	utilities' 357:24	447:17 459:7,13,	486:4,11 487:6,9 492:15 493:5,10,
universe 411:22	utility 276:22	23 460:4,16 464:12,17,24	11 494:14,17,24
unreasonable	277:3 281:18 323:5 346:18	465:12	495:1,2,5,22,23,
399:8 482:21,25	352:2 358:15	variable 350:14	24 496:14 504:24
unreliable 463:11	362:2 398:23	415:5 462:25	505:13,22 506:3, 12,15,16 510:22
unsure 563:8	400:14 409:13	463:2	512:1 517:14,24,
unusual 308:3	412:25 430:23 439:21 452:18,20	variation 473:24	25 518:2 526:8,17 527:13,17 531:25



532:13 533:17,23 545:1,14,15,16, 20,25 546:2 547:6,11 558:11, 24 559:23 565:19, 24 566:2,3,4,5,10, 15 568:16,17,21 569:7 572:20 574:4,12,19 577:13,14 vintages 504:6 violated 491:12,14 violation 487:4 491:10 virtually 413:17 437:13 451:21,23 452:13 virtue 292:20 293:25 394:16 vis-a-vis 361:13 visits 576:20 visually 467:24 **voided** 324:9 volatility 407:1,5,7 408:6,7,16,21 426:15 **volt** 422:19,21,25 423:1 458:12 **voltage** 288:10 294:5 316:5,13, 17,21,22 387:8,15 389:22 393:15 395:23 398:21 399:9 401:3 410:15 447:15 455:18 457:17 465:5 469:21 473:14,17 545:2 **voltages** 393:13 469:23,24 470:1 **volts** 394:3 423:4,

6,7,8 470:4,5 **volume** 535:7,8 **vouch** 472:18 W wait 424:6,9 waiting 505:20 waives 497:17 **walk** 402:13 419:25 **Walmart** 536:23 **wanted** 275:8 276:2 309:7 352:24 376:1 384:5 408:11 436:22 471:11 476:12 478:14 498:21 wanting 410:6 438:17 579:14 waste 461:8,17 573:9 ways 430:22 538:16,20 wearing 519:13 **weather** 307:10 308:3 473:2 **web** 305:18 306:5 Webex 273:7 274:16 332:25 425:21 580:22 **website** 304:14 305:12 306:10 440:15 Wednesday 479:19 week 310:20 359:15 390:11

14,17 341:20 454:8,15 276:14 443:25 490:18

weekday 307:11, weekend 300:8 307:12,13 weekends 441:21 weeks 309:16 weigh 326:1 weighted 299:24, 25 300:15 411:2 weighted-hour 299:16,20 weighted-hours 300:1,12,17 well-known well-taken 488:5 whatnot 529:5 wheels 442:17 whichever 397:23 White 340:22 whole-life 551:14 **whoops** 303:9 **why's** 349:18 wide 326:24 **widget** 486:9 widget's 486:11 wife 348:23 349:4 wiggle 557:5 Williams 274:3 311:17,25 312:3 313:4 328:18 329:1,19,23,25 330:11 365:3 wire 526:14 529:4, 372:5 377:18,24

378:1,10,13,21 382:17 390:25 391:2 394:19,20, 21 396:12 447:25 448:1,3 453:7 456:15 463:7,13 469:13 471:3 477:16,20,23 478:1 480:1 497:17 500:21 525:12 535:16,17, 19 536:8 538:15 539:20 540:4,22, 23 541:1,12 549:8,16 552:25 564:11,13,17,21 578:20,22 579:15, 18 582:4,10,11, 14,20 583:3,5 Wills 275:3,4,13, 17 287:23,25 291:15 300:25 301:4 311:13 312:4 313:10 315:16 316:1 317:1 319:1,3,9, 10 320:5,25 327:15,18,20,21 349:16 400:18,22 431:4 441:13 467:6,9 582:3 Wills' 386:23 433:4 wind 284:6 window 409:4 wing 496:11 wings 520:18 winter 439:6 440:24 444:19,21 464:2 wipes 460:14,19, 20



441:23

	Transcript of	Proceedings	Index: wiresyesterday
16 531:16	workable 333:11	568:16	510:10,11 532:24
wires 293:10,13,	worked 276:12,14	wrote 454:7	565:15
23 375:12 393:8,	worker 576:24		yelled 418:22
20,22 556:12,15	577:3	Υ	yellow 313:15
557:7	working 289:16,		314:11 318:20
withdraw 370:12	18,22 290:2,6,10	year 276:15	yes/no 344:21
witnesses 274:20	326:6,7,13 338:17	303:12,17 307:3	
286:24 311:22	340:5 355:16	308:2 329:8,9	yesterday 275:2 278:24 287:12
328:13 330:14	358:18 372:10	337:20 359:23	289:12 311:14
383:20 385:1	404:9 460:25	389:21 404:2 438:22 439:18	321:1 322:1,18
403:25 411:4	461:1,10	440:6,7 444:9,15	324:11 338:23
454:10 475:24	works 419:20	445:9,16 450:4	365:10 579:3
482:24 491:3	471:5 518:24	456:6,10 466:13,	000.10 07 0.0
549:25 555:4	541:8	15 474:21,24	
566:25		475:3 484:14	
wondering 405:14	workshop 278:14	485:10 486:4,11	
407:3	330:24 331:1,4,5, 7,23 410:17	487:6,9 492:15	
word 277:15	411:11,12,18	493:5,10,11	
352:13 418:17	412:4 419:3,7,20	494:15,17,25	
446:22 494:20,21	421:16 423:20	495:1,2,5,13,19,	
·	460:25 468:18	24 517:13,14	
words 401:20	469:3	518:2,3 526:9,17	
408:16 480:25		527:14,17 532:2	
515:25 534:25	workshops 355:22	545:14,15 558:11	
554:5	333.22	559:23 565:19,24	
work 299:12	world 297:6 339:5	566:2,3,5,10,16,	
304:16 313:11,12,	worried 434:25	17 568:16,17,21	
14,20 314:12,16		569:2,7 577:14	
317:1,10,25	worse 493:18	year's 306:2	
318:4,9 351:24	worth 305:23	389:21	
389:11 395:2,4,	306:3 490:19	year-round 444:22	
19,25 397:16 420:8 446:21	wrap 391:17	463:20	
447:12 453:23	•	Woors 207:15	
460:6 461:2,6,14	wrapping 496:9	years 297:15 306:25 307:7	
469:2 506:24	write 548:10	333:14 339:18	
509:15 510:3	written 409:7	340:20 346:20	
514:7 517:19	461:12	351:13 362:6	
518:15 519:7	wrong 303:9 392:3	363:18 403:20	
521:18,25 522:1	393:4 403:1	404:11 409:19	
545:6 554:19	407:25 410:4	447:11 451:16	
555:13 556:2,7,21	417:23 466:13,15	455:5 495:23	
558:14 562:2	467:7,8,10 497:4,	503:12,14,16	
574:5 576:19	6 513:17 515:17	504:14 505:5	
	531:6 544:21	509:9,11,22	
	30.100.112.		

