

BEFORE THE PUBLIC SERVICE COMMISSION
STATE OF MISSOURI

TRANSCRIPT OF PROCEEDINGS
Evidentiary Hearing
December 4, 2018
Jefferson City, Missouri
Volume 2

In The Matter Of The)
Application Of Union Electric) File No. ET-2018-0132
Company d/b/a Ameren Missouri)
For Approval Of Efficient)
Electrification Program)

NANCY DIPPELL, Presiding
SENIOR REGULATORY LAW JUDGE

RYAN A. SILVEY, Chairman,
WILLIAM P. KENNEY,
COMMISSIONERS

REPORTED BY:
Tracy Taylor, CCR No. 939
TIGER COURT REPORTING, LLC

A P P E A R A N C E S

1 JAMES B. LOWERY

2 Smith Lewis, LLP
3 111 South 9th Street
4 Columbia, Missouri 65201
5 573.443.3141

6 FOR: Ameren Missouri

7 WENDY TATRO

8 1901 Chouteau Avenue
9 St. Louis, Missouri 63101

10 FOR: Ameren Missouri

11 MARK W. COMLEY

12 601 Monroe Street, Suite 301
13 Jefferson City, Missouri 65102
14 573.634.2266

15 FOR: ChargePoint, Inc.

16 DIANA CARTER

17 Brydon, Swearingen & England, PC
18 PO Box 456
19 Jefferson City, Missouri 65102-0456
20 573.635.7166

21 FOR: The Empire District Electric Company

22 MICHAEL B. LANAHAN

23 Department of Economic Development
24 301 West High Street
25 Jefferson City, Missouri 65102
573.522.3304

FOR: Missouri Division of Energy

HENRY B. ROBERSTON

Great River Environmental Law Center
319 N. 4th Street, Suite 800
St. Louis, Missouri 63102
314.231.4181

FOR: Natural Resources Defense Council, Sierra Club

TIMOTHY OPITZ

Renew Missouri
409 Vandiver Drive, Building 5, Suite 25
Columbia, Missouri 65202
573.825.1796

FOR: Renew Missouri Advocates

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

JOHN CLIZER
PO Box 2230
Jefferson City, Missouri 65102
573.751.3524
FOR: Office of the Public Counsel

NICOLE MERS
200 Madison Street, Suite 800
PO Box 360
Jefferson City, Missouri 65102-0360
573.751.4140
FOR: Staff of the Missouri Public Service Commission

1 (Exhibits 1, 2, 3-C, 3-P, 4, 5, 6, 7,
2 100, 101, 102, 103, 104, 105, 106, 200, 201, 300, 301,
3 400, 650 and 651 were marked for identification by the
4 court reporter.)

5 JUDGE DIPPELL: Okay. Let's go ahead and
6 go on the record. Good morning. This is Case Number
7 ET-2018-0132 In The Matter Of The Application Of Union
8 Electric Company Doing Business As Ameren Missouri For
9 Approval of Efficient Electrification Program.

10 My name is Nancy Dippell. I'm the
11 Regulatory Law Judge assigned to this hearing. And we
12 are going to begin with entries of appearance. And
13 then we discussed, before going on the record, that
14 we're going to try to take up the stipulation for the
15 line extension policy first and then go into the
16 contested issues.

17 So let's begin with entries of appearance
18 by Ameren.

19 MS. TATRO: Wendy Tatro, 1901 Chouteau
20 Avenue, St. Louis, Missouri 63103.

21 MR. LOWERY: James B. Lowery; Smith,
22 Lewis, LLP, 9-- PO Box 918, Columbia, Missouri 65205
23 on behalf of Ameren Missouri.

24 JUDGE DIPPELL: Commission Staff.

25 MS. MERS: Nicole Mers appearing on

1 behal f of the Commi ssi on Staff. And my i nformation
2 has been provided to the court reporter.

3 JUDGE DIPPELL: Offi ce of Publ ic Counsel .

4 MR. CLIZER: John Clizer on behal f of the
5 Offi ce of Publ ic Counsel . And my i nformation has been
6 provided to the court reporter as well .

7 JUDGE DIPPELL: Renew Mi ssouri .

8 MR. OPITZ: For Renew Mi ssouri , I' m Tim
9 Opi tz. And I' ve also provided my i nformation to the
10 court reporter.

11 JUDGE DIPPELL: Charge Poi nt.

12 MR. COMLEY: Good morni ng, Judge Di ppel l .
13 Appeari ng on behal f of Charge Poi nt, Inc. , I et the
14 record reflect the entry of Mark W. Comley, Newman,
15 Comley and Ruth. Our busi ness address i s 601 Monroe,
16 Sui te 301, Jefferson Ci ty, Mi ssouri .

17 JUDGE DIPPELL: Di vi si on of Energy.

18 MR. LANAHAN: Thank you, Your Honor.
19 Mi chael Lanahan, here on behal f of the Di vi si on of
20 Energy. Address 301 West High Street, 6-- for Sui te
21 680, Jefferson Ci ty, Mi ssouri 65102.

22 JUDGE DIPPELL: Spi re? Is there anyone
23 here for Spi re? And Si erra Club?

24 MR. ROBERTSON: For Si erra Club -- for
25 Si erra Club and the Natural Resources Defense Council ,

1 Henry Robertson, Great Rivers Environmental Law
2 Center, 319 North Fourth Street, Suite, 800, St. Louis
3 63102.

4 JUDGE DIPPELL: Kansas City Power & Light
5 and GMO? They had actually asked to be excused from
6 the hearing today.

7 Empire?

8 MS. CARTER: Diana Carter with Brydon,
9 Swarengen and England for the Empire District
10 Electric Company. My contact information is on the
11 written entry provided to the court reporter.

12 JUDGE DIPPELL: And MIEC had also asked
13 to be excused. All right. Did I miss anyone?

14 Okay. Seeing none, we talked also before
15 we went on the record about a couple of scheduling
16 issues. So we were going to move up -- well, let me
17 say first, we are going to follow the order of
18 witnesses and opening statements and cross-examination
19 that you all filed in your -- on your issues list and
20 so forth, but -- with the exception of I believe
21 Ms. Kelley for Division of Energy needs to go today
22 and Mr. Owen for -- needs to go on Wednesday and
23 Mr. Ellis probably Thursday morning.

24 So if other scheduling issues come up as
25 we go, please let me know. If you decide you don't

1 have cross-examination for those witnesses, please let
2 me know when you know as a group. And we had
3 premarked exhibits and the court reporter I believe
4 has all the pre-filed and premarked exhibits.

5 So we are going to begin then with -- oh,
6 I had one other preliminary matter. We had a motion
7 to file an amicus brief by the Petroleum Marketers and
8 Convenience Store Association; was filed on November
9 30th. They asked for a quick ruling on that. Do we
10 anticipate that there would be any opposition to that
11 amicus brief being filed?

12 MR. LOWERY: Your Honor, we've been
13 focused on preparing for the hearing, to be perfectly
14 honest with you. The ten days in order to, you know,
15 respond to the motion doesn't run until Monday. I
16 know they asked for an expedited ruling, but the
17 transcript's not available until Dovem-- December 12th
18 and the briefs aren't due til January 7th.

19 So what I'd ask the Commission to do is
20 allow us to figure out what our position is or isn't
21 and we'll either file something on Monday -- we'll
22 file something Monday either not opposing or if we
23 have opposition, we'll make that clear. And then the
24 Commission can rule on the next agenda if it's not
25 going to be ruled on by delegation. That's what I

1 request.

2 JUDGE DIPPELL: All right. Well, I will
3 certainly give you time to respond to the motion.
4 That was just -- I wanted to bring that up.

5 Were there any other pending motions or
6 preliminary matters before we begin with the
7 stipulation hearing -- or presentation of the
8 stipulation?

9 Okay. I don't see any. Then if we could
10 just -- I'll start by asking Ameren if you could give
11 us a summary of the stipulation and then we'll just go
12 through the parties and ask if you have any other
13 statements or information you want to present on that.
14 Ms. Tatro.

15 MS. TATRO: Certainly. Thank you, Your
16 Honor. Ameren Missouri's current line extension
17 tariff -- and we're talking about non-residential
18 customers here -- says that line extension costs not
19 covered by revenues during the first year are paid by
20 the customer as a contribution in aid of construction.
21 So either up front, sometimes over a 12-month period.

22 The stipulation implements a different
23 process. It moves to a marginal cost method. So when
24 a non-residential customer requests a line extension,
25 Ameren Missouri will compare the extension cost,

1 that's the estimated installed cost, to the extension
2 allowance, which is marginal revenue divided by the
3 cost-of-service factor, over a five-year view. The
4 customer pays for any extension costs that are above
5 the extension allowance.

6 Now, we think this approach is superior
7 in that it recognizes customers may contribute
8 additional revenue, which can be used to pay for the
9 line extension. And requiring customers to pay
10 amounts above the extension allowance prevents other
11 customers from subsidizing and prevents upward rate
12 pressure. Customers who are not required to pay a
13 line extension cost under this methodology or who pay
14 the required extension costs will exert a downward or
15 neutral impact on customer rates.

16 Now, the second stipulation contains
17 exemplar tariffs, and that is the only difference
18 between the first stipulation and the second
19 stipulation. And all signatories agree it should be
20 filed by Ameren Missouri and approved by the
21 Commission.

22 The stipulation modifies Ameren
23 Missouri's original proposal in three ways. First, it
24 clarifies that we'll use a five-- five years of
25 revenue in calculating the extension allowance.

1 Second, it imposes several reporting
2 obligations on Ameren Missouri designed to provide
3 Staff and other parties with information on how well
4 the tariff functions in terms of estimating the
5 break-even point and whether or not any tweaks should
6 be made to the tariff going forward.

7 And then finally, Ameren Missouri agrees
8 to withdraw its non-residential existing
9 infrastructure incentive option from the request.

10 So we -- we think this stipulation
11 represents an improvement in our line extension tariff
12 and we will ask the Commission to order the exemplar
13 tariffs to be filed for approval.

14 JUDGE DIPPELL: Thank you. Mr. Chairman,
15 did you have any questions about that?

16 I just had one. And was there a timing
17 issue on those -- the filing of those tariffs and --

18 MS. TATRO: For once, there is not. When
19 we file it, I think we will be asking for a February
20 1st effective date of the tariffs. And that is so
21 that Ameren Missouri can do some training, make sure
22 everyone in the divisions understands how to calculate
23 it and we can make sure it's done uniformly across the
24 company.

25 JUDGE DIPPELL: Okay. Is there anything

1 further about the stipulation from Renew Missouri?

2 MR. OPITZ: No, thank you, Judge.

3 JUDGE DIPPELL: From ChargePoint?

4 MR. COMLEY: Nothing, thank you.

5 JUDGE DIPPELL: Sierra Club or NRDC?

6 MR. ROBERTSON: No, Judge.

7 JUDGE DIPPELL: Empire?

8 MS. CARTER: No, thank you.

9 JUDGE DIPPELL: Division of Energy?

10 MR. LANAHAN: No, thank you, Your Honor.

11 JUDGE DIPPELL: And Office of Public

12 Counsel?

13 MR. CLIZER: No, thank you.

14 JUDGE DIPPELL: Staff?

15 MS. MERS: Staff would just echo Ameren's
16 comments on it. The GMO model, which this is based
17 on, has been something that Staff has encouraged all
18 of the utilities to move towards, and that has
19 happened. And so I think that the important goal of
20 consistency among the utilities is also being met with
21 the stipulation and that it is going to be better able
22 to ensure that customers are benefiting from the line
23 extensions that are being approved and the marginal
24 cost test will ensure that, so.

25 JUDGE DIPPELL: All right. Thank you.

1 Mr. Chairman, did you have any questions for Staff?

2 CHAIRMAN SILVEY: No.

3 JUDGE DIPPELL: Okay. I do have some
4 questions from Commissioner Hall, who is unfortunately
5 not able to be here today because of the MISO board
6 meetings. So let's see.

7 Okay. So with first -- with regard to
8 the line extension for Ameren, how -- Commissioner
9 wants to know how does this work with the EV charging
10 stations? How does the line extension policy
11 coordinate with those?

12 MS. TATRO: Well, the -- the tar-- so if
13 a charger company wanted to, you know, ask for
14 service -- and I guess presuming for a moment that
15 its -- needs a line extension owner to provide that
16 service, we would first calculate that amount. But
17 whether -- but then on to-- so that would occur first,
18 but then the EV charging incentives would kick in, pay
19 the line extension costs.

20 I mean, essentially those parties
21 aren't -- so the rate is set by the line extension
22 tariff and then the program is on top of it and pays,
23 depending upon which level we're looking at, whether
24 it's Around Town or the highway or whatever program it
25 is, it pays according to that tariff.

1 JUDGE DIPPELL: And so what's the benefit
2 of the approach for Ameren of that approach?

3 MS. TATRO: For line extension or for --

4 JUDGE DIPPELL: For this line extension.

5 MS. TATRO: The line extension tariff
6 just says what amount the customers pays or what
7 amount -- you know, what the cost of it is above what
8 the revenues -- the marginal revenues that this
9 customer's going to bring in. But then the EV charger
10 tariff's going to sit on top of that and it's going to
11 cover those costs.

12 I mean the real benefit of the line
13 extension tariff, I'm n-- it wasn't designed for the
14 EV chargers necessarily. It was designed broader for
15 all non-residential customers to make sure that we're
16 charging them more fairly. I think it does a better
17 job of capturing the costs and the revenue than our
18 current policy does.

19 JUDGE DIPPELL: Okay. And I'm just going
20 to ask this. You may have already just answered this,
21 but his question is, why not just have the line
22 extension subsidized for EV charging stations instead
23 of the proposed upfront payment incentives of the
24 Charge Ahead program?

25 MS. TATRO: Well, I'm sure we will get

1 into this when we talk about the Charge Ahead
2 programs. We think that merely paying for line
3 extension costs is insufficient to attract enough EV
4 charging stations into the state of Missouri.

5 Now, just -- maybe this wasn't clear from
6 my prior answer, but the incentives can be used to pay
7 for line extension costs in the EV charging case. So
8 those line extension costs can be covered under that
9 program, but just paying that cost and not having the
10 ability to further pay for the cost of part of the
11 charging unit itself is probably not sufficient to
12 incent the chargers that we need in the state of
13 Missouri.

14 JUDGE DIPPELL: Okay. And did Ameren
15 consider owning and operating the charging stations
16 themselves? That's his question.

17 MS. TATRO: We did. I -- back when this
18 case was filed, I believe -- and I'll talk about this
19 in my opening, but part of the reason we came up with
20 this mechanism is we had filed a case a couple years
21 ago in order to own and operate EV charging systems on
22 I-70. The Commission told us that that was not
23 something within their jurisdiction, and that was
24 still in effect when this case was filed.

25 Since that time, the Court of Appeals

1 ruled in a KCP&L case that it can be electric plant.
2 So we had a discussion about whether or not to change
3 our approach, but we also heard in that case two years
4 ago concern about utility competition against private
5 entities who might be having chargers and we decided
6 that our incentive approach was a good approach and we
7 were going to stick with it. I don't know that that
8 means in the future we're prohibited from owning
9 charging stations if that's what we decide to do, but
10 in this case we're asking for incentives.

11 JUDGE DIPPELL: Okay. Thank you very
12 much. Are there any other responses that anyone wants
13 to make to Commissioner's questions? Okay. All
14 right. Thank you very much.

15 Well, then I believe we can go ahead then
16 and go into opening statements for the contested
17 issues in this case. And again, I do want to thank
18 you all for working out at least a stipulation on the
19 line extension policy. I know the Commissioners all
20 appreciate it when the parties can come to a
21 reasonable solution.

22 So we can begin with Ameren whenever
23 you're --

24 MS. TATRO: Where would you like this set
25 up?

1 JUDGE DIPPELL: I guess just right there
2 and I'll put it up on the screen hopefully.

3 MS. TATRO: Okay.

4 JUDGE DIPPELL: Go ahead when you're
5 ready.

6 MS. TATRO: Good morning. And good
7 morning, Chairman Silvey. I don't think I've had the
8 pleasure of being in front of you yet, so nice to meet
9 you.

10 So the question today, how do you we
11 effectively manage load in a beneficial manner? So we
12 all know that MEEIA is part of the answer to that
13 question. Right? We work to reduce peak demand. But
14 there are other ways to manage load in a way that can
15 be beneficial to our customers and to our system.

16 And we're here today because of two
17 innovative and uniquely beneficial programs that we
18 believe do just that. Collectively we call these
19 programs our Charge Ahead program. One of them
20 promotes electric vehicle charging and the other
21 encourages the adoption of certain electrical business
22 equipment. In both cases, these will benefit our
23 customers, the environment and Ameren Missouri.

24 So stepping back a bit and returning to
25 the Commissioner -- Commissioner Hall's question that

1 he asked earlier, the roots of both of these programs,
2 but especially the electric vehicle charger program,
3 are found in File Number ET-2016-0246. And that is
4 where the Company sought to construct and own EV
5 charging stations along the I-70 corridor.

6 Now, we didn't get permission to do that
7 in that case, but Ameren Missouri heard discussion
8 amongst the Commissioners about whether a make-ready
9 tariff, meaning one that subsidize or offsets line
10 extension costs, could provide the same boost to the
11 electric vehicle market as utility ownership.

12 So we took that back. We started
13 thinking about how we can implement that concept in a
14 way that benefits customers. We took this question
15 very seriously and we did our homework to make sure we
16 addressed it in a thoughtful and innovative manner.

17 The Company issued a request for
18 information through which we solicited input from and
19 discussion with companies engaged in the business of
20 electric vehicle charging. Companies that have
21 firsthand knowledge of the barriers to EV adoption and
22 about EV charging infrastructure deployment.

23 We received comments from, we had
24 conversations with five different companies to hear
25 their views on what it would take to deploy a

1 sufficient number of EV charging stations in Missouri
2 in order to break down the significant barriers to EV
3 adoption that exist today. We took that input. We
4 studied utility programs in other states and we got to
5 work ourselves. The outcome of that work is our Charge
6 Ahead EV program.

7 Now, at the same time we recognize that
8 some of the innovations and the benefits relevant to
9 electric vehicles could also be found with other
10 electric equipment. And that opportunity is sometimes
11 known as beneficial electrification or efficient
12 electrification.

13 Again, doing our homework, we engaged a
14 leading consultant, ICF Resources, to study the market
15 and develop a program that we call Charge Ahead
16 Business Solutions. Mr. Pickles of ICF was involved
17 in that work and is here to talk to you about it
18 today.

19 So obviously the case before you is
20 broader than that I-70 corridor case, but the
21 Commission order and discussion in that case was the
22 starting point from which Ameren Missouri developed
23 this approach.

24 Now, both of these programs will provide
25 cost effective new load on Ameren Missouri's system

1 through improved grid utilization. This ultimately
2 reduces the unit cost of such infrastructure. This
3 can have a powerful impact on rates, helping to keep
4 them as low as possible because they produce
5 incremental load and the Company is able to spread its
6 fixed cost across more sales, leading to lower rates.

7 But beyond those benefits, there's an
8 ad-- the added fact that the programs are good for the
9 environment due to materially lower emissions as
10 compared to internal -- internal combustion engines.
11 EVs are good for customers in that they provide
12 increased choice in vehicle types and better local air
13 quality, which will improve even more as solar and
14 wind generation are added to our resource mix.

15 Further, these programs provide a unique
16 benefit that makes them in the public interest. They
17 are the missing piece to the puzzle that will enable
18 transformations that are otherwise gaining momentum in
19 the energy space. Specifically that transformation is
20 the increasing adoption of renewable resources and
21 distributed generation resources.

22 These resources are clean and
23 increasingly affordable, but they are also
24 intermittent. That intermittency can be a challenge
25 for integrating them into the electric grid. And the

1 loads promoted by Charge Ahead are part of the
2 solution to that pro-- to that challenge because most
3 end uses of electricity draw energy from the grid in
4 real time as they provide their service to customers.

5 EVs and many efficient electrification
6 measures in the Business Solutions programs involve
7 battery storage, so they can charge when it's best for
8 the grid and use the energy when the customer needs
9 it. Building this type of flexible load is an
10 important part of the transition of the electric grid
11 to supporting a cleaner, more distributed generation
12 mix.

13 So let's turn to the specific programs in
14 front of you. First, Charge Ahead electric vehicles.
15 Because Ameren -- because Missouri's electric vehicle
16 infrastructure is underdeveloped, our program
17 encourage EV charging stations at workplaces, at
18 public places around town, at multi-family dwelling
19 units, as well as interstate and highway
20 installations. These incentives can be used to pay
21 for line extension costs and also pay additional
22 amounts to cover some or all of the components of the
23 charging stations themselves.

24 Experience in other states and the RFI
25 that we conducted indicate that we simply are not

1 going to be able to change the charta-- I'm sorry,
2 i ncent the charging that we need without this type of
3 fl exi bi l i ty.

4 The goal is to develop a holistic network
5 of EV chargers across our service territory to ensure
6 that Missourians who drive EVs have access to the
7 charging they need and the security to know that they
8 can recharge, so that they can get to and from where
9 they are going. Only then will more potential car
10 buyers be comfortable enough to bypass internal
11 combustion engines in favor of buying an EV.

12 Importantly, the Company's proposal was
13 crafted so that it would be consistent with and
14 supportive of some broader work being done by the
15 Missouri EV Collaborative. This is a group of
16 investor-owned, cooperative, municipal utilities and
17 others which have developed a minimum practical
18 statewide network of highway corridor fast charging
19 stations.

20 And when I say minimum practical
21 statewide network, I mean the minimum number of fast
22 charging stations that need to be located along
23 Missouri's major highways to remove the significant
24 barrier to widespread EV adoption.

25 Now, to be clear, and as others have

1 pointed out, there are some VW trust fund available to
2 support some of these stations, but those funds are
3 far less than what is needed to install the minimum
4 practical network. And this remains true even though
5 Electrify America, which is a subsidiary of Volkswagen
6 charged with implementing a portion of the Volkswagen
7 settlement, they have plans to install six stations in
8 Missouri, leaving 33 more that will need to be
9 installed. And let me illustrate this point for you.

10 So this map is very similar to one that
11 can be found as Schedule PJ-04-10 to the Direct
12 Testimony of Pat Justis. We've used a lighter-colored
13 background and we've enlarged the dots to make it a
14 little bit easier for viewing in the hearing room.

15 So this map represents the Missouri EV
16 Collaborative's plan for a minimum practical network
17 of highway fast charging; a vision that DNR has
18 endorsed and for which a working group has already
19 started. In fact, I think they met last week. The
20 Missouri EV Collaborative, led by one of our
21 witnesses, Pat Justis, is coordinating the efforts of
22 the collaborative.

23 So looking at this map, you can see the
24 proposed fast charger locations and the different
25 colors represent different IOUs or municipalities or

1 co-ops. So to be specific, where you see a red dot,
2 that represents the fast charging locations that need
3 to be built within Ameren Missouri's service
4 territory. The dark blue dots are the charging
5 stations that need to be built within KCP&L, KCP&L/GMO
6 service territory. The green dots are those needed in
7 Empire's testimony. Gray dots are co-ops and the
8 light blue dots -- dots are municipalities.

9 So this plan is developed with the
10 knowledge that Electrify America would be building
11 some fast charging stations in Missouri and there
12 could even be some additional VW trust money made
13 available from DNR. But even with those dollars, we
14 will fall far short of the minimum practical network
15 of 40 stations that are shown on this map.

16 Now, the -- Electrify America has bought
17 some of the -- has installed some of the stations
18 already; so in Mount Vernon, in Lebanon and in
19 Sullivan. I believe all three of these stations have
20 already begun constructed. The three that I believe
21 have not yet been constructed are going to be in
22 St. Charles, Boonville and Kansas City.

23 Now, you'll note one of them was on -- so
24 some of those are constructed, the ones on the bottom
25 line, and some of them have not been constructed. One

1 is Boonville, which is an Ameren Missouri service
2 territory location. So in our program we wouldn't
3 be -- have to build the Boonville one. But all of the
4 other red dots and blue dots and green dots are not
5 going to be constructed with VW money. And if you
6 want that network built, then you need a program like
7 Ameren Missouri's Charge Ahead program.

8 Now, Ameren Missouri is the first
9 electric utility to ask this Commission to support its
10 efforts. Your ruling in this case will significantly
11 impact whether this minimum practical network is ever
12 constructed. Particularly as your decision is likely
13 to send a signal to KCP&L, GMO and Empire about
14 whether they should construct service stations within
15 their service territories as you see on the map.

16 Again, as I said, Ameren Missouri witness
17 Pat Justis is leading this effort and he will be on
18 the stand and happy to answer your questions about the
19 V-- VW settlement, Electrify Missouri and the Missouri
20 EV Collaborative.

21 Now, of course more electric vehicles in
22 Ameren Missouri's service territory will result in
23 more electricity being sold. And that additional load
24 will benefit the entire Ameren Missouri system,
25 especially if it occurs during non-peak hours.

1 So what time of day is that load
2 expected? To answer that question, we should be
3 looking at what happened in other states with more
4 advanced EV charger networks and more electric
5 vehicles. Looking at that, we have compelling
6 empirical evidence that the majority of the EV charger
7 load, at least 80 percent, will be off peak. So why
8 is that? Because most of the charging is expected to
9 happen at home once customers get home from work and
10 after running errands or going out for dinner.

11 So look at the second chart. I would
12 call your attention to the blue line on this chart.
13 It reflects the findings of a residential EV charging
14 study conducted in California by ICF, the firm for
15 which our witness, David Pickles, works. This was a
16 metered study. And the results of the study are
17 similar to three other studies cited by Mr. Wells in
18 his -- Mr. Wells in his Direct Testimony.

19 Ameren Missouri's system typically peaks
20 during hour 17, which is between 4:00 and 5:00 p.m.
21 So from here to here (indicating). As you can see in
22 the chart before you, residential EV charging load
23 begins to increase in the afternoon, but it
24 substantially increases more in the evenings, and EV
25 charging load appears to peak around 8:00 p.m.

1 Consequently, while EV charging may add
2 some load to system peak, the vast majority of the
3 added load has no impact on the system peak, meaning
4 it causes no additional capacity cost. And keep in
5 mind, Mr. Willis has already accounted for this minimal
6 increase in capacity cost. And according to his
7 analysis, the margin added from each EV is still
8 significantly positive.

9 Now, Staff Witness Sarah Lange provides a
10 multitude of charging scenarios in her Rebuttal and
11 Surrebuttal Testimony. But she will tell you herself
12 that she isn't testifying that any of her scenarios
13 are likely to occur. She didn't even predict what is
14 most likely to occur. Her scenarios are what-ifs
15 without a way to judge the likelihood of any of those
16 ifs. And thus, her scenario cannot be used to judge
17 the viability of Ameren Missouri's proposal.

18 Back to the chart for an illustration of
19 this fact. We already know the blue line represents
20 actual EV charging load -- load observed at another
21 utility. So I call your attention to the orange bar.
22 That represents the peak charging load of the average
23 of Ms. Lange's residential scenarios from her
24 Rebuttal.

25 Now, note if I were to show you a chart

1 based on the average of her Surrebuttal residential
2 scenarios, the orange bar would be three times taller.
3 I didn't have a piece of paper big enough for that.

4 She then uses that estimation to impact
5 net margins by looking at the capacity costs
6 associated with that level of peak load. Now, she
7 will admit that her scenarios are not based on
8 empirical data. And Mr. Wills' Surrebuttal
9 demonstrates her scenarios are so far from a plausible
10 expectation when compared to actual customer behavior
11 as to be useless in the evaluation of Ameren
12 Missouri's proposal.

13 Looking at the empirical evidence, which
14 is represented by the blue line, it is clear her
15 extreme results are simply not going to occur and that
16 a high percentage of charging will occur at a time
17 other than peak. Mr. Wills has extensive analysis on
18 this topic in his testimony and will be happy to
19 discuss it and Ms. Lange's analysis with you.

20 The second half of the Charge Ahead
21 program is called Business Solutions. The program is
22 sometimes referred to as efficient electrification or
23 beneficial electrification. It involves incenting
24 businesses to adopt electrically-powered equipment
25 instead of using certain fossil fuel-powered

1 equipment; so forklifts, truck refrigeration units
2 used in loading and unloading trucks, truck stop
3 electrification to power truck cabs overnight while
4 the driver is sleeping, airport ground units,
5 push-backs, tugs.

6 The Direct Testimony of Ameren Missouri
7 Witness David Pickles from ICF explains how this
8 program works. And as I mentioned earlier,
9 Mr. Pickles and his team conducted a potential study
10 in Ameren Missouri's service territory to determine if
11 there were cost effective opportunities for this
12 program.

13 As part of the study, they conducted
14 primary market research. They went out and talked to
15 users and vendors of the equipment to hear firsthand
16 how they make decisions about the equipment that is
17 purchased or what is sold. As it turns out, even with
18 the current level of electric powered equipment that
19 exists today, the potential to grow the usage of
20 electrically-powered equipment is still significant.

21 All of the incentive equipment is cost
22 effective and ultimately benefits the system by adding
23 load primarily in non-peak hours. Just like EVs,
24 these technologies represent a win for all of our
25 customers, our shared environment and for Ameren

1 Missouri .

2 So how will the costs of this program be
3 recovered? Ameren Missouri is asking for the program
4 costs to be tracked and recovered through an
5 amortization of those costs over time, starting in a
6 rate case. The Company is not asking to add a return
7 for this amount or for any financing cost to be
8 included in rates.

9 Instead, we propose to finance this
10 investment using the positive regulatory lag
11 associated with load growth promoted by these programs
12 between rate cases. Of course, during a rate case the
13 revenues will offset other costs and will result in
14 lower rates for all customers.

15 Now, this creates an incentive for Ameren
16 Missouri to operate its program efficiently. We only
17 recover our financing costs if we create the very
18 benefits that will permanently accrue to all customers
19 after a rate case. If the Charge Ahead program fails
20 to incent customers to take actions they otherwise
21 would not, meaning purchase an EV or purch-- or move
22 to electrical business equipment, then the positive
23 regulatory lag does not occur and Ameren Missouri does
24 not recover its financing costs or earn on the
25 regulatory asset.

1 This process effectively returns the
2 positive regulatory lag to customers even before those
3 additional revenues have been included in rates in
4 that it covers Ameren Missouri's cost of capital that
5 would otherwise have to be included in rates charged
6 to customers. And as we said, once revenues are
7 included in rates, the cost of capital has been
8 recovered and the downward rate pressure is placed
9 upon rates. So we've come up with a solution that
10 aligns the interests of the Company with its customers
11 whether or not they participate in Charge Ahead.

12 So what do you, as Commissioners, need to
13 believe in order to approve this program? Parties may
14 throw up what-ifs or bring up unlikely scenarios in an
15 attempt to keep the program from being approved, but a
16 lack of a guarantee of a particular outcome is not a
17 reason to reject the programs.

18 As Ameren Missouri Witness Tom Byrne
19 testifies, there are many reasons to move ahead with
20 the program even if the results cannot be predicted
21 with absolute certainty. And let's be realistic.
22 That's true for almost every decision you ever make.
23 You cannot know how much power a wind facility is
24 going to generate when you grant the CCN. There's
25 always uncertainty. You base your decisions upon

1 reasonable estimates and analysis.

2 And that's what you have before you
3 today. The Charge Ahead programs are based upon
4 conservative assumptions and even with those
5 assumptions, result in benefits to the entire system,
6 which means in actuality that the benefits may far
7 outstrip the levels set forth in our testimony.

8 Additionally, you should take comfort
9 from the fact that other states -- these concepts are
10 not untested. They're modeled after programs in other
11 states and the risks to customers is limited. The
12 Company's starting with a modest program, spending
13 11 million dollars on EV charging and 7 million
14 dollars on efficient electrification. They are
15 limited in time. And don't forget, as I explained
16 earlier, we have tied the recovery of -- of our cost
17 of capital to finance the programs to the success of
18 the programs.

19 It would appear to me, Commissioners and
20 Chairman, that you should want and expect your
21 utilities to innovate and find these types of programs
22 and opportunities for customers. I know that our
23 customers have that expectation.

24 And you should not forget that not taking
25 action also has a very real cost. In his Direct

1 Testimony, Mr. Justis listed just a few of the auto
2 manufacturers that have announced an impressive and
3 growing list of coming EV offerings. But even since
4 that time, the transformation of the automotive sector
5 towards electric transportation has continued to
6 accelerate.

7 Ms. Kelley of the Division of Energy
8 referenced Ford's pledge to invest 4.5 billion dollars
9 over five years on all electric vehicles and General
10 Motors plan for an all electric future.

11 And I'm sure you've heard the news last
12 week that General Motors announced the closure of
13 several of its plants and discontinuation of the
14 majority of their gasoline-powered sedans from their
15 product offerings. They're even canceling the
16 production of Volt, which is a plug-in hybrid EV that
17 has gas back-up because they are moving towards that
18 all electric future.

19 In the not too distant future, EVs are
20 going to represent a larger and larger share of
21 vehicles on the market that Missourians will shop in
22 to buy their cars. This reality creates a very
23 serious bias and need for action. A lack of proactive
24 investment in charging will leave Missourians with
25 either a lack of access to some of the most exciting

1 new vehicle ma-- on the market or an inability to use
2 their cars to the greatest extent possible. EV simply
3 cannot be adopted until the general public believes
4 they can drive them like it can drive internal
5 combustion cars to which they are accustomed.

6 Other states are recognizing this.
7 Mr. Byrne's Surrebuttal Testimony references one
8 quarter of a billion and the three-quarter of a
9 billion dollar investments in EV charging
10 infrastructure that has been recently announced or
11 approved in New York and California respectively.

12 Many of these investments will be made by
13 using incentives to third parties who will own and
14 operate the charging infrastructure, which is exactly
15 what Ameren Missouri's proposing to do in its Charge
16 Ahead EV program.

17 And the list of states goes on. New
18 Jersey announced over 300 million dollars for EV
19 charging infrastructure. In its Report and Order
20 approving AEP Ohio's EV charging investment, which
21 incidentally looks a lot like our program, the Ohio PC
22 said, and I quote, It is essential that drivers of
23 electric vehicles being comfortable that there are
24 accessible places to charge their electric vehicles
25 whether the driver is a resident of Ohio or traveling

1 to or through Ohio.

2 In another place in the order they said,
3 We've encouraged AEP Ohio and other electric
4 distribution utilities to be proactive in their
5 implementation of smart grid technologies and the
6 replacement of aging distribution infrastructure to
7 support such -- such technologies.

8 This Commission must also be proactive in
9 recognizing and preparing for new technologies. Other
10 states are moving forward. The risk of inaction, as
11 Mr. Wills testifies, is high. Without a strong plan,
12 the state of Missouri will miss out on a more
13 developed EV market. We will miss out on the
14 associated and environmental benefits and our
15 customers will miss out on the downward pressure that
16 these programs can provide you.

17 Our programs are well balanced. They are
18 in the public interest and they are reasonably
19 calculated to significantly advance forward thinking
20 energy policy in the state of Missouri. Your Honor,
21 Missouri does not have to pay the price for inaction.
22 You can approve the Ameren Missouri Charge Ahead
23 program. Any questions?

24 JUDGE DIPPELL: Mr. Chairman?

25 I just have a couple for you. Are

1 there -- you mentioned several times what other states
2 are doing. Are there legal issues between what other
3 states are doing and what the Missouri Commission can
4 do?

5 MS. TATRO: There are certainly different
6 laws in different states, so yes, there could be.

7 JUDGE DIPPELL: And what about the
8 legality of -- Public Counsel has a proposal for
9 performance based recovery mechanism.

10 MS. TATRO: So that would be the proposal
11 where we don't recover the costs for five or ten years
12 depending on when rate cases are filed. Is that the
13 program you're referring to?

14 JUDGE DIPPELL: Yes.

15 MS. TATRO: The issue I have with that
16 program is the huge delay in recovery of absolutely
17 prudently expended dollars. I don't -- I think --
18 setting aside legalities for a moment, I don't think
19 that's the type program that incents the utility to
20 pursue something like this if we have to make an
21 investment and get absolutely no return for five years
22 or maybe even longer.

23 Also, I think it risks not having
24 recovery of prudently incurred costs if the utility
25 can't tie exactly what EV cha-- EV charger incented

1 what car, which I don't know if that's how we can
2 do -- right?

3 The pro-- the appropriate way to view
4 this program is that you have to have this network.
5 You have to have a system that allows people to have
6 the comfort to know that they can charge if they
7 travel. But tying exactly what car was purchased and
8 knowing how you do that seems somewhat problematic to
9 me.

10 So I think there are lots of problems
11 with Public Counsel's -- the program that they offer.
12 And I think Mr. Willis responds to that in his
13 Surrebuttal Testimony and I encourage you to have a
14 conversation with him when he's on the stand.

15 JUDGE DIPPELL: But specifically with
16 regard to any legal issues -- I mean a lot of that was
17 policy other than perhaps the non-recovery of --

18 MS. TATRO: I think --

19 JUDGE DIPPELL: -- appropriate policy.

20 MS. TATRO: I think that's -- standing
21 here right now, and I'm -- might think of something
22 more later I suppose, but right now I think that's one
23 of the biggest issues is the opportunity to recover
24 our prudently incurred expenses.

25 JUDGE DIPPELL: Okay. Thank you.

1 MS. TATRO: Anything else?

2 JUDGE DIPPELL: That will be all. Thank
3 you.

4 MS. TATRO: Thank you.

5 JUDGE DIPPELL: Renew Missouri?

6 MR. OPITZ: May it please the Commission.
7 Good morning. I'm Tim Opitz for Renew Missouri.
8 Renew Missouri supports these programs and offerings
9 as another way to further encourage investment in
10 renewable resources. That investment will be
11 continued to be driven by economics, by customer
12 preference and by statutory requirements.

13 It's our view that EVs, or electric
14 vehicles, will continue to play a role in modernizing
15 the grid, battery development and enable efficient use
16 of the additional renewable and distributed renewable
17 resources that we see coming in the future. It's
18 clear to us that regulated utilities have a
19 significant role to play in developing EV charging
20 infrastructure, whether it be through ownership
21 directly, rate design, or incentives as here.

22 In this case, Renew Missouri supports the
23 Company's efforts and asks the Commission to issue an
24 order permitting them to move forward with their
25 Charge Ahead programs. Mr. Owen will be available.

1 He pre-filed testimony in this case. He'll be
2 available Wednesday afternoon. I'm happy to answer
3 any questions.

4 JUDGE DIPPELL: Thank you. Mr. Chairman?
5 I don't believe there are any questions.

6 MR. OPITZ: Thank you, Judge.

7 JUDGE DIPPELL: Thank you.
8 ChargePoint.

9 MR. COMLEY: May it please the
10 Commission, Mr. Chairman. My name is Mark Comley and
11 I represent ChargePoint and it is pleased to be an
12 intervenor in this proceeding.

13 As you will find explained in greater
14 detail in the testimony that ChargePoint will offer in
15 this hearing, ChargePoint is the leading manufacturer
16 of electric vehicle charging equipment and a provider
17 of network maintenance and associated services.

18 Essentially, ChargePoint is engaged in the business of
19 engineering, manufacturing and selling the equipment
20 and network services necessary for EV charging station
21 owners to provide charging services to drivers who
22 visit their properties.

23 In almost all cases, ChargePoint does not
24 own the hardware. The site host, as the owner and
25 operator of the charging station, is free to set the

1 price to electric vehicle owners who use the charging
2 station, or they may offer that service for free.
3 ChargePoint designs, develops and deploys residential
4 and commercial AC Level 2 and DC fast charging
5 stations. It designs, develops and deploys software
6 applications, data analytics and related customer and
7 driver services aimed at creating a robust, scalable,
8 electric vehicle charging ecosystem.

9 Customers who use ChargePoint products
10 and services operate more than 57,000 Level 2 and DC
11 fast charging spots, including more than 1,300
12 publicly available workplaces, commercial and private
13 residential charging spots in Missouri.

14 ChargePoint offers a complete line of
15 Level 2 and DC fast charging products and services,
16 including the CT 4,000 family of Level 2 charging
17 stations for public and workplace charging. It offers
18 ChargePoint Home for single-family residential use.
19 It offers ChargePoint Multi-family for commercial,
20 multi-unit dwellings. It offers ChargePoint Fleet in
21 both 24 kilowatt and 50 kilowatt DC fast charging
22 station for rabbit charging -- rabid -- excuse me,
23 rapid charging needs.

24 For drivers, ChargePoint provides a unified
25 unified mobile and web application for all aspects of

1 public, workplace and home electric vehicle charging.
2 ChargePoint drivers have access to real-time
3 information, payment and support services through the
4 information available on the screen of the charging
5 station in their mobile application via e-mail and
6 text notifications are on the ChargePoint website.

7 ChargePoint also provides services to
8 drivers free of charge, which allow them to easily
9 find and access electric vehicle charging
10 infrastructure provided by station owners -- owners
11 through a mobile application or in-vehicle --
12 in-vehicle navigation and on the ChargePoint website.

13 For site hosts, ChargePoint provides
14 subscriptions to a cloud-based platform. This
15 provides the station site host with everything needed
16 to manage electric vehicle charging operations,
17 including access control, billing and payment
18 processing, driver queuing and advanced load
19 management, and online management tools for charging
20 utilization data collection and analysis.

21 Stations are connected to the ChargePoint
22 cloud over a secure payment card, industry-compliant
23 cellular data network, allowing station owners to
24 manage all their charging operations from a single
25 dashboard.

1 ChargePoint's customers include
2 workplaces; governments; hotels; colleges and
3 universities; hospitals; electric utilities, some in
4 Missouri; and other energy companies; parking garages;
5 airports; multi-family housing units; auto
6 dealerships; and other businesses.

7 ChargePoint is sponsoring the testimony
8 of one witness. Mr. James Ellis, senior director for
9 utility solutions at ChargePoint will be testifying in
10 support of Ameren's application and the accompanying
11 tariff sheets, particularly for Charge Ahead electric
12 vehicles.

13 His testimony on the Charge Ahead
14 electric vehicles program is divided into three
15 sections. First, he summarizes Ameren's proposed
16 rebates that are part of this program. Next, he
17 details ChargePoint's principles for utility
18 investment in electric vehicle charging
19 infrastructure, focusing on the foundation of the
20 con-- competitive market for charging equipment in
21 Missouri. Last, he describes how the proposed Charge
22 Ahead electric vehicles program aligns with
23 ChargePoint's principles for investment.

24 It is Mr. Ellis's conclusion that Charge
25 Ahead as proposed by Ameren will support the

1 competitive market for electric vehicle charging
2 throughout the state, and additionally and very
3 importantly, will mitigate risk to ratepayers in
4 deploying charging infrastructure.

5 In summary, ChargePoint's position is
6 that Ameren's application and accompanying tariffs
7 should be approved.

8 JUDGE DIPPELL: Thank you. Any
9 questions? Thank you, Mr. Comley.

10 Sierra Club?

11 MR. ROBERTSON: Mr. Chairman, Judge, I'm
12 Henry Robertson on behalf NRDC and Sierra Club. We
13 support the Charge Ahead program, especially the
14 electric vehicle part. Third time's the charm. This
15 is the third time that EVs have been before the
16 Commission and this is a carefully designed program
17 that used stakeholder input from the relevant business
18 communities and was obviously informed by what's gone
19 before.

20 Auto manufacturers are making major
21 commitments to electrification, GM most recently. And
22 so we are on the verge of a transformation in the
23 transportation sector and we're not ready for it.
24 With .06 percent of registered vehicles in Missouri
25 being EVs, the necessary and expected competitive

1 market in charging has not happened.

2 Some employers do provide workplace
3 charging as an employee benefit. Some businesses like
4 banks, car dealerships and some retailers provide it
5 as a customer amenity, but these are not intended to
6 be available to the general public. The VW settlement
7 will make 6 million dollars available for highway
8 corridor charging, but this is only a start.

9 And as for multi-family, Staff's
10 unfounded assertion that this will only benefit a
11 single tenant in each building will be a
12 self-fulfilling prophecy if more isn't done.

13 ChargePoint's Witness Ellis said that
14 landlords can offer charging much the same way that
15 they offer coin-operated laundry, but I expect that it
16 will be done much more with smartphone apps than
17 quarters.

18 Home charging will take care of itself.
19 That where's we continue to expect most charging to be
20 done. But more options are necessary to make EVs a
21 realistic option for most drivers.

22 And the potential benefits are great.
23 Electric vehicles completely eliminate the ground
24 level tailpipe pollution that we breathe in every day;
25 the fine particles that lodge deep in the lungs, the

1 smog precursors, nitrous oxide and volatile organic
2 compounds. So there's a tremendous public health
3 benefit.

4 And for that reason, by the way, we
5 support Division of Energy's recommendation that some
6 of these services be made available in low-income
7 communities, even though they may not immediately be
8 able to take advantage of EVs until a market in used
9 EVs develops.

10 Because electric motors are so much more
11 efficient than internal combustion engines, the
12 greenhouse gas emissions are more than a third less
13 and will be lower still as Ameren continues to add
14 renewables to its system, as we are confident it will.

15 In large numbers, EVs act as a
16 distributed energy resource in that they can be
17 networked to provide the kind of flexible loads that
18 will make the grid more reliable in the future. And
19 of course, this program will have the immediate
20 benefit of lowering rates by spreading fixed costs
21 over a large number of kilowatt hours.

22 It's the -- only a pilot, so it will
23 utilize existing system infrastructure more fully
24 rather than requiring new supply side resources at
25 this point.

1 Now, Staff and OPC say there is no need
2 for this project. Need is not legal requirement, but
3 it's certainly something to consider. And in the
4 context of certificates of convenience and necessity,
5 necessity means not that the service is essential, but
6 that the -- that the investment justifies the cost.
7 Would it be better to make the investment than not to
8 make it? And the answer here is it would be better to
9 make it.

10 OPC says there is no need for this
11 because it's load building. That's a non-sequitur.
12 Sometimes a load needs to be built to replace even at
13 the expense of an existing fuel; in this case, oil.
14 You can understand -- we can all understand why
15 electric utilities are interested in a big new market,
16 but electrification stands to be truly beneficial to
17 all of us if it's done with renewable energy.

18 The Charge Ahead program is a small but
19 necessary step down the road to wider EV adoption.
20 Thank you. And can I answer any questions?

21 JUDGE DIPPELL: Any questions,
22 Mr. Chairman? No, thank you.
23 Anything from Empire?

24 MS. CARTER: No, thank you.

25 JUDGE DIPPELL: Division of Energy?

1 MR. LANAHAN: Mr. Chairman, Your Honor,
2 may it please the Commission. I'm Michael Lanahan and
3 I represent the Division of Energy as the acting
4 general counsel for the Missouri Department of
5 Economic Development.

6 According to its mission statement, the
7 Division of Energy assists, educates and encourages
8 Missourians to advance the efficient use of diverse
9 energy resources to drive economic growth, provide for
10 a healthier environment and achieve greater energy
11 security for future generations. This vision of the
12 future is to promote efficiency of use, ensure
13 affordability, diversify and promote security and
14 supply, undertake regulatory improvements and
15 stimulate innovation in emerging technologies and job
16 creation.

17 These goals and the Division's actions
18 are informed by the Comprehensive State Energy Plan,
19 or CSEP. One of the issues before the Commission
20 today is whether or not to approve Ameren's Charge
21 Ahead program and what, if any, conditions to add to
22 such approval.

23 The Division sponsored the Rebuttal and
24 Surrebuttal Testimonies of Ms. Cheryl yn Kelley, who's
25 one of the Division's energy policy analysts.

1 Ms. Kelley's testimony describes how utility support
2 for the deployment of electric vehicle or EV charging
3 stations is important for a number of reasons.

4 These reasons include providing the
5 charging infrastructure necessary for current Ameren
6 customers and those customers who will travel through
7 the state, the benefit to ratepayers from the
8 increased and flexible load brought by EVs, the
9 retention of Missouri's dollars in local economies,
10 and the additional economic development benefits and
11 health benefits enabled by EVs.

12 As stated in Ms. Kelley's testimony, in
13 2017, nearly 1,600 people worked in the EV sector in
14 Missouri -- the EV job sector in Missouri; a
15 31 percent increase over 2016. Businesses with
16 sustainability goals may be more likely to locate in
17 Ameren's territory because of greater support for EVs.
18 And those driving through Missouri should have access
19 to safe and adequate service for their EV charging
20 needs.

21 There's a role for utilities to fill the
22 gaps in charging infrastructure, both through support
23 for EVCS development and market competition and, in
24 addition, through direct utility ownership of EVCSs.

25 DE supports Ameren's Charge Ahead program

1 and it recommends a few conditions on its approval.
2 First, DE recommends allocating at least 10 percent of
3 charging station incentives to low-income and
4 disadvantaged communities. This recommendation would
5 ensure equitable access to electricity transportation
6 resources. As part of this condition, DE also
7 recommends that education outreach should be
8 emphasized in low-income and disadvantaged areas in
9 addition to the general population.

10 Second, it may be appropriate to create a
11 working group to evaluate additional barriers to
12 electrification in low-income areas. Such a working
13 group may evaluate concerns such as first mile/last
14 mile connection challenges -- first mile/last mile
15 meaning gaps on either end of a public transit trip
16 that is not within walking distance.

17 The working group could also assist in
18 identifying additional funding sources to expand
19 transportation electrification efforts in these
20 communities.

21 Thank you, and I'm happy to answer any
22 questions you may have.

23 JUDGE DIPPELL: Mr. Chairman?

24 CHAIRMAN SILVEY: I have a question.

25 Thank you.

1 You talk about conditions that you would
2 like to see added. Can you tell me by what specific
3 statute or rule you believe this authority has the
4 Commission to implement those [sic]?

5 MR. LANAHAN: I would defer to -- no, I
6 cannot offhand.

7 CHAIRMAN SILVEY: Okay. Thank you.

8 JUDGE DIPPELL: All right. Thank you
9 very much.

10 Public Counsel.

11 MR. CLIZER: I've prepared a
12 presentation. No signal. Do I have it on the right
13 one? No, I don't.

14 JUDGE DIPPELL: I have it on my screen.

15 MR. CLIZER: It's because I didn't put it
16 all the way to the right screen.

17 All right. May it please the Commission.
18 Good morning. John Clizer on behalf of the Office of
19 Public Counsel. The case currently before the
20 Commission concerns Ameren's suggested proposal for
21 three separate tariffs. The first, as we've already
22 kind of discussed, is the line extension program. I'm
23 not going to say much on this other than we just ask
24 the Commission to approve the unanimous stipulation
25 that we've already addressed.

1 The other two issues are the electric
2 vehicle program and the Business Solutions program.
3 Now, the OPC has adopted very different
4 recommendations regarding these two programs.
5 Specifically, we would ask the Commission approve the
6 electric vehicle program, but it do so by
7 incorporating the OPC's proposed performance based
8 metric modification. With regard to the Business
9 Solutions program, we're asking the Commission reject
10 this proposal.

11 So to start with, the electric vehicle
12 program. I believe as Ameren already kind of
13 explained in their opening, the idea behind this
14 program is to encourage greater EV adoption. Now, to
15 be clear, the OPC is not necessarily against
16 encouraging additional EV adoption. However, the
17 problem is that Ameren has suggested to do this by
18 subsidizing the development of additional EV charging
19 stations. And this is where the OPC disagrees.

20 This is because all of the empirical
21 evidence and case studies that we've looked at
22 strongly suggest that subsidizing EV charging station
23 construction is not the best way to encourage further
24 EV adoption.

25 However, we also recognize that there's a

1 potential that Ameren should just be allowed to
2 attempt its program provided that it does so in a
3 manner that makes sure that its ratepayers are held
4 harmless in the event that they aren't able to fulfill
5 their goal.

6 In order to -- to that end, the OPC has
7 developed what it terms the performance based metric,
8 which is aimed at ensuring that ratepayers are held
9 harmless. The fundamental idea behind this is very
10 simple. Because Ameren's goal is to induce additional
11 EV adoptions, its ability to recover its program costs
12 is made dependent on the number of additional EV
13 adoptions that they actually induce.

14 Now, I'm going to go over the nuts and
15 bolts of how this works in just a second, but before I
16 do, I want to bring three things to the Commission's
17 attention. First, all of the numbers that were used
18 in developing our program come directly from Ameren
19 itself. We didn't want to get into a fight over
20 whether or not any of their estimates were right or
21 wrong, even though we were sometimes skeptical of
22 them. So we chose to take Ameren at its word
23 regarding all of its estimates.

24 Second, we recognize that this program
25 will increase the risk on Ameren. So to compensate

1 for that, we've actually increased the amount that
2 they will actually be able to recover. And this
3 means -- and I really can't stress this enough --
4 Ameren stands to make more money under our program
5 than under their own proposal.

6 Third, collection under our proposal is
7 dependent on Ameren's decision to file a rate case.
8 This means that Ameren's entirely in the driver's seat
9 when it comes to determining when it collects money.
10 Now, this is an important point because Ameren
11 has highly mischaracterized our proposal in the
12 opening -- in the response to the question posed by I
13 believe Commissioner Hall.

14 To be clear, under both our proposal and
15 Ameren's proposal, a rate case is necessary before
16 collection can begin. That's mostly because you can't
17 introduce new rates without interim rate mechanism --
18 a statutory interim rate mechanism. So you would have
19 to wait for a rate case to begin collection under
20 either proposal.

21 Moreover, our proposal looks at whether
22 or not Ameren has met target numbers and it doesn't
23 really care what date those target numbers are set or
24 reached. That means that if Ameren were to meet its
25 target proposals by the time it filed its first rate

1 case, it could collect the entire amount it spent in
2 that first rate case.

3 Finally, I would also point out that
4 Ameren's proposal is -- intends to amortize their
5 expenses over a seven-year period. Ours amortizes it
6 over a five-year period. So if Ameren were to meet
7 its goal in that first rate case, they would actually
8 be collecting faster under our proposal than under
9 their own proposal.

10 So I'm going to move on to kind of
11 discussing how it works. And the first issue that I
12 want to deal with is how do you determine the number
13 of induced EVs that this -- Ameren's proposal actually
14 will generate. We're going to do that by first
15 determining what the number of EVs in Ameren's
16 territory at the time of the rate case filing is. We
17 can do that by looking at the records of the
18 Department of Revenue who keeps track of EV
19 registrations.

20 From this, we would subtract the number
21 of EVs that are already in the general population
22 prior to the start of the program. Because they're
23 already in the program, they don't need to be counted.
24 Ameren can't induce those.

25 We would also remove the number of EVs

1 that Ameren predicted would be adopted absent their
2 program. Again, Ameren has already claimed that these
3 EVs will be induced regardless of whether or not the
4 program goes into effect, so they wouldn't be able to
5 count those. That would leave us with the last -- the
6 actual number of e-- of electric vehicle adoptions
7 that Ameren's program would induce.

8 Now, Ameren has claimed in its testimony
9 that they -- this number needs to equal 7,500, in
10 essence, for the program to pay for itself. So the
11 underlying objective of our performance based metric
12 is simply to say how many EVs out of that 7,500 target
13 have you successfully induced? And make your recovery
14 dependent on that.

15 So kind of looking at how it's -- the
16 nuts and bolts. To start off with, all prudently
17 incurred spending that Ameren would have would be
18 booked into a deferred account. This is just like
19 their current program. Also like their current
20 program, the spending would be subject to the same
21 11 million dollar cap that they have proposed. We're
22 not changing any part of that.

23 The one difference with our program,
24 however, is that Ameren would actually begin incurring
25 or accruing interest on this money in the deferred

1 account. Now, we've proposed that they incur interest
2 at the rate equal to their short term cost of debt --
3 cost of short-term debt at the time they make their
4 expenditure. We believe this is mainly -- this is
5 appropriate due to the size of the investment being
6 made.

7 Once they have the money in there, how do
8 they get it back out? Well, during any rate case that
9 they file, you would essentially look at the number of
10 induced EVs at the time of filing for that rate case,
11 divide that by 7,500, and then multiply that by the
12 amount in the deferred account and that's what they'd
13 be allowed to collect.

14 Again, all these collections would be
15 amortized over a five-year period and it would just be
16 treated as amor-- amortization expense. Plus, all the
17 money that was left in the deferred account would
18 continue to be eligible for future collection in any
19 fu-- other rate case and would continue earning
20 interest. So they don't lose anything if they don't
21 collect all of it in the first rate case. They can
22 still keep trying in each subsequent rate case.

23 I did mention -- I did forget to mention,
24 I apologize -- our proposal calls for all of this
25 within a ten-year window. They have ten years'

1 opportunity to collect that money. That was, again, a
2 proposal that was actually put forward in Ameren's own
3 testimony, but we support that idea as a good time
4 frame to look at to determine whether or not EV
5 adoptions are actually being induced by the program.

6 But that brings me to my larger point.
7 Under our program, if Ameren manages to induce 7,500
8 EVs at any point within that ten-year window, they
9 would collect all of the money. That includes both
10 the program costs and the carrying costs that they
11 had -- otherwise were going to give up.

12 Plus, we've even included an emergency
13 provision sort of to ensure that if there's money
14 left over in the account after that ten-year period,
15 then Ameren has a chance to collect at any subsequent
16 rate case based on the numbers that are in place in
17 year ten. This is to make sure that Ameren doesn't
18 have to come in in year ten in order to collect. They
19 can collect it any time afterwards. They just use the
20 numbers in year ten.

21 Putting all this together, it means that
22 the only way that Ameren would not be able to collect
23 its full program expenses under our proposal is if
24 they were unable to induce 7,500 EV adoptions over a
25 ten-year period, which we believe is rather generous.

1 And I also want to stop and address
2 something. Ameren has kind of suggested that it has
3 skin in the game with regard to its own proposal and
4 it's done that by pointing to the fact that it will --
5 it's going to rely on the positive regulatory lag to
6 pay for its carrying costs. I believe that's a term
7 they used.

8 I just want to point out that that means
9 that the only thing that they're risking is a
10 percentage recovery of the total program costs. That
11 percentage recovery essentially representing whatever
12 carrying costs they would have had.

13 So if we assume that this is going to be
14 financed with short-term debt, which is a good
15 assumption based on the size, that would be roughly
16 about 2 percent. So they're really only risking about
17 2 percent annually of the 11 million dollars that
18 they're willing to spend.

19 It also means that they only have to
20 achieve about 2 percent of their overall goal in order
21 to be made whole. That's where OPC thinks that its
22 program is superior, because it requires them to
23 actually achieve the full benefit that they've
24 promised customers before they, themselves, get their
25 money back.

1 That kind of wraps up the EV program and
2 I'm going to instead start talking about the Charge
3 Ahead business --

4 JUDGE DIPPELL: Let me interrupt you
5 before you leave that subject.

6 MR. CLIZER: Absolutely.

7 JUDGE DIPPELL: So are the legal issues
8 then with regard to OPC's proposed performance based
9 recovery, is that just a matter of a rate case? Is
10 that the only legal impediment to --

11 MR. CLIZER: I don't see any legal
12 impediment. Can you help me out?

13 JUDGE DIPPELL: Well, I'm asking you.

14 MR. CLIZER: Well, I don't see any legal
15 impediments. As everyone knows, the Company is
16 provided an opportunity to recover its costs and this
17 provides the Company with that opportunity. The
18 Company's never guaranteed to recover all of its
19 costs.

20 JUDGE DIPPELL: Okay.

21 MR. CLIZER: That's it.

22 JUDGE DIPPELL: All right.

23 MR. CLIZER: Were there any other
24 questions regarding the electric vehicle program?

25 JUDGE DIPPELL: Did you have any other

1 questions, Comm-- Chairman?

2 CHAIRMAN SILVEY: Not at this time.

3 JUDGE DIPPELL: Thank you.

4 Go ahead.

5 MR. CLIZER: So the other program that
6 we're here for is the Charge Ahead Business Solutions
7 program. And here the OPC thinks that this should
8 just be rejected.

9 First of all, the OPC has some high-level
10 concerns regarding the interaction between this
11 program and some other policies, including Ameren's
12 MEEIA program, as well as the Commission's prohibition
13 on certain promotional practice rules.

14 But speaking more generally, we believe
15 that this program is simply poorly designed. And to
16 kind of march through why that is, the first part of
17 the program deals with what's called material handling
18 electrification. This mostly involves electrification
19 of things like forklifts with some truck stop
20 electrification and refrigerated trucking thrown in as
21 well.

22 The problem is the data in the market
23 shows that more than half of the participants within
24 Ameren's market already use electric forklifts.
25 That means that most people are buying these things

1 without any incentive in place. So most of the people
2 who buy under Ameren's program are going to be free
3 riders. They already purchase these things without
4 Ameren's incentives.

5 In addition, the administrative costs of
6 this program exceed 40 percent of the total program
7 costs. Essentially for every dollar that Ameren
8 intends to give away as a subsidy under this program,
9 they'd be spending an additional 80 cents just running
10 the program. And we think that's extremely high,
11 especially given the fact that compared to the
12 electric vehicle program, that only has a 9 percent
13 cost of administrative cost compared to the total
14 costs.

15 The other program Ameren suggested, the
16 airport electrification, it's not any better. Ameren
17 has maintained that this is going to affect several
18 different airports, but if you look at the actual
19 program participation projections they've shown, they
20 are very, very small; strongly suggesting they're
21 really only targeting one airport, which would most
22 likely be Lambert International.

23 This is concerning because the
24 administrative costs for the airport electrification
25 exceed 50 percent of the total program costs. Meaning

1 that for every dollar Ameren intends to give away,
2 they're going to spend an additional dollar and four
3 cents just trying to give that money away, which we
4 think is ridiculously high if you're dealing with one
5 airport.

6 Plus, there's a significant agent
7 principle problem in play here because the same party
8 who developed their business case study and who
9 proposed the administrative costs is the party who's
10 going to administer the program, which means they have
11 a perverse incentive to make those administrative
12 costs, well, rather high. And it's for all these
13 reasons that we just think that this is a poorly
14 designed program and the Commission should not approve
15 it.

16 So just to summarize, once again, we are
17 asking the Commission approve the line extension
18 program as agreed to in the stipulation; that they
19 approve the electric vehicle program, but with our
20 charge -- performance based metric modification; and
21 that they disapprove the Business Solutions program,
22 which we consider to be poorly designed.

23 I thank you all for listening. And I
24 strongly encourage you to ask my expert witness,
25 Marke -- Dr. Marke any questions. He is very well

1 versed in all this. He spent a lot of time working on
2 this and he can speak at length to all of these
3 topics. Thank you very much. Are there any
4 questions?

5 JUDGE DIPPELL: Thank you. Mr. Chairman,
6 do you have any questions?

7 CHAIRMAN SILVEY: Not at this time.

8 JUDGE DIPPELL: Commissioner Kenney?

9 COMMISSIONER KENNEY: Thank you. No
10 questions. Can I get a copy of your PowerPoint
11 presentation?

12 MR. CLIZER: I can. It will take me a
13 minute, but I will make sure to get you one.

14 COMMISSIONER KENNEY: That's fine. Just
15 by the end of the day would be great.

16 MR. CLIZER: I will. Thank you very
17 much.

18 COMMISSIONER KENNEY: Thank you.

19 JUDGE DIPPELL: Why don't we go ahead --

20 COMMISSIONER KENNY: I imagine all of
21 us --

22 JUDGE DIPPELL: Oh, go ahead,
23 Commissioner.

24 Why don't we go ahead and mark your
25 presentation as an exhibit for -- not as evidentiary,

1 just as --

2 MR. CLIZER: Whatever works for you.
3 Just let me know what number I should mark it as.

4 JUDGE DIPPELL: Your next number is 20--

5 MR. CLIZER: 3. No, 202.

6 JUDGE DIPPELL: 202. So just as a
7 demonstrative exhibit. And then if you could make
8 copies and bring one for the court reporter and one
9 for each of the Commissioners and myself and any
10 attorneys that --

11 MR. CLIZER: Okay. One for each of the
12 Commissioners, the court reporter and any attorneys.

13 JUDGE DIPPELL: Yes.

14 MR. CLIZER: I'll just assume -- I'll
15 just give a copy to everyone.

16 JUDGE DIPPELL: Thank you.

17 MR. CLIZER: Thank you very much.

18 I believe I put this back on -- too
19 far -- TV. No, I don't. It was AV 1. The perils of
20 technology.

21 JUDGE DIPPELL: Thank you.

22 MR. CLIZER: I think that's right.

23 JUDGE DIPPELL: Staff?

24 MS. MERS: Good morning, Commissioner,
25 good morning, Judge. You'll have to bear with me.

1 May it please the Commission. My name is Nicole Mers
2 and I am appearing on behalf of Staff.

3 And on behalf of Staff, I would like to
4 state that regardless of the representations of the
5 other parties, Staff is not opposed to electric
6 vehicles. Staff is not opposed to innovation. Staff
7 is not opposed to new technology.

8 What Staff does believe is in the absence
9 of reliable assumptions underpinning a robust
10 cost-benefit analysis, that the captive customer base,
11 many of which who are low-income customers that the
12 luxury of an electric vehicle is out of reach, they
13 should be shielded from as much unnecessary risk as
14 possible.

15 In other words, when Staff cannot be
16 assured that non-participants will benefit from
17 programs, that all customers will benefit, Staff takes
18 a skeptical view of those programs, especially
19 programs that are not necessary for the utility to
20 provide safe and adequate service.

21 But does the skepticism mean that there's
22 no path forward, no middle ground to provide
23 infrastructure for potential electric vehicle market
24 but also protect ratepayers? No, it does not. The
25 parties were able to find a path forward in the recent

1 KCPL and GMO rate cases by creating a charging class
2 station which would be responsible for covering the
3 costs to serve the charging station.

4 This followed the fundamental cost
5 causation principle. Those who request an additional
6 service bear the cost of those additional services.
7 This principle was followed in the recent Ameren green
8 tariff case and by the Community Solar Programs of
9 both KCPL and Ameren.

10 Another path forward is the use of a risk
11 sharing mechanism to put utility and shareholder skin
12 in the game to ensure that all parties are motivated
13 to make the program a successful one. OPC proposed a
14 risk sharing mechanism in this case where
15 recovery of funds is linked to the number of electric
16 vehicles in Ameren's service territory.

17 Although not Staff's primary
18 recommendation, if the Commission would approve the
19 application as filed, Staff would recommend adopting
20 this risk sharing mechanism as well but with a cap
21 to -- with a cap to not exceed 100 percent recovery of
22 costs.

23 Ameren rejects this risk sharing
24 approach, stating in testimony that the number of
25 electric vehicles that will be installed in their

1 service territory cannot be known with certainty. And
2 OPC and Staff are in agreement on that. That's the
3 contention that we've made in testimony.

4 Ameren seems more than willing to gamble
5 with the uncertainty of the realization of increased
6 EV adoption and, thus, the uncertainty of benefits for
7 all ratepayers, including non-participants being
8 realized, if the gamble is with ratepayer money. But
9 when asked to put skin in the game, Ameren calls the
10 betting on the adoption rate of EVs an unworkable and
11 un-- and a radical decision.

12 The third path forward is outlined in
13 Staff Witness Robin Kliethermes' testimony. It does
14 not require Ameren to share risk. Staff's suggestion
15 to move forward is simply a collaborative process with
16 stakeholder input to develop a make-ready tariff that
17 properly incentivizes increased EV adoption through
18 public access to EV charging, the minimization of free
19 ridership and the maximization of potential benefits
20 to non-participating ratepayers by increased marginal
21 revenues from both EV charging stations and additional
22 home charging revenues.

23 Beneficial outcomes to this approach
24 would include improvements over the current tariff
25 programs in areas such as port sharing, better and

1 more defined budgets and caps, limiting what is
2 considered make-ready to leave more budget for what is
3 necessary and essential for charging stations which
4 overall allows more ports, and limitation on ports
5 with charging rates above 60 kW due to the potential
6 for increased system cost.

7 Any of these alternatives would be better
8 than the programs Ameren asked you to approve today.
9 Instead, Ameren asked you to approve a set of programs
10 aimed at incentivizing an already incented market, the
11 Charge Ahead Business Solution program, and a set of
12 programs that either have non-ratepayer funded al --
13 alternatives available or have such ill-defined
14 budgets and parameters that Ameren's own witnesses
15 have testimony that concludes that programs will not
16 incent the number of EVs required to cover the costs.

17 The Charge Ahead electric vehicle
18 programs and the four sub-programs are that part. So
19 starting with Business Solutions, this program is ripe
20 with free ridership. The forklift market alone is
21 54 percent electric. This is not a situation in which
22 ratepayer funds are needed to jumpstart a market.
23 This is a market with a clear direction towards
24 electrification.

25 The truck stop electrification and the

1 truck refrigerator unit electrification are programs
2 with a high likelihood of free ridership as well as.
3 Not only do dealers report that 20 percent of truck
4 refrigeration units are electric, but there are new
5 DNR rules that have limitations on idling, which will
6 not only cut down on emissions, but will also
7 incentivize these long haul truckers to switch to that
8 technology that will allow them to run their air
9 conditioning and their heating units without idling.
10 And that's all without the use of customer funds.

11 The VW mitigation trust is also
12 incentivizing a similar electrification program. Not
13 only is the Business Solution program riddled with
14 potential free ridership, the cost effectiveness of
15 the program is questionable.

16 The positive cost-benefit analysis result
17 that hinge on assumptions regarding the number of
18 pieces of electric equipment installed under various
19 incentive types, so the number of electric forklifts,
20 the number of ground support equipment, all have been
21 assumed and -- in coming to the positive results. But
22 the tariff is not designed to produce those results
23 because the tariff doesn't cap the amount of budget
24 spent on any one product type.

25 Another concern of Staff's is the high

1 percent of budget that has been allocated to ICF.
2 It's the employer of Ameren's consultant, Mr. Pickles,
3 for the administrative costs. That's 44 percent of
4 the budget dedicated to program administration, which
5 leaves only 3.8 million dollars for the actual
6 incentives that are purported to provide the benefits
7 to all customers.

8 Because this program is not a good
9 utilization of ratepayer funds due to the high
10 probability of free ridership and the uncertain
11 assumptions behind the cost-benefit analysis and due
12 to the direct competition this tariff would have with
13 the CNG provisions found in Spire Missouri East
14 vehicular fuel rate tariff and Spire Missouri West's
15 large general gas service, large volume gas service
16 and small general gas service tariff sheets, Staff
17 does not believe Ameren has shown good cause to
18 support a waiver of the entirety of the Commission's
19 promotional practice rules.

20 So moving to the four programs under the
21 Charge Ahead electric vehicle program, Electrify
22 America will be building charging stations along
23 Missouri's major highways, which will enable inter--
24 intrastate travel without ratepayer funds.

25 As of December 3rd, 2018, I believe you

1 saw this on the map, Electrify America has installed
2 three DC fast chargers on Interstate 44 and the
3 remaining chargers will be cited between interstate --
4 on Interstate 70 between St. Louis and Kansas City.

5 The VW mitigation trust has also set
6 aside 6 million dollars for a corridor program, and
7 that's without the use of ratepayer funds. Utilizing
8 ratepayer funds to create a corridor is redundant and
9 an inefficient use of those funds. The corridor
10 program should be rejected.

11 However, if the Commission would approve
12 the program, that approval should be conditioned on
13 the charging stations being placed in accordance with
14 the assigned charging stations that you saw on the
15 map, the red dots. That condition aligns Ameren's
16 representations about the corridor program being part
17 of Ameren Missouri's commitment as part of the EW
18 [sic] collaborative, but that condition -- or those
19 placements are present in the proposed tariff today.

20 Turning to multi-family. Staff has
21 repeatedly expressed its concerns regarding this
22 program to Ameren. The largest concern regards the
23 m-- regarding the multi-family program is that
24 subsidies can be available for private assigned
25 parking spaces.

1 Staff al -- has numbers -- numerous
2 concerns about these assumptions regarding charging,
3 capacity costs, benefits, budgets, marginal revenues
4 among other things for all of the programs. But
5 regardless of Staff's numerous concerns, taking
6 Ameren's own provided figures at face value,
7 highlights the programs would not provide benefits to
8 non-participants.

9 Mr. Wills' revised construction allowance
10 is 1,200. For a budget of 4.4 million dollars, 3,600
11 EVs would need to result from this program to be cost
12 effective.

13 Mr. Justis testified that the program
14 would enable about 800 ports. A private assigned
15 parking space with a charging point -- port will only
16 be useable by one tenant and, therefore, only spur
17 adoption of one electric vehicle. That means that
18 this program is more likely to spur 800 new EVs, a far
19 cry from the 3,600 needed to make the program cost
20 effective. In fact, to provide benefits to
21 non-participants, four to five electric vehicles per
22 port must be enabled.

23 That's the Staff's same concern with the
24 workplace charging program. Staff, in its Rebuttal,
25 noted that workplace charging programs needed a

1 reasonable utilization rate of at least two vehicles
2 charging at each port per day or the revenue from the
3 charging station would be overstated.

4 Again, even under Ameren's assumptions,
5 the construction allowance of 1,200, the budget of
6 1.1 million needs to produce 946 EVs to be cost
7 effective. Mr. Justis testified that this program
8 wou-- would enable 136 ports.

9 Ameren Witness Steve Willis stated if
10 drivers are going to be required to move their cars
11 around at lunch to share a charger, they probably will
12 either not buy the car or will simply fail to take the
13 action that would otherwise ensure Ms. Lange's idea of
14 reasonable utilization of the workplace charging is
15 met.

16 So that means, by his own statement, that
17 each workplace charging point -- port would only
18 enable one EV, for a total of 136 EVs, about 800 too
19 short to provide benefits to all customers. In fact,
20 each workplace port would have to enable six to seven
21 EVs per port to provide benefits to all customers.

22 This analysis does not take into account
23 that Ameren's tariff allows for level 2 chargers of up
24 to 20 kW, which increases cost, yet their workplace
25 cost benefit analysis was based on 6.6 kW charging.

1 Accounting for that difference requires 1,000 EVs to
2 be produced to make the program cost effective.

3 Further, the proposed tariff allows for
4 HVDC charging of a minimum of 500 kW with no limit on
5 the upper range with -- which has significant system
6 demands and dubious value if the workplace charging
7 practices are as testified by Mr. Wills.

8 Finally, turning to public charging, this
9 program is conceptually closest to what Staff is
10 recommending as a positive outcome from the
11 collaborative process. However, it's only 1.1 million
12 dollars of the total budget and also lacks robust
13 tariff that encourages port sharing or even identifies
14 locations, numbers of ports or administrative costs
15 for Staff to truly evaluate the cost effectiveness of
16 the program and if it appropriately improves public
17 accessibility of EV charging, minimizes free
18 ridership, and maximizes potential benefits to other
19 ratepayers through additional marginal revenues.

20 Also, under Ameren's tariff design this
21 program can ultimately be unfunded altogether as the
22 total 11 million dollar budget can be realigned at
23 Ameren Missouri's sole discretion.

24 On the topic of cost recovery, Ameren
25 Missouri has not demonstrated how these expenses are

1 extraordinary, unique, nonrecurring or unusual to pass
2 the Commission's threshold for an AAO.

3 Even assuming for a moment that Ameren
4 had adequately supported its request for a deferral,
5 instead of simply just requesting one, the expense in
6 question is approximately 18 million dollars in total.
7 This amount does not approach the 5 percent impact on
8 net annual income materiality standard, which is the
9 second prong to be met to receive an AAO.

10 Even if Ameren was just requesting a
11 tracker -- tracking mechanism instead of an AAO, these
12 costs are not new costs imposed by a new law or rule,
13 they're not new costs which are difficult to predict
14 and they're not costs that are unusually volatile. At
15 least one of those standards should be present to
16 justify using extraordinary single-issue rate-making
17 mechanisms like trackers.

18 However, if the Commission did approve a
19 deferral in this case, all Ameren's requests for
20 rate-making determination should be denied. The
21 courts have clearly stated that AAOs are not a
22 guarantee of recovery. They're not rate-making.
23 They're not a return -- a guarantee of return of all
24 or even any of the amount deferred.

25 The Commission has followed this guidance

1 set forth in Missouri Gas Energy versus the Public
2 Service Commission, which is a Western District case
3 from 1998, and State Ex Rel Office of Public Counsel
4 versus Public Commission Service -- Public Service
5 Commission of Missouri, which is a 1993 Western
6 District case.

7 An AAO simply allows a utility to defer
8 costs and later, as part of that rate case, to collect
9 those costs that examines all relevant factors, they
10 can argue that that deferred cost can be considered by
11 the Commission in rates. That rate case is the
12 appropriate time to determine amortization links, the
13 amount and other rate-making determinations.

14 So to conclude, the Commission should
15 reject the Charge Ahead Business Solution program in
16 its entirety and reject the Charge Ahead Electric
17 Vehicle program and order parties to collaborate on an
18 appropriate make-ready incentive model tariff cons--
19 consistent with Staff's recommendations in its report.

20 And that goes back to a question that
21 Commissioner Hall posed to Ameren and that is what
22 Staff believes is the appropriate way to incentivize
23 electric -- electric vehicle chargers through a
24 make-ready line extension tariff model.

25 The AAO should be denied. And with the

1 AAO denied, the question of rate-making treatment
2 becomes moot. Thank you. And Staff Witnesses Sarah
3 Lange, Robin Kliethermes, Mark Oligschlaeger and Byron
4 Murray will be available to answer any of your
5 questions.

6 JUDGE DIPPELL: Thank you. Mr. Chairman,
7 did you have questions?

8 CHAIRMAN SILVEY: I do. Thank you.

9 So you mention in your opening the idea
10 of dictating basically the -- where those charging
11 stations should be on -- matching up with the map that
12 was provided.

13 MS. MERS: Yes.

14 CHAIRMAN SILVEY: Okay. I'll ask you the
15 same question I asked the Division of Energy, which is
16 by what statute or rule do you believe we have the
17 authority to direct up front investment as opposed to
18 determining prudence after the investment was made?

19 MS. MERS: I think that we see in many
20 cases -- I think the Grain Belt case contained
21 examples of conditions. The rate cases sometimes
22 contain conditions, MEEIA cases contain conditions.

23 So I can't point you to the statutory
24 authority right now and I'm happy to brief that for
25 you. But it is something the Commission has done. I

1 think at that point it is up to the utility in
2 question to look at those conditions and decide if
3 they can live with it or not. So if they don't want
4 to follow those conditions, they can withdraw the
5 program and not move forward. But if they'd like to
6 move forward, they have a guideline of parameters that
7 they have to meet.

8 So it ultimately comes down to what
9 they're willing to live with and how much value they
10 put on the program if those conditions would outweigh
11 that value.

12 CHAIRMAN SILVEY: But if we're simply
13 looking at right now whether or not to set up an AAO,
14 how -- how would that work that we would set
15 conditions. Because the AAO is not guaranteed
16 recovery, so why are we setting conditions?

17 MS. MERS: Well, I think then it helps
18 when you look at an AAO in the rate case and determine
19 the prudence to see if it is allowable in rates. If
20 you can look at locations and find them to be
21 consistent with Ameren's testimony on what the
22 corridor charging program is, then I think it helps
23 build that case for prudence in the rate case.

24 CHAIRMAN SILVEY: Okay. If you could
25 brief me an answer to that question --

1 MS. MERS: Sure.

2 CHAIRMAN SILVEY: -- about statutory or
3 rule authority.

4 MS. MERS: Yes.

5 CHAIRMAN SILVEY: Thank you.

6 JUDGE DIPPELL: Commissioner Kenney,
7 anything?

8 COMMISSIONER KENNEY: I have no
9 questions. Thank you very much.

10 MS. MERS: Thank you.

11 JUDGE DIPPELL: Wait just one moment,
12 Ms. Mers. I wanted to ask you the same question that
13 I had asked Ameren and OPC and that is, are there any
14 other legal impediments to OPC's performance based
15 recovery mechanism other than the potential for a lack
16 of recovery?

17 MS. MERS: I -- I don't believe so. Risk
18 sharing mechanisms aren't something new that -- the
19 Commission has seen them before. I think they were
20 just ordered in the KCPL rate case. In situations
21 where there is risk for the consumers, I think it's a
22 mechanism that's been used before. So I can't think
23 of anything that -- that would legally prohibit that.

24 And as counsel for OPC was stating that
25 for all costs, there's a potential that they may not

1 be recovered. So that's -- that's a risk they -- any
2 utility faces.

3 JUDGE DIPPELL: Is there an inherent risk
4 in that type of recovery mechanism that -- because of
5 the question of tying those specific costs to the
6 specific incentives?

7 MS. MERS: I actually think that it would
8 work in an opposite way, because with -- with a normal
9 cost, you could come in for a rate case and -- and the
10 whole thing could be disallowed because you're not
11 sure; there's no sharing. But implicit in the sharing
12 mechanism there is the -- the promise that if they
13 meet that threshold, that they can collect those
14 rates -- or those expenses.

15 JUDGE DIPPELL: Okay. Thank you.

16 Okay. I'm sorry. Ms. Tatro, did you
17 have a comment?

18 MS. TATRO: I did. I was going to
19 request that you mark the two documents that I put up,
20 not necessarily for evidentiary purposes, but so that
21 those are in the transcript. And I will have copies
22 of those for you.

23 JUDGE DIPPELL: I was about to get to
24 that myself. So I want to include the two exhibits
25 that Ms. Tatro used in her opening statement as

1 demonstrative exhibits. And those will be -- the
2 first one, which was the Missouri map showing charging
3 station locations? Is that an adequate description?

4 MS. TATRO: I think so.

5 JUDGE DIPPELL: That will be Exhibit 8.
6 And Exhibit 9 is the graph -- what was the title of
7 that graph, Ms. Tatro?

8 MS. TATRO: Let's call it EV Usage
9 Map -- Graph.

10 JUDGE DIPPELL: Okay. And that will be
11 Exhibit 9 for demonstrative purposes. And if you
12 would get copies of those to us and the court reporter
13 specifically.

14 MS. TATRO: I will. Thank you.

15 JUDGE DIPPELL: Now we said we were going
16 to follow the order with the exception of Ms. Kelley
17 was going to testify today. Are we going to begin
18 with the first witness or are we going to begin with
19 Ms. Kelley?

20 MR. LOWERY: I think it's the Company's
21 preference -- pardon me, Your Honor -- to go ahead
22 with Mr. Byrne and -- and make a judgment at some
23 point during the day whether Ms. Kelley needs to be
24 taken out of order in order to get on today is what we
25 would prefer.

1 JUDGE DIPPELL: Okay. That's what we
2 will do then. So let's go ahead and take a break
3 until -- well, let's take a break -- let's see. Let's
4 go until about 10 till, so not quite 15 minutes. And
5 we'll begin with the first witness when we return.
6 Thank you. Let's go off the record.

7 (A recess was taken.)

8 JUDGE DIPPELL: Okay. We are back on the
9 record after our break and Mr. Byrne has already
10 graciously come to the stand. I'll let -- Ms. Tatro,
11 do you want to --

12 MS. TATRO: It's going to be Mr. Lowery.

13 JUDGE DIPPELL: I'm sorry. Mr. Lowery, I
14 was --

15 MS. TATRO: That's all right. I
16 appreciate that.

17 JUDGE DIPPELL: I'll go ahead and swear
18 in Mr. Byrne then.

19 (Witness sworn.)

20 JUDGE DIPPELL: Thank you. You can go
21 ahead, Mr. Lowery.

22 MR. LOWERY: Thank you, Your Honor.

23 TOM BYRNE, being first duly sworn, testified as
24 follows:

25 DIRECT EXAMINATION BY MR. LOWERY:

1 Q. Please state your name for the record.

2 A. My name is Tom Byrne.

3 Q. Mr. Byrne, did you cause to be prepared
4 for filing in this docket any pre-filed testimony?

5 A. Yes, I did.

6 Q. And it was Surrebuttal Testimony; is that
7 correct?

8 A. That's correct.

9 Q. It's been marked as Exhibit 1?

10 A. Yes.

11 Q. Do you have any corrections to that
12 testimony?

13 A. I do not.

14 Q. If I were to pose the questions in that
15 testimony to you today, would your answers be the same
16 as given in the testimony?

17 A. Yes, they would.

18 Q. So those answers are true and correct to
19 the best of your knowledge and belief?

20 A. Yes.

21 Q. Thank you, Mr. Byrne.

22 MR. LOWERY: Your Honor, I'd move for the
23 admission of Exhibit 1 and tender Mr. Byrne for
24 cross-examination.

25 JUDGE DIPPELL: Would there be any

1 objection to Exhibit Number 1?

2 Seeing none, then I will admit that.

3 (Exhibit 1 was received into evidence.)

4 JUDGE DIPPELL: Is there any
5 cross-examination for Mr. Byrne from Renew Missouri?

6 MR. OPITZ: No, thank you, Judge.

7 JUDGE DIPPELL: ChargePoint?

8 MR. COMLEY: None. Thank you.

9 JUDGE DIPPELL: Division of Energy?

10 MR. LANAHAN: None, Your Honor.

11 JUDGE DIPPELL: I'm sorry. I skipped
12 Empire.

13 MS. CARTER: No, thank you.

14 JUDGE DIPPELL: And Sierra Club?

15 MR. ROBERTSON: None, thank you.

16 JUDGE DIPPELL: Office of Public Counsel?

17 MR. CLIZER: Yes. Briefly.

18 CROSS-EXAMINATION BY MR. CLIZER:

19 **Q. Good morning, Mr. Byrne.**

20 A. Good morning.

21 **Q. Just real quick, it is correct that the**
22 **Company is not intending to issue any new long-term**
23 **debt to pay for the cost of this program -- the EV**
24 **charging program. Correct?**

25 A. That's correct.

1 MR. CLIZER: That was my only question.

2 JUDGE DIPPELL: All right then. Anything
3 from Staff?

4 CROSS-EXAMINATION BY MS. MERS:

5 Q. Good morning, Mr. Byrne.

6 A. Good morning.

7 Q. Are you familiar with the two-part test
8 the Commission evaluates AAO requests under?

9 A. Yes, I am.

10 Q. Okay. And what are those standards?

11 A. Well, I think -- let me say it this way.
12 I think there's a difference between a historic AAO
13 where you deal with a like -- something like a storm
14 that happened in the past as opposed to a -- an
15 ongoing tracker. So I think the standard is different
16 for those.

17 Q. Okay. Would you agree for an AAO that
18 you unique, unusual or non-reoccurring is the first
19 prong?

20 A. I think for something like a storm that
21 happened in the past, that -- that would be the
22 standard.

23 Q. For an Accounting Authority Order?

24 A. For a storm that happened in the past,
25 yes.

1 **Q. Would you agree that material is the**
2 **second?**

3 A. I -- yes, for a storm -- for a storm that
4 happened in the past, materiality would be a standard.

5 **Q. All right. Can you turn to page 5 of**
6 **your Surrebuttal?**

7 A. I'm there.

8 **Q. Lines 18 through 19 state, Third, the**
9 **magnitude of the particular programs proposed in this**
10 **case is quite small in the scheme of things.**

11 **Is that an accurate reading?**

12 A. Yes, it is.

13 **Q. And if we look at line 23 and then would**
14 **continue to 1 -- line 1 through 3 of the next page,**
15 **This compares to an annual retail revenue requirement**
16 **for Ameren Missouri of approximately 2.7 billion,**
17 **making the maximum potential cost of these programs**
18 **only about one-tenth of 1 percent of Ameren Missouri's**
19 **revenue requirement.**

20 **Is that an accurate reading?**

21 A. Yes.

22 **Q. And one-tenth of 1 percent is less than**
23 **5 percent. Correct?**

24 A. That's correct.

25 **Q. So you'd agree, by your own statement,**

1 **that this program's magnitude is quite small and that**
2 **the impact would be less than one-tenth of 1 percent,**
3 **that this program has an immaterial impact?**

4 A. I don't know if I'd characterize it as
5 immaterial. It -- it -- it's --

6 **Q. Yes or no.**

7 A. -- one-tenth of 1 percent so you can --
8 you can characterize it however you want.

9 **Q. Do you know Ameren's last authorized ROE?**

10 A. For the electric business, I think it was
11 9.53 percent.

12 **Q. Are you familiar with Ameren's quarterly**
13 **surveillance reports?**

14 A. Yes.

15 MS. MERS: Okay. I think we have to go
16 in-camera for the next question.

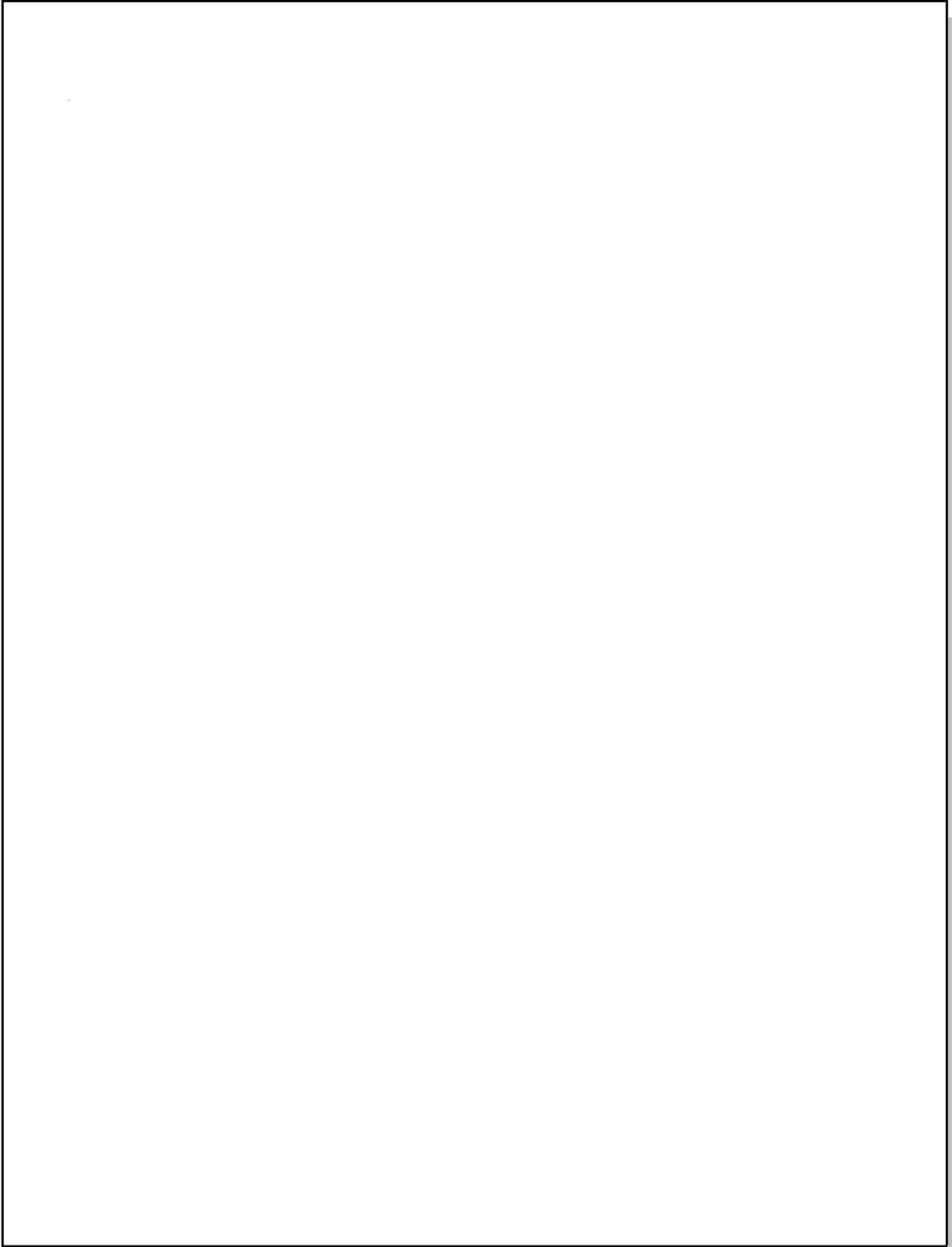
17 JUDGE DIPPELL: Okay. If you'll hold on
18 just one second, we will go in-camera. I will ask
19 that anyone in the room who is not authorized to hear
20 confidential information, if the attorneys could help
21 me police that.

22 (REPORTER'S NOTE: At this point, an
23 in-camera session began, which is contained in Volume
24 3, pages 97 through 99.)

25

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

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



1 (REPORTER'S NOTE: At this point, public
2 session resumed.)

3 MS. MERS: Actually, I was correct. I do
4 have no further questions. Sorry for the fake-out.

5 THE WITNESS: That's okay.

6 JUDGE DIPPELL: All right then.

7 THE WITNESS: No need to be sorry about
8 that.

9 JUDGE DIPPELL: Okay. Mr. Chairman, do
10 you have questions?

11 CHAIRMAN SILVEY: Yeah, I have a couple
12 questions.

13 QUESTIONS BY CHAIRMAN SILVEY:

14 **Q. So does the Company have the ability to**
15 **track how much electricity is being used by EVs?**

16 A. Currently we -- we don't entirely. We
17 don't have smart meters, AMI meters which would allow
18 us to track it. So I think if a residential
19 customer -- you know, it's possible to just charge
20 your electric vehicle by plugging it into a plug on
21 your -- at your residence. And I don't think --
22 unless there's a separate meter there, I don't think
23 we have the ability to separately track that.

24 **Q. But you would be able to track from the**
25 **chargers that you would be installing through**

1 **ChargePoint?**

2 A. Yes.

3 **Q. So what -- in your projections, what --**
4 **what do you need to hit on the ChargePoint chargers to**
5 **demonstrate -- if you got your 75 -- under your**
6 **proposal to get 7,500 new EVs, you have to have**
7 **projected how much would be used on ChargePoint**
8 **chargers, how much would be home, how much would be --**
9 **I mean you have to have projections for that, I would**
10 **assume?**

11 A. Yes. Yes.

12 **Q. Okay. So on the ones that you could**
13 **track, you know how much electricity needs to be sold**
14 **through that network.**

15 A. I -- I mean I think -- I think based
16 on -- and I mean Mr. Willis is probably a better
17 witness to ask about this than me, but I think based
18 on our projections and the way we see things, at the
19 very most, only, you know, like -- like 15 percent of
20 the -- of the charging would ever be done at outside
21 charging stations. So I don't think, in -- in our
22 opinion, the chargers could ever pay for themselves
23 based on the charging that's being done there.

24 **Q. But you would have benchmarks that if we**
25 **hit 7,500, we expect this much to be done so --**

1 **through the trackable charging stations at**
2 **ChargePoint.**

3 A. I believe we do.

4 **Q. So while it wouldn't be directly**
5 **verifiable, you could project that if you're hitting**
6 **that or more on the ones that you can track and you've**
7 **seen an increase in load overall, that some of that is**
8 **probably coming from EVs. I mean would that be a**
9 **reasonable assumption?**

10 A. Sure. I think -- yes, I think you
11 could -- you could make assumptions and educated
12 guesses or educated projections about how much of the
13 EVs were charged at home.

14 I guess one of the things I'd like to say
15 is, you know, other parties focused on the 7,500. And
16 we do -- we do believe by having this program and
17 having chargers installed, it will remove a barrier.
18 And we do believe that more electric vehicles will be
19 purchased if this program's approved. But it's -- but
20 it's -- that's not the only reason to approve this
21 program.

22 We -- regardless of whether vehicles are
23 incentivized by the existence of these electric
24 vehicle charging stations, we have customers who have
25 electric vehicles who need charging. So even -- even

1 for customers whose cars were not -- whose car
2 purchasing decisions were not affected by this -- by
3 this, they still need charging.

4 Just like -- you know, an analogy we
5 thought of is when air conditioning came along and
6 people -- we weren't incentivizing air conditioning,
7 but we had to develop infrastructure to serve the
8 needs of our customers. This is a new need of our
9 customers and we need to develop infrastructure to
10 serve it.

11 And we do believe additional cars will be
12 incentivized, but even if no cars were incentivized,
13 we still need to build this infrastructure to serve
14 our -- our customers with electric vehicles.

15 **Q. Okay. So OPC suggested the performance**
16 **incentive based on the number of EVs sold. Would it**
17 **be possible to tweak that performance metric to**
18 **kilowatt hours?**

19 A. I -- I don't believe the performance
20 metric's appropriate at all. In my opinion, this
21 should be treated like other electric plant that's
22 built. We -- it's up to us to come up with a prudent
23 plan and it's up to us to execute that plan in a
24 prudent manner. But -- but if we do that, we should
25 be able to recover the costs.

1 And like I said, even if -- even if not
2 any electric vehicles were -- were incentivized by
3 this, which I think is not at all true -- of course
4 they will be -- but even if not a single electric
5 vehicle was incentivized by this and we only had the
6 25,000 that are projected in our IRP, this is still a
7 legitimate expense. We're -- we're serving those
8 customers who have a new electric need just like --
9 just like air conditioning was a new electric need in
10 the 1950's. We should be -- we should be building
11 this infrastructure anyway.

12 **Q. Okay. And I appreciate that you don't**
13 **believe that a performance metric is necessary, but**
14 **I'll rephrase the question. Does the information and**
15 **tracking ability exist to develop a performance metric**
16 **on kilowatt hours as opposed to cars sold?**

17 A. You'd have to make an educated assumption
18 about home charging, and you could do that. You could
19 probably -- you could probably do that, but there's no
20 metering right now that would -- that would tell you
21 exactly what it is.

22 **Q. Okay. Thank you.**

23 JUDGE DIPPELL: Commissioner Kenney?

24 COMMISSIONER KENNEY: Thank you.

25 QUESTIONS BY COMMISSIONER KENNEY:

1 **Q. I just -- I know we've dealt with this --**
2 **the EV stations in years past. Can you direct me to**
3 **Company testimony which shows the number of EV**
4 **vehicles sold and increases or decreases since about**
5 **2000 and also what the projections are? Do you**
6 **have -- I thought I saw that somewhere, but I --**

7 A. Yeah.

8 **Q. -- might be going back to a couple years**
9 **ago.**

10 A. W-- you mean -- you're talking about
11 testimony in the previous case?

12 **Q. No, this case.**

13 A. In this case. I -- I think Pat Justis is
14 the witness. He's got some information in his
15 testimony. I -- I believe the latest information that
16 we have is there's about 5,000 electric vehicles and
17 hybrids in the state of Missouri as of right now,
18 but -- but --

19 **Q. Do you know how many in your service**
20 **territory?**

21 A. I -- I think you'd be better off asking
22 Pat Justis that since he's the person who studies
23 this.

24 **Q. Okay. Next question, currently if a**
25 **homeowner has an electric vehicle, is there anything**

1 **that prevents them from having their own charging**
2 **station in their house right now with their own --**

3 A. No, no. They all -- every -- every
4 electric vehicle owner has a -- has a method of
5 charging in their house.

6 **Q. I know it mentioned about th-- does this**
7 **program -- what does this program do for that**
8 **homeowner?**

9 A. Well, I think range anxiety is a big
10 problem. It's a big barrier.

11 **Q. No, I understand. I -- I meant -- okay.**
12 **Let me -- let me rephrase my question. Because I**
13 **understand that scenario.**

14 A. Okay.

15 **Q. Makes complete sense. And I remember you**
16 **had one guy with a Chevy Volt or something talking**
17 **about trying to get to Jeff City from St. Louis and it**
18 **was like four stops or something.**

19 A. He -- he's here today. Steve Wills, one
20 of our witnesses. And he did not drive his Volt here
21 today.

22 **Q. For the homeowner and their personal**
23 **charging station, does this have any effect on them,**
24 **this legislation -- or this -- legislation -- that's**
25 **not going back.**

1 A. It -- I mean no, not directly. I mean
2 we're not -- we're not --

3 Q. **Taking out the time for -- for**
4 **convenience and travel and things like that, this**
5 **doesn't affect --**

6 A. It does-- it doesn't affect the -- the
7 infrastructure at home. It does not --

8 Q. **Doesn't affect the --**

9 A. -- affect the infrastructure at home.

10 Q. **-- homeowners for just what they have at**
11 **their house?**

12 A. Right. This is all outside your house.

13 Q. **Okay. I just wanted to clarify that.**
14 **Thank you very much.**

15 A. Yeah.

16 JUDGE DIPPELL: Are there any further
17 cross-examination based on Commission questions? We'll
18 start with Renew. Sorry.

19 MR. OPITZ: No, thank you, Judge.

20 JUDGE DIPPELL: ChargePoint?

21 MR. COMLEY: None, thank you.

22 JUDGE DIPPELL: Sierra Club?

23 MR. ROBERTSON: None.

24 JUDGE DIPPELL: Empire?

25 MS. CARTER: No, thank you.

1 JUDGE DIPPELL: Division of Energy?

2 MR. LANAHAN: No, thank you, Judge.

3 JUDGE DIPPELL: Office of Public Counsel?

4 MR. CLIZER: Yes. Thank you.

5 CROSS-EXAMINATION BY MR. CLIZER:

6 **Q. Mr. Byrne, in response to a question that**
7 **Kenney just posed you, I believe you stated that this**
8 **would have no affect on individuals at home who have**
9 **electric vehicles at home. Did I mishear that?**

10 A. Well, I -- you know, none -- none of
11 these -- these are all the four -- the four types of
12 charging stations that we're proposing to incentivize,
13 none of them are at -- at your home.

14 **Q. Yes. But the program is being -- all of**
15 **your ratepayers would be paying for the program.**
16 **Correct? The -- the --**

17 A. They would -- they would be paying for it
18 and they would be reaping the benefits of -- of it as
19 well.

20 **Q. And those benefits arise from the**
21 **adoption of new EVs. Correct?**

22 A. I -- I think that's one benefit. As I
23 said, I also think this is an emerging -- regardless
24 of whether we incentivize any new electric vehicles,
25 this is a need of our customers. Even -- even the

1 25,000 electric --

2 **Q. It's a need of all your customers?**

3 A. No. It's a need of the customers that
4 have electric vehicles.

5 **Q. For the customers who don't have electric**
6 **vehicles, the benefit stems from the increased load.**

7 **Correct?**

8 A. That's true. It's -- it's very similar
9 to when air conditioning first came on our system.
10 Not every customer had air conditioning, but -- but
11 yes, they were --

12 **Q. So whether or not new EVs is adopted is**
13 **important?**

14 A. Yes, it's somewhat important. That's --
15 it's an important factor.

16 **Q. Thank you.**

17 A. Not the only one.

18 **Q. No further questions.**

19 JUDGE DIPPELL: Any further
20 cross-examination from Staff based on Commission
21 questions?

22 CROSS-EXAMINATION BY MS. MERS:

23 **Q. In response to some questioning from**
24 **Chairman Silvey, you were talking about projections**
25 **that you guys had done. Where are those projections?**

1 A. I think Chairman Silvey said could you do
2 projections.

3 **Q. I -- maybe I misheard, but I thought your**
4 **response to him was that yes, those did exist, you had**
5 **at least some of that information.**

6 A. To the extent we have some of that
7 information, I guess Mr. Justis has it, but I don't --
8 I don't.

9 **Q. So you believe Mr. Justis has it; you're**
10 **not sure of that?**

11 A. He has some projections. It depends on
12 what projection you want.

13 **Q. Okay. Thank you.**

14 JUDGE DIPPELL: Is there redirect?

15 MR. LOWERY: Just a few questions, Your
16 Honor.

17 REDIRECT EXAMINATION BY MR. LOWERY:

18 **Q Mr. Byrne, Ms. Mers asked you some**
19 **questions about Accounting Authority Orders. Do you**
20 **remember those?**

21 A. Yes.

22 **Q. Is the Company asking for an Accounting**
23 **Authority Order in this case?**

24 A. We're asking for deferred accounting.

25 **Q. And -- and is another way of saying that**

1 **we're asking that the Commission authorize a tracker?**

2 A. Yes.

3 **Q. Is a tracker and an Accounting Authority**
4 **Order, given the Commission's practice in the last**
5 **several years in the orders that it issued, are they**
6 **the same thing?**

7 A. I don't think so. Again, I -- as I tried
8 to say to Ms. Mers, if you're talking about an
9 Accounting Authority Order for an historic storm, for
10 example, that happened in the past, they -- they apply
11 a standard of it has to be extraordinary and material,
12 all the things Ms. Mers was talking about.

13 In the case of a tracker, I don't -- you
14 know, the -- the history of the Commission is they
15 allow trackers under different standards than that.

16 **Q. Are you aware of some trackers the**
17 **Commission has actually approved for the Company that**
18 **would be analogous?**

19 A. Sure. They've approved any number of
20 trackers. We -- we have an pension and OPEB tracker.
21 There's nothing extraordinary about pension and OPEB
22 expenses. The -- the -- they're a normal expense of
23 business, but -- but for policy reasons, the
24 Commission's approved a tracker. We had a tracker for
25 vegetation management expenses. Again, you know,

1 they -- it wasn't -- they weren't extraordinary, they
2 weren't unpredictable. They weren't -- they weren't
3 subject to the same standards as an AAO for a
4 storm was subject to.

5 **Q. Pre-MEEIA energy efficiency charge**
6 **tracker. Do you remember that?**

7 A. Sure. That's another example. There
8 are -- there are really many examples where the
9 Commission has approved trackers.

10 **Q. And is the magnitude or materiality of**
11 **the amount to be tracked, has that been relevant to**
12 **these prior trackers that have been approved?**

13 A. No, it has not.

14 **Q. You were asked some questions about the**
15 **surveillance.**

16 MR. LOWERY: And I'm not going to go into
17 any numbers, so I don't think we have to go into
18 in-camera, Your Honor.

19 BY MR. LOWERY:

20 **Q. But you were asked some questions about**
21 **the surveillance reports. Are -- are you aware of**
22 **whether or not the figures that were cited, whether or**
23 **not they're weather normalized?**

24 A. I know they're not weather normalized.

25 **Q. Did they take into account the fact that**

1 **no Callaway outage had taken place during that**
2 **12-month period?**

3 A. They did not.

4 **Q. Did they take into account other**
5 **adjustments that would need to be made to determine**
6 **whether or not on a regulated basis that ROE has**
7 **anything to do with your actual earnings?**

8 A. No, they didn't. And there was a
9 footnote on the -- on the report that said that. And
10 one of the other things that was in the footnote was
11 income tax -- the effect of the income tax reduction.

12 So we -- on the electric side, Ameren
13 Missouri, pursuant to Senate Bill 564, has accounted
14 for the full amount of federal income tax reduction,
15 but I think there are timing differences that make it
16 not all appear in that year. So that may be part of
17 what the return is attributable to. And there can be
18 other factors. It's -- you know.

19 **Q. Based on a question I think Commissioner**
20 **Kenney asked, Mr. Clizer asked you a question about**
21 **benefits to non-participants; in other words, people**
22 **who are not at least now buying an EV. Do you**
23 **remember that question?**

24 A. I do.

25 **Q. Back in the '50s when some folks were**

1 **buying air conditioners but others weren't, do you**
2 **have an opinion about whether everyone on the system**
3 **eventually benefited from the fact that the com--**
4 **Company invested infrastructure to allow those early**
5 **adopters of air conditioners to -- to use air**
6 **condi ti oni ng?**

7 A. Eventually everybody benefited because of
8 the use of -- it -- over the long-term increased use
9 on the system, which spread out the fixed costs. I
10 got to say, one other difference -- one other way
11 people benefit is the environmental benefits. So to
12 my mind, the -- even the customers -- even the
13 customers who don't have electric vehicles get to
14 breathe cleaner air and reap the environmental
15 benefits.

16 Q. I think I just have one last question.
17 The very first question I think on cross-examination
18 you were asked was whether or not the Company's going
19 to issue any specific additional long-term debt to
20 finance these programs. Do you remember that?

21 A. Yes.

22 Q. Does the cost of the capital the Company
23 deploys, whether it had to issue bonds to get it today
24 or whether it takes it out of its treasury, does the
25 cost of that capital depend on whether it issued new

1 **Long-term debt?**

2 A. No, it doesn't. And I think the cost of
3 the capital too over a long period of time is much
4 more our -- our weighted average cost of capital
5 than -- than debt. So, you know, if -- if you look at
6 a -- if you look at a debt that's a year or less,
7 maybe that's short-term debt, but I think if -- over a
8 longer period of time, the more appropriate measure of
9 the cost of capital is our weighted average cost of
10 capital.

11 **Q. Do you have an understanding of whether**
12 **or not, if the Company's advancing these expenditures**
13 **and deferring them and then -- for consideration of a**
14 **rate case later, do you have an expectation about**
15 **whether that's going to be a long-term or short-term**
16 **period?**

17 A. I would expect it to be a long-term
18 period for this program.

19 MR. LOWERY: Thank you, Your Honor.
20 That's all I have.

21 JUDGE DIPPELL: Okay. Thank you.

22 Thank you, Mr. Byrne. I believe that
23 concludes your testimony.

24 Ameren want to call its next witness?

25 MS. TATRO: Patrick Justis.

1 JUDGE DIPPELL: Mr. Justis, if you'd
2 please raise your right hand.

3 (Witness sworn.)

4 JUDGE DIPPELL: You may go ahead,
5 Ms. Tatro, when you're ready.

6 MS. TATRO: Thank you.

7 PATRICK JUSTIS, being first duly sworn, testified as
8 follows:

9 DIRECT EXAMINATION BY MS. TATRO:

10 **Q. Good morning. Could you please state**
11 **your name and business address for the Commission?**

12 A. Yes. Good morning. Pat Ju-- Patrick
13 Justis, business address is 1901 Chouteau Avenue, St.
14 Louis, Missouri 63103.

15 **Q. And are you the same Patrick Justis that**
16 **pre-filed Direct and Surrebuttal Testimony in this**
17 **case?**

18 A. Yes, I am.

19 **Q. Do you have any corrections or additions**
20 **to make to that testimony?**

21 A. I do.

22 **Q. Which piece of testimony are we starting**
23 **in?**

24 A. Start with Direct.

25 JUDGE DIPPELL: Hold on just one moment.

1 BY MS. TATRO:

2 **Q. And if you'll start by giving the page**
3 **and line number, that will help --**

4 A. Sure.

5 **Q. -- everyone find it.**

6 A. Direct Testimony page 15, it's Table 2,
7 the row for Rocky Mountain Power Utah. In that EV
8 Program Description column, I have fast charging
9 incentive is 5 percent of cost up to 63,000.

10 That should be 75 percent of cost.

11 **Q. Okay.**

12 A. Next is page 17, Table 2, column is Total
13 Budget for Ameren Missouri row. The 10.5 should read
14 11 M.

15 **Q. Any other in your Direct Testimony?**

16 A. One more. Page 36, there's a table
17 giving the incentives and the number of ports
18 expected. So that column for Number of Ports
19 Expected, if you look for the Long Distance Corridor,
20 that's the second row from the bottom of that table.
21 It says 10 to 12. That is 10 to 12 islands. So
22 really to correspond to the ports expected, that
23 should be 20 to 24 DC and 20 to 24 L2 or Level 2
24 ports.

25 **Q. Okay. Then Surrebuttal, did you have**

1 **corrections for that?**

2 A. Yes, I do have --

3 JUDGE DIPPELL: I'm sorry. Let me --
4 would you restate the -- how should it read on that
5 last change?

6 THE WITNESS: For the charging islands,
7 the last one? That column Number of Expected --
8 Number of Ports Expected for the Long Distance
9 Corridor row, it says 10 to 12. That should read 20
10 to -- 20 to 24 or 20-24 DC and 20-24 L2.

11 JUDGE DIPPELL: Okay. Thank you. Go
12 ahead.

13 THE WITNESS: You're welcome.

14 And then in Surrebuttal, let's go to
15 page 6 and this refers to the Electrify America
16 charging stations that you referenced on the map. On
17 line 14, and sentence begins on line 13 at the end of
18 that, with the seven. That seven should be six.

19 And, therefore, if we go to the next
20 line, 15, that 33 should be 34. And then based on
21 that same error, if we look at page 8, line 7, the 33
22 should be 34 again. And where it says 40 minus the 7,
23 that should be 40 minus the 6. And then finally, on
24 line 10, a few words in you see 33. That should be
25 34. And I -- I believe that catches all of those

1 changes.

2 BY MS. TATRO:

3 **Q. So with those changes, if I were to ask**
4 **you the questions that are in your Direct and**
5 **Surrebuttal Testimony, would your answers be**
6 **substantially the same?**

7 A. Yes.

8 MS. TATRO: So I believe Mr. Justis's
9 Direct Testimony has been labeled 002. His
10 confidential Surrebuttal is 3C and his public version
11 of his Surrebuttal is 3P for public. I move for
12 admission and tender Mr. Justis for cross.

13 JUDGE DIPPELL: Would there be any
14 objection to Exhibits 2 and 3, both public and
15 confidential?

16 Seeing none, I will admit those exhibits.
17 (Exhibits 2, 3-P and 3-C were received
18 into evidence.)

19 JUDGE DIPPELL: All right. Is there
20 cross-examination from Renew?

21 MR. OPITZ: No, thank you, Judge.

22 JUDGE DIPPELL: ChargePoint?

23 MR. COMLEY: No questions.

24 JUDGE DIPPELL: Sierra Club?

25 MR. ROBERTSON: No, Your Honor.

1 JUDGE DIPPELL: Empire?
2 MS. CARTER: No questions.
3 JUDGE DIPPELL: Division of Energy?
4 MR. LANAHAN: No, Your Honor.
5 JUDGE DIPPELL: Office of Public Counsel?
6 MR. CLIZER: No, thank you.
7 JUDGE DIPPELL: Staff?
8 MS. MERS: Yes.

9 CROSS-EXAMINATION BY MS. MERS:

10 Q. If we start with your Direct Testimony,
11 is it accurate to say that pages 23 through 27, a
12 paragraph on page 31 and a table on page 36 in your
13 testimony are the only places the Charge Ahead EVs are
14 discussed by sub-program? And I'll give you time to
15 go through them and --

16 A. Yeah. Could you repeat the pages just to
17 make sure I've got them right?

18 Q. Sure. 23 through 27.

19 A. Okay.

20 Q. Page 31 -- there's a paragraph on page
21 31.

22 A. And?

23 Q. And then the table on page 36.

24 A. And the question was?

25 Q. Are those the only places in your

1 **testimony where the Charge Ahead EV programs are**
2 **discussed by sub-programs?**

3 A. You know, it -- that may be. I would
4 probably need to read the entire document to say
5 definitively.

6 **Q. Sure. In the pages mentioned, are the**
7 **sub-program budgets discussed?**

8 A. The sub-program budgets are somewhat
9 outlined in 36. The charging incentives make the bulk
10 of the budget for the programs. So the 10 million you
11 see on that table on page 36 would also be
12 supplemented with a million dollars for marketing and
13 awareness, outreach.

14 **Q. Are there sub-program RIM results**
15 **provided?**

16 A. I did not do analysis on RIM testing in
17 my testimony, no.

18 **Q. Is there any quantification or discussion**
19 **of the number of EVs expected to be enabled by each**
20 **sub-program? So in the individual, not the aggregate.**

21 A. Right. No. My testimony focuses on the
22 merits of the program and how it should be
23 accomplished.

24 **Q. Okay. Will you please turn to page 8,**
25 **line 11 of your Surrebuttal?**

1 MS. TATRO: I'm sorry, what page?

2 MS. MERS: Page 8, line 11.

3 MS. TATRO: Thank you.

4 THE WITNESS: Okay.

5 BY MS. MERS:

6 **Q. You state the network install cost for**
7 **the statewide program is 12 million dollars; is that**
8 **correct?**

9 A. Well, I did, but what -- could you repeat
10 the page?

11 **Q. Sure. Page 8, line 11.**

12 A. Okay. I was in -- yes. Okay. I'm
13 there.

14 **Q. Okay. And there are 6.8 million dollars**
15 **available through the VW trust fund. Correct?**

16 A. No. There are dollars that the DNR, the
17 beneficiary for the Volkswagen trust money that comes
18 to Missouri, they have allocated the full 15 percent
19 based on proposal by the Missouri EV Collaborative and
20 with public support to put that towards EV charging in
21 a corridor map that Ms. Tatro showed.

22 **Q. Okay.**

23 A. So it's approximately -- it's 15 percent
24 of about 41 million. It's about 6 million dollars
25 that the VW trust has earmarked.

1 **Q. Okay. So 6 million?**

2 A. Yes.

3 **Q. So then that leaves, according to your**
4 **testimony then, a 6 million dollar shortfall to**
5 **complete the statewide ne-- statewide network.**
6 **Correct?**

7 A. That's accurate.

8 **Q. And the EV collaborative is a voluntary**
9 **association. Correct?**

10 A. It's an informal group of utilities,
11 environmental groups and electric transportation
12 advocates, yes.

13 **Q. And it's comprised of how many**
14 **partners?**

15 A. Approximately 10. I'd have to count
16 them.

17 **Q. Would it include Empire, Kansas City**
18 **Power & Light, Kansas City Power & Light Greater**
19 **Missouri Operations, Kirkwood Electric, Columbia Water**
20 **& Light, and City Utilities of Springfield, among**
21 **others?**

22 A. Yes. It includes all those utilities,
23 plus Sierra Club, Natural Resources Defense Council.

24 **Q. Okay. And at line 13 of your Surrebuttal**
25 **you testified that utilities will match funding.**

1 **Correct?**

2 A. It's on the same page you're referenci ng?

3 **Q. Yes. On the same page.**

4 A. Yes. The Missouri EV Collaborative
5 recom--

6 **Q. A yes or no is sufficient. Thank you.**

7 **So out off the 6 million dollar**
8 **shortfall, Ameren Missouri ratepayers will be**
9 **contributing 4.4 million as part of the cari--**
10 **corridor program, which is about 84 percent of the**
11 **funds needed to complete a statewide utility corridor**
12 **charging network; is that correct?**

13 A. I would have to figure the math. What we
14 have put in the -- in the --

15 **Q. If you don't know --**

16 A. -- testimony is --

17 **Q. -- that's sufficient. Your -- your**
18 **counsel will be able to redirect you.**

19 **Can you please pa-- turn to page 13 of**
20 **your Surrebuttal? You have a figure comparing EV**
21 **adoption rates in various cities; is that correct?**

22 A. These are the Figure 4 are you
23 referenci ng?

24 **Q. Yes.**

25 A. This is sales growth.

1 **Q. Sales growth. Okay.**

2 A. So it's sales rates.

3 **Q. Sure. Okay. So then in quarter 1 and**
4 **quarter 2 of 2017, it represents that there was an**
5 **80 percent increase in sales growth for the Kansas**
6 **City area; is that accurate?**

7 A. Approximately, yes.

8 **Q. Okay. And then in quarter 4 of 2017, it**
9 **dropped to what looks to be about 55 percent, which if**
10 **that's correct, would be about a 25 percent decline;**
11 **is that correct?**

12 A. Yes. I would say there's a decline
13 that's in measure with others. But this is a growth
14 rate so you don't expect it to continue to climb.

15 **Q. Were you aware KCPL offered free charging**
16 **for the first two years of the Clean Charge Network?**

17 A. Yes, I'm aware of that.

18 **Q. And were you aware that this free**
19 **charging ended December 2017, which con-- coincides**
20 **with the decline in EV adoption?**

21 A. I know it did for some sites. The host
22 sites could determine if they wanted to continue to
23 offer it for free is what I understood.

24 **Q. On page 14 of your Surrebuttal you have**
25 **some testimony regarding the Clean Charge Network.**

1 **And to summarize, it con-- it concludes that resulted**
2 **more EVs in the Kansas City area, caused beneficial**
3 **load growth for the grid, and downward pressure on**
4 **customer rates. Is that an accurate summary? Pro--**
5 **I'm looking at lines 1 through 7.**

6 A. On page 14, yes, I think that's -- sure.

7 Q. **All right.**

8 A. That's accurate.

9 Q. **In examining KCPL, were you aware that**
10 **KCPL, in its most recent rate case, asked for an**
11 **increase in rates?**

12 A. I'm not familiar with their recent rate
13 case.

14 Q. **Okay. Were you aware that KCPL Witness**
15 **Darrin Ives stated flat or declining load as the**
16 **reason behind the rate case?**

17 A. Could you repeat that?

18 Q. **Were you aware in researching the Clean**
19 **Charge Network that KCPL Witness Mr. Darrin Ives**
20 **stated flat or declining load as the reason behind the**
21 **rate -- their most recent rate increase request?**

22 A. I'm not aware of that statement. That
23 doesn't surprise me.

24 MS. MERS: I'd like to mark two exhibits.

25 JUDGE DIPPELL: Staff's next exhibit

1 numbers are 107 and 108.

2 (Exhibits 107 and 108 were marked for
3 identification.)

4 BY MS. MERS:

5 **Q. You in your Surrebuttal critique both**
6 **Staff and OPC for not providing constructive**
7 **criticism. So do you recognize these e-mails? We can**
8 **mark that as the -- I believe it would be Staff**
9 **Exhibit 107.**

10 A. I don't recall them, but I don't have any
11 reason to believe I -- it's not an e-mail that I've
12 seen.

13 **Q. Are you in the CC line of those e-mails?**

14 A. Yes, yes.

15 **Q. Okay. And do you recognize the second**
16 **item that I've handed you as the agenda that was**
17 **contained in the PowerPoint that was presented at the**
18 **July 13th technical conference?**

19 A. Yes.

20 **Q. And were you at that technical**
21 **conference?**

22 A. Yes. I presented.

23 **Q. And that agenda shows that the parties**
24 **were to go over additional analysis requested by the**
25 **parties and issues raised with the corridor charging**

1 and multi-family properties. Correct?

2 A. Yes.

3 Q. So to create this agenda and run
4 additional analysis, at some point Staff and OPC had
5 to, in some manner, share concerns; isn't that
6 correct?

7 A. Say that again.

8 Q. So to create an agenda and to run
9 additional analysis, at some point Staff and OPC would
10 have had to express to the Company issues they had
11 with the program; is that correct?

12 A. Issues, yes; but constructive concerns or
13 suggestions, no.

14 Q. Okay. And if we turn to the August 7th
15 e-mail, is it accurate to summarize that e-mail as
16 stating that Ameren Missouri would not be addressing
17 the Charge Ahead EV program at the August technical
18 conference as it believed there were too many
19 outstanding issues to discuss?

20 A. Can you direct me to where it says that?

21 Q. I believe it's the second -- second page
22 of that e-mail bunch -- or second attachment, I should
23 say.

24 A. Second attachment.

25 Q. Yeah, the last page.

1 A. Okay. And what was the question again?

2 Q. Is it accurate to state that that e-mail,
3 as a summary, that Ameren Missouri stated it would not
4 address the Charge Ahead EV program at the August
5 technical conference as it believed there were too
6 many outstanding issues to discuss?

7 A. Yes. Too many outstanding issues, not
8 necessarily constructive.

9 Q. All right. Did you attend the August
10 technical conference?

11 A. I believe I attended all three.

12 Q. All right. So constructive is in the eye
13 of the beholder, but for Ameren to know that there
14 were too many outstanding issues to address, at some
15 point Staff had to provide feedback of some sort and
16 concerns, and OPC as well, to Ameren. Correct?

17 A. Please repeat.

18 Q. So for Ameren to know that there were too
19 many issues to address at that technical conference --
20 I think parties may quibble about constructive, it's
21 probably subjective -- but at some point Staff and OPC
22 had to provide some sort of feedback and concerns to
23 Ameren for them to make that statement; is that
24 correct?

25 A. Well, I would read it as too many issues

1 are -- is a polite way of saying there's basically an
2 adversarial or obstructive approach that was being
3 taken. So we wanted to move on and be constructive
4 with time and get the line extension resolved.

5 **Q. Okay. Well, thank you for that colorful**
6 **characterization.**

7 MS. TATRO: Objection. She's badgering
8 the witness.

9 JUDGE DIPPELL: Ms. Mers, proceed.

10 MS. MERS: Thank you.

11 BY MS. MERS:

12 **Q. And in the August and July technical**
13 **conference, those were before parties filed Rebuttal.**
14 **Correct?**

15 A. Yes.

16 **Q. And there were no further technical**
17 **conferences after August. Correct?**

18 A. That's correct.

19 MS. MERS: So at this time I'd like to
20 move to enter those exhibits.

21 JUDGE DIPPELL: Would there be any
22 objection to Exhibits 107 and 108?

23 MR. COMLEY: Can you describe which one
24 is 107?

25 JUDGE DIPPELL: Oh, I'm sorry. The

1 e-mail conversations is Exhibit 107, and the agenda
2 from an August 17th technical conference number 3 is
3 Exhibit 108.

4 MR. COMLEY: Thank you.

5 MS. TATRO: No objection.

6 JUDGE DIPPELL: Seeing no objection, then
7 I will -- I will admit those.

8 (Exhibits 107 and 108 were received into
9 evidence.)

10 MS. MERS: Thank you. I have no further
11 questions.

12 JUDGE DIPPELL: All right. Is there --
13 are there any questions from the Bench? Mr. Chairman?
14 Commissioner Kenney?

15 COMMISSIONER KENNEY: Yes, thank you.

16 QUESTIONS BY COMMISSIONER KENNEY:

17 Q. **Good morning, Mr. Justis. Yeah, it's**
18 **still morning.**

19 A. Morning.

20 Q. **Staff counsel asked you a question**
21 **regarding the -- Missouri and their charging stations**
22 **where -- are you aware that Kansas Commission denied**
23 **their request to put charging stations into rate-base?**

24 A. I'm not closely familiar, but I'm --

25 Q. **Familiar --**

1 A. -- somewhat aware, yes.

2 Q. -- familiar that Missouri made the same
3 similar decision?

4 A. For --

5 Q. For the charging --

6 A. -- for the west side of the state.

7 Q. And I -- I know Kan-- I know KCPL made
8 the determination or statement was that they would not
9 build any more charging stations in Missouri or
10 Kansas. Are you aware of that?

11 A. I believe they stopped installing, yes.

12 Q. I'd like to ask you a question regarding
13 your charts on your Direct Testimony pages 10, 11, 12
14 and 13. And I'll be very brief.

15 A. Okay. Sure. I'm there.

16 Q. So if I read that chart right, you have
17 51 -- 50 states and Washington, DC.

18 A. Uh-huh.

19 Q. Page 10 of it shows the six states that
20 are greater than 1 percent of EV sales could --
21 compared to direct vehicle sales for 2016. Correct?

22 A. Yes.

23 Q. And they're California at 3.52 percent
24 and Oregon at 1.87 percent and they scale down?

25 A. Uh-huh.

1 **Q. The remaining 40-- what do we have --**
2 **46 -- 45 states would be under 1 percent; is that**
3 **correct?**

4 A. Yes. As of through 2016, yes.

5 **Q. And then in -- Missouri is at .29**
6 **percent, ranked 34th in states. In 2016, we sold 890**
7 **EV vehicles compared to 308,000 total sales; is that**
8 **correct?**

9 A. Yes.

10 **Q. Do you have projections of -- by -- if --**
11 **if -- if Ameren is granted permission, your request on**
12 **these charging stations, what the projections are**
13 **for -- I didn't find it in here -- for future EV sales**
14 **going forward?**

15 A. Commissioner, I don't -- I have not done
16 projections.

17 **Q. Okay. You have not done?**

18 A. No. I mean the -- the only projections
19 that I'm aware of that we have are in the IRP. And
20 Witness Steve Wills, my colleague, I think references
21 those. But I would not say we have really strong
22 forecasts moving forward.

23 **Q. So what's the need for the charging**
24 **stations?**

25 A. Well, what I do know is that if we don't

1 do this, we will continue to lag and we will not get
2 the kind of adoption and, therefore, the benefits
3 that -- that we ought to get. We ought to be going
4 after these. And this is the way to do it.

5 **Q. Are you familiar with what California's**
6 **done?**

7 A. Somewhat familiar. It's --

8 **Q. With their --**

9 A. -- very aggressive.

10 **Q. I'm talking about being very -- yes, very**
11 **progressive. They -- each one of their three major**
12 **utilities have a substantial amount of ratepayer**
13 **subsidy. Substantial. And obviously they're selling**
14 **a lot more vehicles.**

15 A. Yes, sir. And that's -- that's why
16 they're on the top of the list and -- and I cite --

17 **Q. California -- it's California too. I**
18 **grew up there, so.**

19 A. I cite -- yeah. Well, it's an
20 interesting case because the, you know, Commission at
21 first said, Utilities, you stay out. This is all
22 private sector.

23 **Q. Right.**

24 A. They weren't reaching goals. The state
25 was very interested in reaching goals and they said we

1 need to reverse this. Utilities, you need get
2 involved. Please provide us pilot programs. So I
3 even use that as an example on why we need to get
4 started here. It's a relatively modest level
5 proposal, but I think --

6 **Q. Yeah. They're in -- they're in the**
7 **hundreds of millions for --**

8 A. Yeah. Right.

9 **Q. -- at least two of their utilities.**

10 A. Right.

11 **Q. And they've joined -- yeah, they allow**
12 **the private companies to be -- participate, so.**

13 A. Right. And we'd like permission for
14 11 million to try to move this market forward. We've
15 done a lot of research to figure out is this the right
16 approach and really improved from our last case.
17 Really heard what you all said and listened to the
18 marketplace too. We reached out to the market to say
19 what is it going to take? And that's what you have in
20 front of you.

21 **Q. Okay. Thank you.**

22 A. Thank you

23 JUDGE DIPPELL: Thank you.

24 Are there any further recross from --
25 regarding Commissioner questions from Renew Missouri?

1 MR. OPITZ: No, thank you, Judge.

2 JUDGE DIPPELL: ChargePoint?

3 MR. COMLEY: No questions.

4 JUDGE DIPPELL: Sierra Club?

5 MR. ROBERTSON: No questions.

6 JUDGE DIPPELL: Empire?

7 MS. CARTER: No questions.

8 JUDGE DIPPELL: Division of Energy?

9 MR. LANAHAN: No, thank you, Judge.

10 JUDGE DIPPELL: Office of the Public
11 Counsel ?

12 MR. CLIZER: No, thank you.

13 JUDGE DIPPELL: Staff?

14 MS. MERS: No, thank you.

15 JUDGE DIPPELL: Is there redirect?

16 MS. TATRO: Yes, Your Honor. Thank you.

17 REDIRECT EXAMINATION BY MS. TATRO:

18 Q. So, Mr. Justis, early on Ms. Mers asked
19 you questions about quantification of EVs that would
20 be enabled by each sub-program. Do you remember that
21 discussion?

22 A. Yes.

23 Q. Is that the appropriate way to
24 evaluate -- to -- to frame an evaluation of your
25 proposed program; and if not, why?

1 A. No. I'm -- what we have proposed is this
2 holistic network. You don't really -- while it's fair
3 to critique an individual sub-program, these all come
4 together to create this holistic charging network that
5 will allow both EV users currently to better utilize
6 their electric vehicles, but very importantly,
7 prospective EV buyers to see what's happening in the
8 market, to benefit from the charging and feel
9 comfortable that they can drive their vehicle.

10 So it not only raises awareness, but it
11 enables them to travel. For example, it's not just
12 range anxiety to try to get across the state. It is
13 actual lack of charging. You cannot do it in most
14 electric vehicles today. And really Tesla is the
15 exception to that and they have their own
16 long-distance network because they knew they had to do
17 that in order to sell those long-range vehicles.

18 So you have to look at the program in its
19 entirety. You should not focus on one single measure
20 at a time in this case. That's appropriate in some
21 types of programs, but not in this one.

22 **Q. After that, Ms. Mers talked to you about**
23 **the VW trust and the dollars coming from that. Do you**
24 **recall those questions?**

25 A. Yes.

1 **Q. Can you explain to the Commission how the**
2 **VW trust works?**

3 A. Yeah. And maybe a little discussion of
4 the timeline would be helpful. And if you bear with
5 me, we -- we had an EV peer exchange that Kansas City
6 Power & Light hosted in the fall of 2016. And at that
7 meeting we discussed the VW settlement and that money
8 was coming to the states, including Missouri. And
9 about 41 million dollars was coming and possibly some
10 of that could be used for electric vehicle
11 infrastructure.

12 So that got us interested and we -- we
13 decided to follow that, talk with DNR, who's the
14 beneficiary of that money. And through their public
15 process, we ended up providing some comments.

16 The Missouri EV Collaborative that I'm
17 leading of all those entities that Ms. Mers mentioned,
18 and it's listed in my -- in my Direct Testimony, came
19 together with a vision for how that money could be
20 used to help the whole state. And that's the plan
21 with the big Missouri map, the white map with the
22 colored dots that Ms. Tatro referenced.

23 So we've put a vision together. We
24 recognized when we put that vision together that
25 Electrify America would be coming through with some

1 stations. It turns out there's six of them. And that
2 we wouldn't duplicate that effort. We also knew that
3 there would be some VW money if we could convince DNR
4 that this was a good way to use the money, a statewide
5 network, it's public, it's available to everyone. It
6 would allow anyone with an EV that has a 100-mile
7 range to travel from any point in the state to any
8 other point.

9 And one of the things that we recommended
10 in that plan was that, you know, the utilities are
11 uniquely positioned to help this happen. So we're the
12 ones that will benefit from most of the charging that
13 happens, which is at night. It won't happen at these
14 charging stations as much. It's mostly going to
15 happen at night, and so at homes. And so we put forth
16 that that should probably be a match by utilities or
17 communities where these charging stations would --
18 would go in.

19 And so that's the -- the relationship
20 between utility or EV collaborative involvement, the
21 VW trust funds that come to Missouri and Missouri can
22 choose how to spend, and the Electrify America program
23 which -- which VW, their subsidiary, Electrify
24 America, gets to control.

25 **Q. So explain to me what DNR's role is with**

1 **the VW trust dollars.**

2 A. VW is the beneficiary. So the trust
3 requires that each state define who -- who will manage
4 that funding. And in Missouri, it's the Missouri
5 Department of Natural Resources.

6 **Q. And do you know what categories of awards**
7 **DNR is able to make?**

8 A. Yes. I -- I can't give you the formal
9 off the top of my head, but it's basically --
10 there's -- there's lots of categories. One is
11 electric vehicle charging infrastructure. Another is
12 diesel retrofits or electrification of trucks. It can
13 be some of the equipment we talked about earlier,
14 whether it's -- but -- but the hope -- all the
15 measures point to the same thing, which is NOx
16 reductions. That's what the VW trust is all about.

17 **Q. So the allocation of dollars that -- that**
18 **DNR has -- is DNR able to move the allocation around**
19 **between the award categories?**

20 A. Yes. DNR has a plan currently for -- for
21 the money. And, for example, the 6 million that
22 they've earmarked for electric vehicle charging
23 infrastructure is not in budget yet. Missouri has
24 chosen to make sure that -- that each year the VW
25 trust funds that they want to spend go through the

1 appropriations process, even though it's a
2 pass-through.

3 And so each year that's going to have to
4 be approved. Right now they have not put any electric
5 vehicle infrastructure money -- none of the 6 million
6 is in budget. They're going to try to do it next
7 year. So while that's DNR's plan is to try to make
8 this vision happen, it's not -- it's not a done deal,
9 if you will. It's -- it has to go through
10 appropriations.

11 And so that money could be moved -- in
12 fact, they've already moved some money. They moved
13 money from -- through that appropriations process,
14 they -- they put a million of the truck dollars got
15 earmarked for Corrections and that was not in the
16 original plan from DNR. So there are changes that can
17 be made to it.

18 **Q. All right. So I think what you're saying**
19 **is that there's legislative approval of what**
20 **allocations actually occur?**

21 A. Yes. That's correct.

22 **Q. So the individual legislators, do they**
23 **have the ability to change DNR's allocations if they**
24 **so desire?**

25 A. Yes. As long as -- as long as -- I

1 should put a caveat. As long as it's within what the
2 VW trust says is okay.

3 **Q. Okay.**

4 A. In those categories.

5 **Q. So tell me what guarantees there are that**
6 **the 6 million dollars is going to end up being**
7 **allocated to EV chargers.**

8 A. There -- there is no guarantee. I would
9 say it's likely, but -- but it's not a guarantee.

10 **Q. And assuming for a moment that the**
11 **6 million dollars is allocated to EV chargers, why**
12 **does that not result in a sufficient network of EV**
13 **charging in the state of Missouri?**

14 A. Could you repeat that?

15 **Q. So assume for a moment the 6 million**
16 **dollars from the trust fund --**

17 A. Uh-huh.

18 **Q. -- is used for EV charging.**

19 A. Uh-huh.

20 **Q. Why does that -- why is that not**
21 **sufficient to create a network of EV chargers in the**
22 **state of Missouri?**

23 A. Well, the vision we've put together is
24 for a minimum practical network. So to do that you
25 have to have approximately 40 of these charging

1 islands around the state. DNR's money that they would
2 bring forward would take care of basically half of
3 that, not all of it.

4 And so that's why we need, you know,
5 utilities or other -- even private sector -- maybe the
6 cost of it can come down through some private sector
7 contribution. We -- we intend to find that out
8 through a competitive auction process, reverse auction
9 basically. And find out how much incentive do you
10 need in order to build one of these corridor sites in
11 a competitive way, competitive -- through a
12 competitive process.

13 So we -- it's basically half from VW
14 trust and we need to come up with the other half
15 through utilities or communities.

16 **Q. So then Ms. Mers asked you about a table**
17 **on page 13, I think it was. She talked about fourth**
18 **quarter 2018, there being a drop in the growth rate.**
19 **Do you remember that conversation?**

20 A. In Surrebuttal, yes.

21 **Q. Yes.**

22 A. Yes, I remember.

23 **Q. What does -- and it's labeled growth**
24 **rate. What does that mean?**

25 A. That means the -- and you'll see

1 percentage on the left-hand side. That means the
2 percentage growth compared to what you have ye-- and
3 it's year over year. So you wouldn't expect to
4 sustain a constantly increasing growth rate.

5 So if you have a good growth rate this
6 year and then it stays the same or even drops a little
7 bit next year, that means you're still growing. Your
8 growth just isn't accelerating as fast, but you're
9 still growing each year.

10 **Q. Then Ms. Mers asked you some questions**
11 **about the KCP&L rate case. Do you recall those**
12 **questions?**

13 A. Yes.

14 **Q. Would you expect -- well, first of all --**
15 **yeah, would you expect KCP&L's EV charging load growth**
16 **to offset other revenues?**

17 A. I would absolutely not --

18 **Q. Or excuse me, expenses.**

19 A. I would not expect, especially a
20 relatively new program to offset all of the efficiency
21 in renewables that are coming onto our systems in
22 Kansas City's case or in Ameren's case. These are not
23 overnight solutions where you put them in place and
24 just within a few years you've -- you've created that
25 much load growth.

1 **Q. So when testimony from Ameren Missouri**
2 **talks about downward rate pressure, what does that**
3 **mean?**

4 A. Downward rate pressure in my mind means
5 rates are lower than they otherwise would be. So our
6 rates will do something in the absence of this
7 program. If the program is approved, you can expect
8 that rates would be lower than they otherwise would
9 have been. That doesn't mean they would go down.

10 **Q. Then Ms. Mers had a couple exhibits, 107**
11 **and 108, which were some e-mails and an agenda. Do**
12 **you still have those documents?**

13 A. Yes.

14 **Q. All right. Mr. Justis, in your opinion,**
15 **did Staff work constructively to find a way to make**
16 **the EV charger program work?**

17 A. No.

18 **Q. So when there were discussions -- well,**
19 **explain to me why you say no.**

20 A. Well, I'll give you one example, if
21 that's helpful. I was actually surprised in the first
22 technical conference that as soon as we headed into
23 trying to tell the background and the story behind
24 what we have proposed, we were basically interrupted
25 asking, Where's this going? This is not -- you know,

1 let's get into the details, ABC. And we were just
2 trying to get the basis and the background out.

3 And so I -- I was taken aback by that,
4 thought that this is not constructive. This is going
5 to be difficult.

6 **Q. Did Staff provide changes to the program?**

7 **Did they propose changes to the program?**

8 A. During the technical conference?

9 **Q. Uh-huh.**

10 A. No. At least not that I recall.

11 **Q. Just a moment.**

12 **I have no further questions. Thank you.**

13 JUDGE DIPPELL: Thank you.

14 Thank you, Mr. Justis. I believe that
15 concludes your testimony.

16 THE WITNESS: Thank you.

17 JUDGE DIPPELL: Just on a scheduling
18 note, I was going to try to go till about 12:30 or so
19 before we break again for lunch. So we'll see what
20 comes up as a convenient stopping point.

21 Ameren's next witness?

22 MR. LOWERY: Call David Pickles to the
23 stand.

24 (Witness sworn.)

25 JUDGE DIPPELL: Thank you. Go ahead,

1 Mr. Lowery.

2 DAVID PICKLES, being first duly sworn, testified as
3 follows:

4 DIRECT EXAMINATION BY MR. LOWERY:

5 **Q. Would you please state your name for the**
6 **record?**

7 A. David Pickles.

8 **Q. Mr. Pickles, did you causes to be**
9 **prepared for filing in this doc-- docket two pieces of**
10 **testimony premarked as Exhibits 4 and 5, Direct and**
11 **Surrebuttal Testimony respectfully?**

12 A. I did.

13 **Q. Do you have any corrections to your**
14 **testimony -- your pre-filed testimonies?**

15 A. I do have some corrections to my Direct
16 Testimony, yes.

17 **Q. Please go ahead.**

18 A. There were some transcription and
19 copy/paste errors in the original spreadsheet for some
20 of the measures that caused a few of the numbers to
21 change very slightly. None of them change any of the
22 fundamental conclusions or directions of the -- of the
23 Direct Testimony.

24 I apologize. It's a fairly long list.
25 There are 13 changes. The first is on page 6, line 8.

1 The number 1.63 should be number 1.81. On page 7,
2 line 17, the number 152,536 should be 142,503.

3 JUDGE DIPPELL: I'm sorry, Mr. Pickles.
4 I -- I pulled out the wrong testimony. Can you just
5 repeat those two? I --

6 THE WITNESS: Sure. It's in my Direct
7 Testimony, page 6, line 8 is the first one. And I do
8 have them on a piece of paper if that would be -- if
9 that would be helpful to distribute.

10 But the first one, page 6, line 8 is 1.63
11 becomes 1.81. Page 7, line 17, 152,536 becomes
12 142,503. And 892 becomes 833. On page 7, line 18,
13 32,663 becomes 30,615. Page 7, line 19, 353,153
14 becomes 331,017.

15 Page 8, line 16, the 1.63 again becomes
16 1.81. Page 8, line 17, 11.4 becomes 13.9.

17 Page 9, line 1, 3.47 becomes 3.39. Page
18 9, line 2, 74.9 becomes 68.7.

19 On page 16, that entire Table 2, all the
20 numbers in there, adjust slightly and I do have a
21 revised Table 2.

22 Page 19, line 10, 630,488 becomes
23 596,774.

24 MR. CLIZER: I'm sorry. Could you repeat
25 that?

1 THE WITNESS: 630,488 becomes 596,774.
2 Page 19, line 11, 1.9 becomes 1.4. Page
3 19, line 12, 1.63 becomes 1.81. And the last one,
4 page 19, line 12, 3.47 becomes 3.49 -- I'm sorry 3.39.

5 And I would note that all those numbers
6 are -- were previously provided to parties in the
7 stakeholder working group and through the discovery
8 process and they're all correct in my Rebuttal
9 Testimony. So it's all been provided previously.

10 JUDGE DIPPELL: And I'm sorry. You had a
11 new Table 2?

12 MR. LOWERY: Yeah. Would you like us to
13 go ahead and mark that? We can get more copies if we
14 need to, but go ahead and mark it so that --

15 JUDGE DIPPELL: Yes, I would.

16 MR. LOWERY: May I approach the witness?

17 JUDGE DIPPELL: Yes. Let's mark that as
18 Exhibit 10, corrected Table 2.

19 MR. LOWERY: We do have a few copies
20 here, Your Honor. So I'll go ahead and give one to
21 the court reporter and the rest to you and we'll get
22 more. Exhibit 10 you said, Your Honor?

23 JUDGE DIPPELL: Yes.

24 (Exhibit 10 was marked for
25 identification.)

1 JUDGE DIPPELL: So that's corrected Table
2 2 from page 16 of Mr. Pickles' Direct Testimony.

3 BY MR. LOWERY:

4 Q And, Mr. Pickles, you -- in your -- in
5 your description just a minute ago, you indicated that
6 this information had been given to the parties in the
7 case. Do you know about when that was? Was that last
8 summer?

9 A. It was.

10 Q. And just to -- just to make sure I
11 understood, and in your Surrebuttal Testimony you use
12 these updated numbers. So your Surrebuttal Testimony
13 numbers are consistent with what had been given to
14 folks back last summer?

15 A. That's correct.

16 Q. Any other corrections?

17 A. No.

18 Q. With those corrections, if I were to ask
19 you the questions that are posed in -- in Exhibits 4
20 and 5, would your answers be the same today?

21 A. They would.

22 MR. LOWERY: Your Honor, with that, I
23 would offer the admission of Exhibits 4 and 5 and also
24 Exhibit 10 reflecting the corrections to the one
25 table, and tender Mr. Pickles for cross-examination.

1 JUDGE DIPPELL: Would there be any
2 objections to Exhibits 4 and 5 and 10?

3 Seeing none, I will admit those three
4 exhibits.

5 (Exhibits 4, 5 and 10 were received into
6 evidence.)

7 MR. CLIZER: Four is Direct?

8 JUDGE DIPPELL: I'm sorry. Four is the
9 Direct Testimony, 5 is the Surrebuttal Testimony, and
10 10 is that corrected table.

11 All right then. Is there
12 cross-examination from Renew Missouri?

13 MR. OPITZ: No, thank you, Judge.

14 JUDGE DIPPELL: ChargePoint?

15 MR. COMLEY: No questions.

16 JUDGE DIPPELL: Sierra Club?

17 MR. ROBERTSON: No questions.

18 JUDGE DIPPELL: Empire?

19 MS. CARTER: None. Thank you, Judge.

20 JUDGE DIPPELL: Division of Energy?

21 MR. LANAHAN: No, thank you, Judge.

22 JUDGE DIPPELL: Office of Public Counsel?

23 MR. CLIZER: Yes, judge.

24 CROSS-EXAMINATION BY MR. CLIZER:

25 Q. **By my watch it just became afternoon, so**

1 **I'll say good afternoon, Mr. Pickles.**

2 A. Good afternoon.

3 **Q. You're employed by ICF Resources, LLC.**

4 **Correct?**

5 A. Yes.

6 **Q. And ICF Resources, LLC has entered into a**
7 **contract with Ameren to carry out the proposed**
8 **beneficial electrification program. Correct?**

9 A. Just for one year. So not for the entire
10 program, but for the first year, that's correct.

11 MR. CLIZER: Judge, I'd like to mark an
12 exhibit. I believe it should be OPC 203.

13 JUDGE DIPPELL: That is correct.

14 Dr. Marke, if you have enough copies there, could you
15 go ahead and give me copies for the other
16 Commissioners?

17 DR. MARKE: Yes.

18 (Exhibit 203-C was marked for
19 identification.)

20 JUDGE DIPPELL: And this is -- also
21 appears to be confidential; is that true?

22 MS. TATRO: Yes.

23 MR. CLIZER: Yes.

24 JUDGE DIPPELL: And do we need to go
25 in-camera for questions about it?

1 MR. CLIZER: Later.

2 JUDGE DIPPELL: All right. Please let me
3 know.

4 MR. CLIZER: Eventually. I will.

5 JUDGE DIPPELL: And I'll ask the parties
6 to let me know if we need to go in-camera.

7 BY MR. CLIZER:

8 Q. **This is the copy of the contract signed**
9 **between ICF and Ameren. Correct? I'll give you a**
10 **moment to review it.**

11 A. To -- to the -- to the best of my
12 knowledge. I don't -- I would have to verify it, but
13 yes.

14 MR. CLIZER: I'd like to offer this
15 exhibit.

16 JUDGE DIPPELL: Would there be any
17 objection to Exhibit 203-C?

18 MR. LOWERY: No objection.

19 JUDGE DIPPELL: All right. I will admit
20 that into the record then.

21 (Exhibit 203-C was received into
22 evidence.)

23 MR. CLIZER: Thank you.

24 BY MR. CLIZER:

25 Q. **Mr. Pickles, do you have a copy of your**

1 **surrebuttal and Direct Testimony handy?**

2 A. I do.

3 Q. Thank you. Could you please turn to
4 **page 11 of your Surrebuttal Testimony for me?**

5 A. I have it.

6 Q. On page 11 you have a Figure 1 that you
7 describe sort of as a composite between Figures 4 and
8 5 from Dr. Marke's testimony; is that accurate?

9 A. That's correct.

10 Q. The -- and I apologize. Mine's black and
11 white. But the larger dashed line that's labeled
12 Diffusion Shape, that comes from Dr. Marke's Table 5.
13 **Correct?**

14 A. That's correct.

15 Q. You would agree with me that that's --
16 that shape has no correlation to the X axis upon which
17 the graph shows?

18 A. Yes. As I -- as I specify in my Footnote
19 8 on page 12, that -- the line as represented comes
20 from Mr. Marke's testimony that did not have specific
21 years along the X axis, but did indeed show the
22 progression of time. And my point in superimposing it
23 on the actual market share was to demonstrate that --

24 Q. **That's okay.**

25 A. -- at no point does the actual share --

1 **Q. A simple yes or no will be -- suffice.**

2 MR. LOWERY: I don't think he asked him a
3 simple yes or no question.

4 MR. CLIZER: I asked him if it had no
5 correlation. The answer is apparently yes, it has no
6 correlation.

7 JUDGE DIPPELL: Continue.

8 BY MR. CLIZER:

9 **Q. Mr. Pickles, there's a smaller dashed**
10 **line labeled Ameren and on the graph it says 4.96. Do**
11 **you see what I'm referring to?**

12 A. I do.

13 **Q. There's no citation anywhere in your**
14 **Surrebuttal to the source of that 4.96, is there?**

15 A. That's -- that's incorrect. There is a
16 citation.

17 **Q. Could you direct me to that citation?**

18 A. While I read for it, I can -- I can tell
19 you it was taken from the actual market share within
20 the counties served by Ameren for 2017 and 2018. And
21 I believe it says that in the text, so let me see if I
22 can find the --

23 **Q. You have not included a citation for that**
24 **information, have you, or provided it as an**
25 **attachment?**

1 A. Well, I -- I say somewhere in the text
2 that it was cited to the Industrial Truck Associations
3 so yes, I believe I do. And it's the same citation
4 that Dr. Marke uses for the -- that he includes
5 actually a -- a screenshot of in his testimony,
6 Industrial Truck Association provides all the
7 statistics. So mine are simply more recent and for
8 the Ameren-specific service territory.

9 **Q. Dr. Marke provided testimony for the**
10 **entire North American district, but you took just**
11 **Ameren's?**

12 A. I looked at both the entire North
13 American, but for the purposes of my testimony, trying
14 to understand what was happening within the
15 Ameren-specific -- within the Ameren service territory
16 and relevant to this program, I used the same national
17 data source, but I refined it to reflect the counties
18 that are served by Ameren and the number of Ameren
19 customers within each county. And also adjusted it to
20 exclude Class III forklifts, which are not eligible
21 for the program and should not be included in any
22 market share analysis.

23 **Q. That actually -- that brings me to my**
24 **next question actually. On page 10 of your testimony,**
25 **roughly lines 3 through 13, that paragraph, you**

1 criticize Dr. Marke's analysis by suggesting that he
2 inappropriately included Class III electric forklifts
3 and that his 66 percent, which actually shows up on
4 the prior page, should actually be about 50.4 percent.
5 Would you characterize that as a correct assessment?

6 A. The 50.4 reflects the internal combustion
7 tarket [sic] share that should be targeted. So the
8 actual electric market share is the universe of that
9 or the -- the 49.6.

10 Q. So you're saying that the national market
11 is 49.6 for electric forklifts?

12 A. Depends upon what year, but in general,
13 approximately the market share is roughly 50/50.

14 Q. Could you turn to page -- actually it's a
15 schedule, Schedule DP-D2-14 in your Direct Testimony?
16 I'll give you a minute to let you find that.

17 A. Thank you. I have that.

18 Q. You would agree with me that that shows
19 that the local forklift population -- and I assume
20 local meaning Ameren's service territory -- is at 54
21 percent electric?

22 A. I'm sorry. I have DPD-2-14.

23 Q. 12. I'm sorry. I misspoke, 12.

24 A. I apologize. DPD-2-12. I'm sorry. The
25 question again?

1 **Q. You would agree with me that that -- the**
2 **illustration on the -- near the bottom of that page**
3 **indicates that the local forklift population -- and**
4 **again, I assume local means Ameren's service**
5 **territory -- shows 54 percent electric?**

6 A. Indeed, yes. As is mentioned in the data
7 sources slide there --

8 **Q. Again, a simple yes or no.**

9 A. -- that is 54 percent in 2016, which
10 is --

11 **Q. A simple yes or no --**

12 JUDGE DIPPELL: Mr. Pickles, just yes or
13 no for now.

14 THE WITNESS: Okay.

15 JUDGE DIPPELL: And if you need to be
16 redirected, your counsel will do so.

17 THE WITNESS: Okay.

18 JUDGE DIPPELL: Or "I don't know" is
19 always appropriate as well.

20 THE WITNESS: Okay. It says 54 percent
21 there, yes.

22 BY MR. CLIZER:

23 **Q. Returning to your Surrebuttal Testimony,**
24 **page 13.**

25 A. I have it.

1 **Q. You identify a number of barriers to**
2 **entry into the electric forklift market. Correct?**

3 A. There are barriers to adoption of
4 electric forklifts, yes.

5 **Q. Fair enough. Excellent. The first one**
6 **you identify; price. You would agree that that is not**
7 **a new or recent development. Correct?**

8 A. Yes.

9 **Q. And the second one, unfamiliarity, you**
10 **would agree that that too is not a new or recent**
11 **development?**

12 A. I would agree.

13 **Q. And skepticism and fear, once again, you**
14 **would agree with me that that's not a new or recent**
15 **development -- a new barrier to entry or adoption?**

16 A. Yes, I would agree with that.

17 **Q. And as for the fourth one, again, dealer**
18 **desire to close the sale quickly, you would agree that**
19 **that's not a new or recent development?**

20 A. I would.

21 **Q. Thank you. Okay. Turning to pages 14,**
22 **15 and 16, there's a discussion on free ridership and**
23 **I'd like to ask you some questions. Before I do, I**
24 **just want to make sure that we have kind of an**
25 **agreement, understanding of what the term "free rider"**

1 means. So I'm going to give you a bit of a
2 hypothetical here just to make sure we have an
3 understanding.

4 If I were to -- if we were to say take a
5 owner of a warehouse who manages a fleet of forklifts,
6 all internal combustion, and he decided he had some
7 problems with several of his and he decided that he
8 was going to replace those with an electric forklift
9 or retrofit two of them -- let's say two of them with
10 electric -- electric components.

11 If he were to call up his dealer of
12 forklifts and say, I need two electric forklifts. And
13 the dealer or manufacturer were to say, That's great.
14 Oh, by the way, I can get you an incentive program, I
15 can get you some money through this program Ameren is
16 offering, and the owner agrees with that.

17 If I were to pose it to you, if we assume
18 that this forklift owner was going to purchase
19 electric forklifts regardless of whether or not Ameren
20 offers incentives and did so and received incentives,
21 that forklift owner would be a free rider to this
22 system. Correct?

23 A. If the person would have purchased the
24 electric forklift in the absence of the program, yet
25 they did participate in the program, they went through

1 the qualification process and screening, if they
2 received an incentive, then in that case, yes, that
3 would be the definition of a free rider.

4 **Q. All right. Thank you. On page 17 -- and**
5 **this is part of your analysis of the free rider**
6 **problem on RIM -- on the RIM tests. Lines 1 through 2**
7 **you state, Indeed, in order for the RIM test to drop**
8 **below 1.0, the free ridership rate would have to**
9 **exceed 54 percent, a highly unlikely outcome.**

10 **Would you agree that's a correct reading?**

11 A. That is a correct reading.

12 **Q. So based on what we just discussed, in**
13 **order for the RIM analysis to drop below 1 percent,**
14 **54 percent of the participants in this program would**
15 **have to purchase an electric forklift -- or would have**
16 **purchased an electric fork lift regardless of whether**
17 **the incentive program was offered?**

18 A. You -- your construct is correct;
19 however, it's physically impossible and mathematically
20 impossible given the design of the program for that to
21 happen due to the preclusions in the program that
22 prohibit people who have existing forklifts replacing
23 them with electric forklifts. So your construct is
24 correct, but it does not reflect the program.

25 **Q. It is impossible for 54 percent of the**

1 people who apply for replacement of an existing
2 industrial combustion engine forklift to have wanted
3 to purchase an electric forklift, regardless of the
4 program?

5 A. Yeah, I'm sorry. Can you say that again?

6 Q. It is impossible for individuals who own
7 industrial -- internal combustion forklifts -- for
8 54 percent of the individuals who own internal
9 combustion forklifts to have wanted to replace those
10 and would have replaced those with electric forklifts
11 regardless of the program?

12 A. Given what we know about the market and
13 the way that purchasing behavior has been exhibited
14 through the market shares that we've seen, yes, I
15 believe my statement is correct.

16 Q. Can you turn to page 19 of your
17 Surrebuttal?

18 A. I have it.

19 Q. You identify that you believe Dr. Marke
20 is mistaken when he only predicts one participant,
21 that being St. Louis International Airport. That's a
22 correct assessment of your testimony, would you say?

23 A. Dr. Marke suggested that the program
24 administrative costs were high for a program that
25 would have one participant. And I was reacting to his

1 characterization there, yes.

2 **Q. You expected there are multiple, as many**
3 **as 12, participants within Lambert and potentially**
4 **more beyond that?**

5 A. That's correct.

6 **Q. According -- can I ask you to turn to**
7 **Schedule DP-D2-29 of your Direct Testimony?**

8 A. I have it.

9 **Q. This is the med-- this is the analysis,**
10 **the Medium Incentive Program, which is ultimately what**
11 **you recommended adoption of. Correct?**

12 A. Yes.

13 **Q. And then the table along the bottom very**
14 **last row is labeled Gross Program Participants.**
15 **Correct?**

16 A. That's correct.

17 **Q. If we were to look at, say, belt loaders**
18 **under Airport GSE, that number is 11. Correct?**

19 A. It is.

20 **Q. With 12 potential recipients at Lambert,**
21 **are you expecting each one will need or require only**
22 **one --**

23 A. No. The --

24 **Q. -- belt loader?**

25 A. -- the program is required to outreach to

1 all 12, I would assume. And only a subset of those
2 will be -- will be convinced by the program's efforts
3 to make that conversion. So I think the marketing and
4 outreach would address all 12 and potentially other
5 airports that you mentioned. Actual participation is
6 anticipated to be a subset of those -- those
7 organization.

8 **Q. Based on the corrections that you walked**
9 **us through at the beginning of your testimony, you**
10 **have updated the RIM tests in your Surrebuttal.**
11 **Correct?**

12 A. That's correct.

13 **Q. Did you update the market saturation of**
14 **the electric potential that is now two years old as**
15 **well?**

16 A. I made no updates to the market potential
17 estimates in that, no.

18 **Q. Could there have been -- there could have**
19 **been further electrification of that market since your**
20 **initial study. Correct?**

21 A. No. I talked to the airport yesterday
22 and they have not done anything additional with
23 respect to ground support electrification.

24 **Q. And what about forklifts?**

25 A. In forklifts, the most recent data I have

1 is from June of this year and that was reflected in
2 the actual declining share of electric morklifts --
3 forklift so far this year. So actually the potential
4 for the program has increased as -- as -- as the
5 industrial -- or internal combustion has gained a
6 greater market share recently.

7 **Q. Thank you very much. No further**
8 **questions.**

9 JUDGE DIPPELL: Thank you. Any
10 cross-examination by Staff?

11 CROSS-EXAMINATION BY MS. MERS:

12 **Q. Good afternoon, Mr. Pickles.**

13 A. Good afternoon.

14 **Q. Are you being paid for your testimony**
15 **today?**

16 A. I am.

17 **Q. And how much are you being paid for your**
18 **testimony today?**

19 A. I honestly don't recall.

20 MS. MERS: Okay. And I would refer to
21 the contract, so I think we need to go in-camera for a
22 moment.

23 JUDGE DIPPELL: Hold on just one moment.
24 We'll go ahead and go in-camera.

25 (REPORTER'S NOTE: At this point, an

1 in-camera session began, which is contained in Volume
2 3, pages 167 through 171.)

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

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

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

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

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

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

1 (REPORTER'S NOTE: At this point, public
2 session resumed.)

3 JUDGE DIPPELL: Okay. We're back on the
4 public session. And I allowed Ameren to ask their
5 redirect questions as a follow-up to any Staff
6 in-camera questions.

7 So let's go ahead then, Ms. Mers. I
8 apologize for the interruption in your flow.

9 MS. MERS: That's okay.

10 BY MS. MERS:

11 **Q. On page 19 of your Surrebuttal, you state**
12 **that there are 12 individual airline tenants who lease**
13 **gates from Lambert.**

14 **To clarify, are those 12 airlines**
15 **separately metered?**

16 A. I do not know the answer to that.

17 **Q. Okay. If -- we'll make the assumption,**
18 **since you don't know, that Lambert is the customer and**
19 **the account holder. If they're not separately**
20 **metered, that would be correct. Right?**

21 MR. LOWERY: I'm going to object that it
22 assumes facts not in evidence. If she's asking him
23 hypothetically if that's the case, she can ask him
24 that, but she can't assume facts that are not in
25 evidence.

1 BY MS. MERS:

2 Q. I -- I phrased my hypothetical poorly
3 then. Hypothetically, if they are not separately
4 metered, that would make Lambert the customer or the
5 account holder for -- or make Lambert the customer or
6 account holder for Ameren Missouri. Correct?

7 A. I suppose.

8 Q. Okay. And the Business Solution tariff
9 only allows one incentive per measure per customer.
10 Correct?

11 A. Give me a moment. I'll read the tariff.

12 Q. Sure.

13 A. Can you point me to the provision you're
14 citing?

15 Q. Yes. If you look under the availability
16 section, it should be the last sentence.

17 A. I think the -- the implication of that
18 sentence or the way it was intended to be read is that
19 each measure, each forklift or ground supportive
20 equipment can only receive one incentive, as opposed
21 to three or four incentives for the same -- for the
22 same measure.

23 Q. Yes. I think that's my understanding as
24 well. So that would mean then each customer could
25 only get one incentive for a forklift. Correct?

1 A. For each forklift, yes.

2 Q. A customer being Lambert in this
3 hypothetical.

4 A. In your hypothetical, yes.

5 Q. Yes. If you look at the tariff under
6 Eligible Measures and Incentive, it lists each measure
7 as a category; is that correct?

8 A. I'm sorry. Can you point me to what
9 you're reading?

10 Q. Sure. If you would look at the chart on
11 six -- Sheet Number 166.1.

12 A. Okay.

13 Q. Under Eligible Measures and Incentives,
14 the chart has the category of measure and then the
15 type of measure.

16 A. The column headings are -- is measure,
17 yes. I -- I was confused by category. I apologize.

18 Q. Okay.

19 JUDGE DIPPELL: I'm sorry, Ms. Mers.
20 You're referring to the tariff that was filed with --

21 MS. MERS: With the application, yes.

22 JUDGE DIPPELL: And -- but those
23 aren't -- aren't attached to his testimony; is that
24 correct?

25 MS. MERS: No, they are -- they're

1 attached to the application of the Company. We're
2 more than happy to enter them in as exhibits if it's
3 necessary.

4 JUDGE DIPPELL: I don't think it is right
5 at this point, but I just wanted to clarify that on
6 the record because --

7 BY MS. MERS:

8 **Q. So I guess going back to your statement,**
9 **you -- you read the tariff as you only receive one**
10 **incentive per forklift, but you can receive multiple**
11 **forklifts and receive multiple incentives per**
12 **customer?**

13 A. Yes, that's correct.

14 **Q. Okay. Do you believe that there could be**
15 **ambiguity in the way the tariff was worded in the one**
16 **incentive per measure?**

17 A. I -- when I personally read that, I don't
18 perceive any ambiguity.

19 **Q. Do you believe incentivizing multiple**
20 **measures, one incentive per measure but multiple**
21 **forklifts, would lead to issues of free ridership?**

22 A. No. I think those are completely
23 disconnected issues.

24 **Q. Is there a cap on the number of**
25 **incentives any one customer can receive?**

1 A. There's not a cap at the moment.

2 Q. Okay. If we turn back to page 19 of your
3 Surrebuttal, you, in part, justify the amount of
4 administrative costs by stating that Cape Girardeau
5 and the Spirit of St. Louis, along with other regional
6 airports, may apply; is that correct?

7 A. That is correct.

8 Q. Okay. And if you could turn to your
9 Direct Schedule DP-D2, page 14.

10 A. I have it.

11 Q. Okay. You for data sources, that box at
12 the top, state that St. Louis Airport is the only
13 medium hub in Ameren service territory and that
14 airports with less than .25 percent of total US
15 passenger enplanements will not have significant
16 potential.

17 Is that an accurate reading of that data
18 source box?

19 A. That is accurate. I -- I believe true
20 significant technical potential --

21 Q. Thank you.

22 A. -- is not comprehensive of everybody who
23 may apply.

24 Q. I have no question pending, but thank
25 you.

1 **Did you consider those airports in your**
2 **cost-benefit analysis?**

3 A. We did not include them in the
4 potentials, no.

5 **Q. Okay. But your claim is that you**
6 **considered the travel and other direct costs**
7 **associated with those airports in your development of**
8 **the appropriate budget as stated on page 19 of your**
9 **Surrebuttal?**

10 A. I used them as an example to illustrate
11 the point that there is more than one customer and
12 that there are significant costs and unusual costs
13 associated with this program that may be applicable,
14 so that's how that was used.

15 **Q. Okay. Thank you. I have no further**
16 **questions.**

17 JUDGE DIPPELL: Thank you. Commissioner
18 Kenney, did you have any questions?

19 COMMISSIONER KENNEY: Yeah. Just
20 briefly. I'm just trying to understand this.

21 QUESTIONS BY COMMISSIONER KENNEY:

22 **Q. Good afternoon, Mr. Pickles.**

23 A. Good afternoon.

24 **Q. Just a question regarding the companies.**
25 **How many companies do you say there are at Lambert**

1 **that have the potential to use electric forklifts?**

2 A. Electric ground support equipment.

3 **Q. Ground support equipment.**

4 A. Twelve.

5 **Q. And there's currently one company that**
6 **does so?**

7 A. No. There are currently zero.

8 **Q. Oh, zero. Okay.**

9 A. Uh-huh.

10 **Q. And how would the Charge Ahead program**
11 **benefit those 12 companies?**

12 A. So --

13 **Q. Are there incentives that --**

14 A. We are proposing in this program to offer
15 a combination of incentives, technical support
16 training analysis, and decision support to get them
17 comfortable with the fact that that technology could
18 be a benefit to them. There are also a lot of issues
19 around where you site the equipment. Do you site it
20 on the ramp? Do you put it in the bag room? Are
21 there -- is there sufficient electrical capacity
22 within the airport to support that charging --

23 **Q. So a whole lot more to do than just the**
24 **electricity?**

25 A. There's a whole lot more to do than --

1 it's not like an energy efficiency program where
2 somebody is going to be buying an air conditioner and
3 all we're trying to do is get them to go from, you
4 know, 16 SEER to a 17 SEER.

5 **Q. And currently there's -- like on a**
6 **forklift operation, they'll be using natural gas?**

7 A. Currently the market is about 50 percent
8 internal combustion, 50 percent electric. That
9 internal combustion, the vast majority is diesel and
10 propane. About .3 percent is gasoline.

11 **Q. So they're still -- interior diesel?**
12 **Inside diesel or out?**

13 A. Well, outside.

14 **Q. Okay. But all the interior would be**
15 **propane?**

16 A. One shouldn't, but there's plenty of
17 people that ri -- that use diesel inside. But one
18 shouldn't.

19 **Q. These companies, do they have their own**
20 **warehouse space? I know you mentioned that there's**
21 **only -- is there -- is there currently only one meter,**
22 **one metered -- metered company at Lambert, which is**
23 **Lambert?**

24 A. Well, I -- I think the -- the
25 distinction, as I -- as I understood it, that -- that

1 Lambert is a -- is a mastered metered account
2 essentially and that the tenants I believe will
3 probably pay a sub-metered prorated share of their
4 electricity.

5 **Q. So they have their own tariff? Is**
6 **Lambert on their own separate tariff? Is that --**
7 **what -- what classification is that?**

8 A. I -- I don't know what tariff Lambert's
9 on directly.

10 **Q. That's fine. So -- but you don't know if**
11 **these individual companies have warehouse space, if**
12 **they have -- pay rent or --**

13 A. Well, they -- they certainly pay rent and
14 they have -- yes, they have baggage rooms and they
15 have other facilities.

16 **Q. Place to store their -- store their**
17 **equipment?**

18 A. Uh-huh.

19 **Q. So there's nothing right now that**
20 **prevents them from getting a -- an EV forklift or EV**
21 **equipment and charging it themselves. Correct?**

22 A. They could certainly make that -- that
23 decision.

24 **Q. I mean, is there anything that prevents**
25 **them from doing it? Just like a homeowner with a car.**

1 A. Other than the barriers that I outline in
2 terms of the cost and, you know, the technical
3 elements.

4 Q. Well, it's not that -- very much, is it?
5 What's the co-- well, but you're going to different
6 areas. So -- but if someone wanted to charge their --
7 put in a charging station for their forklift, if
8 that's all they had, they could do that?

9 A. They could. They could indeed, yes.

10 Q. And they're not going to be benefiting
11 from a Charge Ahead station where you have different
12 charging points on I-70. Correct? Or anywhere else
13 in the state?

14 A. They -- they wouldn't benefit from that,
15 but, of course, we would be putting it in this
16 program.

17 Q. And you're making separate -- you're
18 cutting out certain things for different niche groups?

19 A. That's right. That's right. There are
20 still charging stations that would need to go at the
21 airport ramp to support the ground support equipment.

22 Q. Not if they had their own charging
23 stations.

24 A. Yeah, but they don't.

25 Q. That's what I'm saying. But they have --

1 **they have -- currently today they have the capability**
2 **to do that?**

3 A. They -- absolutely.

4 Q. **That's all I wanted to get to.**

5 A. Yes.

6 Q. **Today they can do that. You're just**
7 **offering other incentive packages to try to encourage**
8 **them to do it?**

9 A. That's correct, yes.

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

11 JUDGE DIPPELL: Is there any further
12 cross-examination based on the Commissioner's
13 questions from Renew Missouri?

14 MR. OPITZ: No, thank you, Judge.

15 JUDGE DIPPELL: ChargePoint?

16 MR. COMLEY: No questions.

17 JUDGE DIPPELL: Sierra Club?

18 MR. ROBERTSON: No, thank you.

19 JUDGE DIPPELL: Empire?

20 MS. CARTER: None.

21 JUDGE DIPPELL: Division of Energy?

22 MR. LANAHAN: No, thank you, Judge.

23 JUDGE DIPPELL: Office of Public Counsel?

24 MR. CLIZER: No, thank you.

25 JUDGE DIPPELL: Staff?

1 MS. MERS: No, thank you.

2 JUDGE DIPPELL: Is there further redirect
3 from Ameren?

4 MR. LOWERY: Yes, there is, Your Honor.

5 FURTHER REDIRECT EXAMINATION BY MR. LOWERY:

6 Q. Mr. Pickles, I want to clear up what I
7 think is a little bit of potential confusion in the
8 room. And part of it I think is Ms. Mers would ask
9 you about forklifts and talking about the airport
10 and -- and Commissioner Kenney I think picked up on
11 that.

12 But just to be clear, this debate about
13 whether there's 1 customer, 12 customers or whatever
14 really doesn't have anything to do with the forklift
15 measure in this program. Right?

16 A. That's correct.

17 Q. When you made your statements in your
18 Surrebuttal Testimony about there being 12 potential
19 customers, you're talking about 12 potential customers
20 for ground support equipment, that category, that
21 measure. Correct?

22 A. That's correct.

23 Q. Now, I think what Ms. Mers was suggesting
24 is that the airport's master metered and so there's
25 really only one electric customer and, therefore,

1 **Lambert can only get one belt loader. Right? That**
2 **was the suggestion. Did you understand that?**

3 A. That was the suggestion, although that's
4 not my reading of the tariff.

5 Q. **When you designed the program, did -- was**
6 **your intention to offer incentives to the airport that**
7 **may happen to house the 12 airlines or offer**
8 **incentives to the 12 airlines?**

9 A. Ultimately to the 12 airlines.

10 Q. **So let me -- I'm going to give you a**
11 **hypothetical. Hypothetically let's imagine that the**
12 **Commission has some concern that the tariff isn't**
13 **crystal clear on this point in some fashion.**
14 **Consistent with the design of the program, couldn't we**
15 **just fix the tariff language to conform to your**
16 **intention and we wouldn't have this issue at all?**

17 A. We could.

18 Q. **At the end of the day, there are 12**
19 **different airlines you're going to have to deal with**
20 **if you want to try to get all 12 of them to switch to**
21 **electric ground support equipment. Right?**

22 A. That's correct.

23 Q. **Just at Lambert alone?**

24 A. That's correct.

25 Q. **You were asked questions both by**

1 Ms. Mers and Mr. Clizer about free ridership. Do you
2 remember those?

3 A. I do.

4 Q. And Mr. Clizer pointed out that you had
5 indicated that free ridership that would be
6 problematic for the program -- by problematic I mean
7 it would make it not cost effective -- was highly
8 unlikely. Do you remember that?

9 A. I do.

10 Q. And you also, I think, indicated that
11 there were some free ridership scenarios I think he
12 was trying to take you through that you -- you -- you
13 thought were impossible; is that right?

14 A. That's correct.

15 Q. Can you -- can you -- do you -- do you
16 have in mind what the -- sort of the worst case
17 scenario or what a -- or what a bad case scenario for
18 free ridership would be on this program? If you
19 really -- if a lot of free riders slipped through,
20 what would that look like?

21 A. It would be at most, 33 percent.

22 Q. Can you -- can you explain --

23 A. Sure.

24 Q. -- that 33 percent?

25 A. You know, it may be easier if I draw a

1 picture. Can I -- can I use the chart to draw a
2 picture?

3 **Q. You can -- you can either use ELMO or**
4 **there's an old-fashioned easel with some pens over**
5 **there if you want to use that. Which-- which--**
6 **whichever you prefer. It's your picture.**

7 A. The easel would be fine for me, if that's
8 okay.

9 **Q. I'll -- I'll get the easel.**

10 MR. LOWERY: Is this going to work,
11 Judge, do you think?

12 JUDGE DIPPELL: We'll see.

13 MR. LOWERY: Try to get it -- it's hard
14 to get it for the Bench and the lawyers to all see at
15 the same time.

16 COMMISSIONER KENNEY: No stick figures.
17 Okay?

18 THE WITNESS: I'm a terrible artist, but
19 this -- this hel -- I talk better with my hands
20 hopefully. So thank you. So --

21 JUDGE DIPPELL: Hang on just one moment.
22 Let me see if I can get the camera on that.

23 MR. LOWERY: Your Honor, I'm going to
24 kind of switch this mic and see if it will pick up
25 his voice. I don't know if it will or not. He's sort

1 of soft spoken, unlike me, but --

2 JUDGE DIPPELL: Hold on just a second.

3 Okay. Go ahead, Mr. Pickles. Let's try that.

4 THE WITNESS: So when we -- when we think
5 about the entirety of the forklift market, we know a
6 couple of things. We know that roughly half is
7 electric and half is internal combustion. So take the
8 market and divide it in two. We've got roughly
9 50 percent that's currently electric, another
10 50 percent that's internal combustion.

11 Internal combustion is almost all diesel
12 and propane, as I -- as I mentioned. Gasoline's about
13 .3 percent and -- and CNG is too small to -- to
14 measure. It really doesn't exist.

15 We also know that -- based on our
16 discussions with the dealers -- that roughly half of
17 the market is for replacing existing pieces of
18 equipment. So this is replacement. And roughly the
19 other half of the market is for expansion. By
20 expansion I mean expansion of an existing fleet at a
21 facility and construction at a new facility.

22 And I think people are, you know,
23 naturally concerned about free ridership. I think
24 it's a very legitimate question to ask, well, what
25 about this 50 percent? Doesn't that mean that

1 50 percent of the people participating in the program
2 would have done it anyway, you know? Why should we be
3 paying people for doing the things that they're doing?

4 That's not the way the program is
5 designed. The tariff says we're going to go out and
6 we're going to physically inspect the site. And if
7 they've got electricians already and they're just adding
8 more electricians, they're already believers, they're
9 ineligible to participate in the program. So this
10 whole quadrant of people are precluded from
11 participating in the program just by the nature of its
12 design and the inspections that Ameren and ICF does.

13 We also know that these people down here,
14 when we go out and we see that they've got internal
15 combustion, we see that they don't have a battery room
16 and they really can't be considering electricity, we
17 know that those are good participants, right, they're
18 good net people.

19 Now, when we look at the expansions, it's
20 a little bit more difficult, but we also know that the
21 expansion market again is split roughly 50/50 between
22 existing facilities and new facilities. These are all
23 existing and these are new. So again, we know if we
24 go out -- they say they're expanding their fleet from
25 60 to 70 forklifts, but they're all currently internal

1 combustion, they're not batteries. We know that these
2 people are likely to be kind of the good participants,
3 the -- that we want to have.

4 BY MR. LOWERY:

5 **Q Just to clarify, when you say good**
6 **participant, you mean one that, by definition, can't**
7 **be a free rider?**

8 A. That's right. Is not a free rider.

9 So we also know that when we go out -- if
10 we can't inspect a facility but if it's an expansion,
11 what we typically do is, Show us the plans for your
12 new building. Do you have a battery room in there?
13 Have you -- have you run the electric infrastructure?

14 We ask them a variety of questions that
15 screen them to really demonstrate that no, this person
16 was not considering electric. They really would have
17 been going internal combustion. So there's some --
18 some techniques that we can use in inspection, things
19 to say that the people in this quadrant are similarly
20 net -- net participants.

21 So the folks that we really need to be
22 worried about and sensitive to are the folks in this
23 quadrant. Right? These are the people who we can't
24 tell exactly what they're doing because they're
25 expanding their fleet and they otherwise would have

1 gone -- gone electric.

2 And so -- so in the worst case, to answer
3 your question, if we look at the amount of
4 participants we get, we've got -- we first add our net
5 participants, the people that we like. That's this
6 25 percent, that's this 12 and a half percent, that's
7 this 12 and a half percent. So we've got 50
8 participants who add value.

9 And if we can't exclude these people from
10 the program, we've got a gross participation rate of
11 75 percent because we got to pay these people because
12 we haven't excluded them. And then 50 over 75 is
13 66.6. So that's 66 percent net to gross ratio. That
14 means, you know, the inverse of that is the definition
15 of free rider.

16 So of all these people that we have to
17 pay to participate in the program, even if we can't
18 exclude any of these people, our worst case is
19 33 percent free ridership, which is where -- how I get
20 there.

21 Now what we can certainly do is try to
22 exclude these people and not target or recruit them to
23 the extent that we can. So, you know, right now the
24 tariff says if you're expanding a fleet, you can
25 participate. If we -- if we were really worried about

1 this, we could say, If you're expanding a fleet, you
2 can participate so long as you can prove to the
3 program's satisfaction that you wouldn't otherwise
4 be -- be going electric.

5 And what we typically do in a case like
6 that is, you know, if it's Wal-Mart, we know what
7 their -- their corporate, you know, purchasing
8 priorities are so we can look around the country and
9 we can do some -- some investigation to see what
10 they -- what they might well have doing.

11 As well as in the case of the new, look
12 at the construction plans, say maybe -- people do
13 plans for their buildings a long time before they
14 order their forklifts, right? So we got that
15 opportunity to get in there and see what's going on.

16 So what I did in my analysis is I assumed
17 that we were -- we were able to exclude about half of
18 that amount, so 12 and a half percent. So -- so in
19 the analysis I provided, what we had was we've got --
20 you've got 50 over 62 and a half, which is an
21 80 percent net to gross ratio or a 20 percent free
22 ridership.

23 So I assumed our controls were effective
24 at excluding some of these people. You can't exclude
25 all of them because it makes the program so draconian

1 and difficult to participate in, you'll alienate these
2 people, so you got to let some of them in. So
3 that's -- that's how I get the 20 percent. So for me,
4 the range is -- is -- is 20 to 30 percent. And when
5 you do that, even if -- even if you believe the
6 33 percent net to gross ratio, the program is still
7 very, very cost effective. Does that answer your
8 question?

9 **Q I think it does. And you assume -- you**
10 **assume just 20 percent free ridership based on the**
11 **assumption that the tariff would allow you to**
12 **crosshatch out that last quadrant you just -- you just**
13 **mo-- you just drew; is that correct?**

14 A. Well, in -- in -- in part. Also remember
15 that the -- it's -- that's a blended net to gross
16 ratio for the entire portfolio. So all of the other
17 measures have much less of a potential issue with --
18 with -- with free ridership. So that the overall
19 program benefit cost ratio benefits from that as well
20 as the -- the opportunity to exclude these people.

21 **Q. This was an illustration using forklifts,**
22 **for example?**

23 A. This was -- this was for forklifts. The
24 other -- you know, the other ones have a much lower
25 market share so the issue of free ridership is --

1 is -- is much less concerning. And this has been a
2 very stable number for 20 years. I mean the -- I
3 think it's fairly natural to assume that -- or to
4 wonder isn't the forklift market share growing? But
5 it hasn't. It's been fluctuating at about 50 percent
6 for 15 years. There's really no evidence that it's --
7 that it's drifting and free ridership is becoming more
8 of a problem.

9 **Q. Thank you, Mr. Pickles.**

10 MR. LOWERY: Your Honor, I think for the
11 record we should mark that as Exhibit -- I believe
12 it's 11.

13 JUDGE DIPPELL: I believe you are correct
14 and agree.

15 MR. LOWERY: And I'd like to ask that it
16 be admitted.

17 JUDGE DIPPELL: Okay. Would there be any
18 objection to what -- I'm going to mark the hearing
19 room testimony pie chart for lack of a better title
20 that -- of Mr. Pickles as Exhibit Number 11. Would
21 there be any objection to that?

22 MR. CLIZER: Is it being introduced as --
23 is it being introduced as demonstrative or --

24 MR. LOWERY: No.

25 JUDGE DIPPELL: Mr. Lowery actually

1 offered it as evidence. It was part of his testimony
2 basically.

3 MR. CLIZER: No objections.

4 JUDGE DIPPELL: Would there be any
5 objection?

6 All right. Seeing none, I will enter
7 that.

8 (Exhibit 11 was received into evidence.)

9 JUDGE DIPPELL: And I will ask Mr. Lowery
10 if he can reduce that to --

11 MR. LOWERY: We'll find a way.

12 JUDGE DIPPELL: -- a document that we can
13 easily --

14 MR. LOWERY: It's probably going to be a
15 picture and then we'll print it out. How about that
16 if we can do that?

17 JUDGE DIPPELL: I think that's
18 acceptable.

19 THE WITNESS: No stick men, like I
20 promised.

21 JUDGE DIPPELL: All right. Are -- do you
22 have further questions, Mr. Lowery?

23 MR. LOWERY: Just a little bit I think on
24 one topic.

25 BY MR. LOWERY:

1 Q. Mr. Pickles, at the very beginning of the
2 cross-examination from Mr. Clizer there was a lot of
3 discussion about -- I think it's the diffusion curve
4 Mister -- or Dr. Marke had injected that into the case
5 in his Rebuttal and then you responded in Surrebuttal.
6 There was a lot of discussion about numbers and I
7 heard 49.6 and I heard 50.4 and I heard 50 percent.
8 You remember all of that?

9 A. I do.

10 Q. And Mr. Clizer asked you a question about
11 whether or not you had given a citation to -- was it
12 49 point -- you probably know better than I do.
13 There's a particular figure. It's the figure using
14 actual data from 2018 in Ameren Missouri's service
15 territory. 49.6 percent. You were asked whether you
16 had given a citation for that. Do you remember that?

17 A. That's correct.

18 Q. Did you explain where the 49.6 came --
19 percent came from in your Surrebuttal Testimony?

20 A. I did.

21 Q. Is it your understanding that your work
22 papers that underlie your Surrebuttal Testimony were
23 provided to the other parties shortly after you filed
24 that Surrebuttal Testimony?

25 A. They were indeed. And there was a screen

1 grab in that work paper that provided the ITA data
2 that I used for the Class III adjustment that was made
3 to his data.

4 MR. LOWERY: Your Honor, I need to get an
5 exhibit marked. I think it will be 12.

6 JUDGE DIPPELL: Yes. Exhibit 12.

7 (Exhibit 12 was marked for
8 identification.)

9 BY MR. LOWERY:

10 Q Mr. Pickles, I've handed you what's been
11 marked as Exhibit 12 and I'd ask you if you can
12 identify that document?

13 A. This is the work paper that I filed as a
14 part of my Surrebuttal Testimony.

15 Q. And the first two pages of that work
16 paper pertain to this issue of, you know, what --
17 where the 49.6 percent came from and the 50.4 and the
18 various sources of these market share figures you were
19 discussing with Mr. Clizer; is that correct?

20 A. That's correct.

21 Q. And just so the record is clear, the
22 49.6 percent shown on the first page of Exhibit 12,
23 that is actual data in Ameren Missouri's service
24 territory of the market share of forklifts eligible
25 for this program as of June of 2018; is that right?

1 A. That's correct.

2 Q. And to also be clear, the data in the
3 third column on the first page that's labeled North
4 American without Class III, that data is taken from
5 the second page of Exhibit 12; is that right?

6 A. That's correct.

7 Q. And is the data on the second page of
8 Exhibit 12 exactly the same data that Dr. Marke
9 referenced in his testimony from the -- what is it,
10 the International Truck Association?

11 A. It -- it is a detail of what Dr. Marke
12 used. So on page 19 of the presentation that
13 Dr. Marke cite-- cited, it gave the combination of the
14 motorized -- of the Class I and II and III trucks.
15 This is from page 17 of that same presentation, which
16 breaks out the I, II and III market share. So it's
17 the -- it's from the same presentation. It's not from
18 the same page of that presentation.

19 Q. Well, his data source where I think he
20 had -- I believe it was 60 -- he had posited that
21 60 percent of -- 66 percent of the forklift market is
22 electric. His source of that data and your source of
23 the data are exactly the same. Right?

24 A. Correct.

25 Q. What he'd done is he'd included some

1 **forklifts that are not eligible for the program you**
2 **have proposed. Right?**

3 A. That's correct.

4 Q. **And then on page 2 of Exhibit 12, you did**
5 **the math to come up with what is the percentage of the**
6 **Class I and II forklift market that is electric today.**
7 **Right?**

8 A. That's correct.

9 Q. **And I think in response to questions**
10 **or -- you know, and I think this sort of went to the**
11 **free ridership. There -- you'd made some statements**
12 **suggesting that we really haven't seen the market move**
13 **very much in quite a number of years and it's really**
14 **sort of been trending around in kind of a narrow**
15 **range. Is there something in Exhibit 12 that**
16 **illustrates that?**

17 A. It is. If you look at the red line on
18 the front page of Exhibit 12, that is the market share
19 of forklifts that are eligible for this program since
20 1994. And you can see that it's been pretty constant
21 between 40 and 50 percent. And that's why I believe
22 that there is a significant opportunity to provide
23 services to that remaining 50 percent and do it in a
24 way that doesn't engage too many of the people who
25 would be doing it otherwise.

1 Q. Mr. Clizer also asked you a question
2 about this -- is diff-- is diffusion curve the right
3 term, this blue dotted line?

4 A. It is.

5 Q. And I think -- I think what he was
6 getting at was, well, you know, you can't really --
7 I'll -- I'll probably goof this up, but you can't
8 really tie a temporal element to the shape. It
9 doesn't fit any particular time -- duration or time
10 period. Is that the point he was making as you
11 understood it?

12 A. As -- as best I understood it.

13 Q. How -- how long have the typical Class I
14 and II forklifts that I think we're all pretty
15 familiar with that we're probably talking about here,
16 how long have those been in operation?

17 A. Well, the -- the first electric forklift
18 was introduced to the market I think in -- in -- in
19 1913. Forklifts as we know them today, electric
20 forklifts have been around for 30 years perhaps.
21 They've made improvements over time, technology has
22 evolved a little bit. But basically they've been
23 around for 30 years.

24 Q. Given that they've been around for
25 30 years, would you expect them to be at a

1 **significantly difference place on this diffusion curve**
2 **if this diffusion curve theory actually applied to**
3 **this market?**

4 A. Well -- well, I would. And I think
5 what -- what's demonstrated by the actual
6 participation rate is that for this technology, the
7 diffusion curve theory is not an appropriate way to --
8 to forecast market share.

9 The diffusion theory is -- is -- or was
10 originally developed in the '60s to forecast the
11 penetration of significant new innovations. It does
12 not do a good job of looking at competition between
13 existing solutions to that same problem.

14 So the same way -- since there is
15 competition for electric forklifts from -- from --
16 from internal combustion forklifts, diffusion theory
17 doesn't work well for it. Nor does diffusion theory
18 do a good job of handling interventions as -- as
19 Ameren is proposing here in terms of marketing and
20 technical support and -- and incentives. It just do--
21 is not a framework that lends itself to this kind of
22 analysis.

23 MR. LOWERY: And last question I think,
24 Judge. I probably should never say that. Then I am
25 made a liar.

1 BY MR. LOWERY:

2 **Q. But we have this discussion of free**
3 **ridership backing up to the other discussion a minute.**
4 **And -- and does this work paper also address this free**
5 **ridership issue in some way? And I'm pointing in**
6 **particular to page 3.**

7 A. It -- it does. The information on page 3
8 supports the area of my testimony where I said even if
9 free ridership was significant, the electric forklift
10 measure would still be cost effective. And so the
11 first line of that provides the net to gross ratio,
12 that is the number of participants that are -- would
13 or would not have done it without the program, as I
14 illustrate right there -- the free ridership there.

15 In my example, you can run free ridership
16 up to 54 and a half percent, which again, I think is
17 something which I believe to be impossible, but even
18 if it got that high, the TRC of -- of an individual
19 forklift measure would still be above one.

20 **Q. Meaning it would still be cost effective?**

21 A. Meaning it would still be cost effective.

22 **Q. And just to make sure the record's clear,**
23 **so if I have a net to gross of 70 percent, that**
24 **implies free ridership of 30 percent?**

25 A. That's correct.

1 MR. LOWERY: Thank you, Your Honor. And,
2 Your Honor, I would like to move the admission of
3 Exhibit 12 and that's all the questions I have.

4 JUDGE DIPPELL: And I have Exhibit 12,
5 which is a work paper from Mr. Pickles' Surrebuttal
6 Testimony.

7 MR. LOWERY: That's correct.

8 JUDGE DIPPELL: Would there be any
9 objection to that coming into the record?

10 MR. CLIZER: Yes, Your Honor.

11 JUDGE DIPPELL: What's your objection?

12 MR. CLIZER: The column labeled Ameren on
13 page 1 still contains no source for the numbers
14 included in that. For example, page 2, for instance,
15 at the bottom of the table there's a list labeled
16 source, Industrial Truck Associations. There is no
17 similar information provided to describe where the
18 numbers are coming from in the column labeled Ameren.
19 There's been no foundation laid for that portion of
20 this document.

21 MR. LOWERY: Your Honor, may I respond?

22 JUDGE DIPPELL: Go ahead.

23 MR. LOWERY: If the objection is lack of
24 foundation, the sworn witness of the testimony [sic]
25 today said where the number came from. And they can

1 argue the weight, they can argue whether --

2 MR. CLIZER: He has not stated where it
3 came from.

4 JUDGE DIPPELL: Excuse me. One at a
5 time, please. Let Mr. Lowery finish.

6 MR. LOWERY: Well, I just asked him the
7 question as to whether or not it was Ameren Missouri
8 primary data as of June 30, 2018 and he confirmed that
9 it was.

10 JUDGE DIPPELL: All right. Thank you.
11 Did you have further response,
12 Mr. Clizer?

13 MR. CLIZER: No.

14 JUDGE DIPPELL: I will overrule the
15 objection and admit Exhibit 12.

16 (Exhibit 12 was received into evidence.)

17 JUDGE DIPPELL: All right then. I think
18 we are past due to take a lunch break so we will do
19 so. Return at 2:15 and we will begin again with
20 Ameren's last witness, I believe. Let's go ahead and
21 go off the record.

22 (A recess was taken.)

23 (Exhibit 202 was marked for
24 identification.)

25 (Exhibits 8, 9 and 11 were marked for

1 i d e n t i f i c a t i o n .)

2 JUDGE DIPPELL: Okay. We're back on the
3 record after our break for lunch. And we're ready to
4 begin with Ameren's next witness. I'll go ahead and
5 swear you in.

6 (Witness sworn.)

7 JUDGE DIPPELL: Thank you.

8 STEVEN WILLS, being first duly sworn, testified as
9 follows:

10 DIRECT EXAMINATION BY MS. TATRO:

11 **Q. Good afternoon. Could you state your**
12 **name and business address for the Commission, please?**

13 A. My name is Steven M. Wills. My business
14 address is 1901 Chouteau Avenue, St. Louis, Missouri
15 63103.

16 **Q. And are you the same Steven Wills that**
17 **pre-filed Direct and Surrebuttal Testimony that's been**
18 **marked Exhibits 6 and 7 in this case?**

19 A. Yes, I am.

20 **Q. Do you have any corrections or additions**
21 **to make to your testimony?**

22 A. Yes. Just a few. In my Direct
23 Testimony -- and these all relate to the corrections
24 that Mr. Pickles made earlier today. I cited some of
25 the numbers from his testimony in mine.

1 So at page 37, on line 18 where I
2 reported a RIM test result of 1.63, it should be 1.81.
3 On the next line where I said, Every dollar spent in
4 the program is expected to produce one \$1.63 in
5 benefits, that should be \$1.81.

6 On the next page, page 38, on line 20
7 where I was talking about the participant cost test
8 and I said that the results ranged from 1.0 -- from
9 just above 1.0 to all the way up to 4.7, 4.7 should
10 now be 3.7.

11 And on the following page, 39, both of
12 the references to 3.47 on lines 1 and 2 should now be
13 3.39 for the TRC test results.

14 And so that's all for my Direct
15 Testimony, and I have one very, very minor correction
16 in my Surrebuttal Testimony.

17 **Q. And, Mr. Wills, just to make sure I'm**
18 **clear, on line 2 of page 39, the \$3.47 now becomes**
19 **\$3.39?**

20 A. That's correct, yes.

21 **Q. Okay.**

22 A. Should I go onto my next --

23 **Q. Yes.**

24 A. In my Surrebuttal Testimony on page 35,
25 Footnote 9, the very last two words where I said this

1 is referenced in Footnote 8 above, it should have been
2 in Footnote 5 above.

3 **Q. Is the load shape reference to Footnote 8**
4 **correct?**

5 A. Well, load -- Footnote 8 refers back to
6 Footnote 5. It refers -- but it doesn't actually --
7 Footnote 8 is the right load shape, but it doesn't
8 actually say the name of the study. So this one was
9 referring back to Footnote 5 that actually said the
10 name of the study, since I was trying to provide a
11 cite.

12 **Q. Okay.**

13 A. It should -- there's kind of a chain of
14 footnote relationships there.

15 **Q. But both eights don't need to be changed**
16 **in that footnote?**

17 A. Oh, right. Correct.

18 **Q. Just the first one?**

19 A. Yes. Sorry.

20 **Q. Okay.**

21 JUDGE DIPPELL: So in Footnote 9 there's
22 just one change. Right?

23 THE WITNESS: That's correct.

24 JUDGE DIPPELL: Okay. Thank you.

25 BY MS. TATRO:

1 **Q. Any other corrections or additions?**

2 A. No.

3 **Q. Okay. So with those corrections and**
4 **additions, would -- if I asked you the questions that**
5 **are in your Direct and Surrebuttal Testimony, would**
6 **your answers be substantially the same?**

7 A. Yes, they would.

8 **Q. And are those answers true and correct to**
9 **the best of your belief?**

10 A. Yes.

11 MS. TATRO: All right. I move Exhibits 6
12 and 7 into the record and tender the witness for
13 cross.

14 JUDGE DIPPELL: Would there be any
15 objection to Exhibit 6, the Direct Testimony of Steven
16 Wills, and Exhibit 7, the Surrebuttal Testimony of
17 Steven Wills?

18 Seeing none, I will admit those into the
19 record.

20 (Exhibits 6 and 7 were received into
21 evidence.)

22 JUDGE DIPPELL: Is there
23 cross-examination from Renew Missouri?

24 MR. OPITZ: Yes, Judge.

25 CROSS-EXAMINATION BY MR. OPITZ:

1 **Q. Mr. Wills, you were in the room during**
2 **opening statements; is that correct?**

3 A. Yes, I was.

4 **Q. And do you recall seeing a chart? It had**
5 **a blue line and then a orange bar on it. I believe it**
6 **was marked as Exhibit 9.**

7 A. Yes. I was here and I saw that.

8 **Q. Do you have a copy of that or do you want**
9 **me to put that big chart up?**

10 A. I have a copy of it.

11 **Q. You have a copy of that. Okay. So as I**
12 **understand, this is a load shape from another**
13 **utility's EV program; is that correct?**

14 A. Yes. The blue line was a study
15 associated with Southern California Edison's Charge
16 Ready program, a metering study of residential
17 charging behavior.

18 **Q. And so I -- I'm unsure what this orange**
19 **bar is. Can you tell me what that orange bar is?**

20 A. Yeah. Sure. So in -- in both my
21 testimony and Ms. Lange's testimony of Staff, we talk
22 about how much net margin each electric vehicle
23 produces -- or will create for the Company that we'll
24 earn. And in order to estimate that, you have to know
25 how much energy you assume that we're going to supply

1 to that vehicle and how much capacity you're going to
2 supply to that vehicle. Because energy and capacity
3 are the categories of cost.

4 I testified in my -- in my Surrebuttal
5 Testimony that if you look at the work papers of
6 Ms. Lange's analysis of net margins, while it's not
7 explicitly stated, you can infer that it's -- it has
8 to be mathematically -- and, in fact, I'd be happy to
9 kind of walk through the math on that, but it's --
10 there's a lot of numbers so I thought I might do -- go
11 to the white board like Mr. Pickles did just to kind
12 of track those numbers. Is that --

13 **Q. So you --**

14 A. If you want -- if you're interested in
15 seeing how that's derived.

16 **Q. And you're describing the -- the way that**
17 **you've calculated --**

18 A. Right.

19 **Q. So this orange bar is -- is based on a**
20 **calculation that you made?**

21 A. It is. It is. And I -- it's -- so I
22 characterized it as being implicit in Ms. Lange's
23 numbers, but you won't find the 2.05 kilowatts of
24 demand in her testimony or work paper, but it is
25 derived -- it can be derived from numbers in her work

1 paper. And I do have a work paper that I filed with
2 the case that walks through that calculation. I
3 could -- I'm going to be -- if you're interested in
4 understanding how that worked, I can demonstrate that
5 for you.

6 **Q. Yeah, I think that would be helpful to**
7 **help me understand what -- what that orange bar is.**

8 A. But again, there's a lot of -- some
9 numbers so I think it would be best to kind of do it
10 illustratively.

11 MR. OPITZ: Judge -- Judge, do you have
12 any -- is that all right?

13 JUDGE DIPPELL: I'm going to -- I'm going
14 to ask -- first of all, this Exhibit 9 is not an
15 evidentiary exhibit. It's not been admitted. It was
16 part of Ms. Tatro's opening statement. So if
17 there's --

18 MR. OPITZ: So -- okay. So can I, I
19 guess, have an opportunity to lay the foundation for
20 this?

21 JUDGE DIPPELL: Go ahead.

22 BY MR. OPITZ:

23 **Q. So, Mr. Wills, you've -- you are familiar**
24 **with this Exhibit 9?**

25 A. Every number of it is from my testimony.

1 **Q. And the blue line tracks information that**
2 **was in your testimony; is that correct?**

3 A. Yes.

4 **Q. And --**

5 A. Well, let me -- let me clarify that.
6 It's -- it's in my testimony that -- this pattern, but
7 I adjusted it to match the amount of energy
8 consumption that a vehicle using Ms. Lange's
9 assumptions from Rebuttal Testimony would be . But
10 it's calculated by me and it's consistent with the --
11 the load shape in my testimony.

12 **Q. And I understand that you're telling me**
13 **that you're familiar with the basis for this orange**
14 **bar there?**

15 A. Yes. I calculated that based off of
16 numbers in Ms. Lange's testimony and work papers.

17 **Q. And does this Exhibit 9 accurately**
18 **reflect the information that -- that you had**
19 **calculated?**

20 A. Yes.

21 MR. OPITZ: Judge, I'd move to offer
22 Exhibit 9.

23 JUDGE DIPPELL: Would there be any
24 objection to Exhibit 9 coming into evidence?

25 Okay. Seeing none, then I will admit

1 that.

2 (Exhibit 9 was received into evidence.)

3 BY MR. OPITZ:

4 Q. Mr. Wills, you were -- I guess would you
5 be able to explain the calculation you made to come up
6 with that 2.0 I guess kilowatt of demand?

7 A. Sure. Like I said, I think -- I think
8 it's easier to follow if I can write some numbers and
9 illustrate it. Is that --

10 Q. That's --

11 JUDGE DIPPELL: I'm only hesitant because
12 while it's easy for us to follow here in the hearing
13 room, when we go back and read the transcript, it's
14 not so easy to follow. So I don't want this to -- I
15 don't want this entire record to be a drawing on a
16 white board that's difficult to decipher.

17 THE WITNESS: Well, I think I can explain
18 it and see if that --

19 JUDGE DIPPELL: Can we start with an
20 explanation and then if it's necessary, we can try the
21 white board again?

22 THE WITNESS: Sure. I'm just afraid that
23 it's hard to follow a lot of numbers, but I think
24 that --

25 JUDGE DIPPELL: I understand.

1 THE WITNESS: -- we can make it clear
2 that this is all based on math based on Ms. Lange's
3 analysis and testimony numbers.

4 So it started out by looking at -- if you
5 look at Ms. Lange's testimony in her Rebuttal
6 Testimony at page 6, there's a table on line 8
7 that's -- that says that the result of her -- of her
8 analysis of certain scenarios, and she's reporting in
9 that that this -- that this net margin -- this average
10 margin is, you know, something that ought to be
11 considered in this case and it's based on -- if you
12 look at the line that says average cost increase per
13 year, \$195.27 per year.

14 So the categories of cost that are
15 included in her analysis are energy, capacity,
16 transmission, and distribution. So each one of those
17 costs makes up some portion of \$195.27 in cost per
18 vehicle.

19 So if we want to decompose that into its
20 pieces, that's not explicitly done in the testimony,
21 but the information needed to infer it is in the
22 testimony. So the way to do that is you also look in
23 her -- on that same table on page 6, line 8 and she
24 states that her assumption is that an electric vehicle
25 will use 265 kilowatt hours per month.

1 Because I want to compare it to the
2 average cost increase per year down below, I'm going
3 to multiply it by 12 months to get to a number of
4 kilowatt hours per year. And so the result of
5 multiplying that by 12 -- and in the work paper
6 there's a little bit of rounding so the math -- what I
7 say, it -- ties out to the work paper and it's very
8 close to what you would get looking at the numbers on
9 the page -- 3,185.8 kilowatt hours per year.

10 Now, for the cost assumptions that
11 Ms. Lange used, it's found a little bit later in her
12 testimony. She talks about using assumptions from
13 Ameren Missouri's 2017 IRP, using the 2019 forward
14 cost curves for energy, capacity, transmission, and
15 distribution.

16 So if you look at the 2.6 kilowatt hours
17 per -- per 2 point -- sorry 2.6 cents per kilowatt
18 energy price and you know that we're serving 3,185
19 kilowatt hours, you can derive that there must be
20 \$87.37 cents in energy costs. So that's the amount of
21 energy that a vehicle consumes over the course of a
22 year.

23 So if we know the total cost is 195
24 dollars and the energy -- supplying the energy is --
25 costs 87 dollars, then all of the remaining cost

1 categories have to cost \$107.89. And all of the rest
2 of these categories, capacity, transmission and
3 distribution, are stated in dollars per kilowatt year.

4 And Ms. Lange never states how many
5 kilowatts of capacity. And that -- the kilowatt, what
6 that means is it's the peak demand that a vehicle
7 would place on our system at the hour that the system
8 peaks, so it's really what stresses our system the
9 most.

10 And so while she never says how many
11 kilowatts it is, we know that it costs on -- in
12 aggregate \$107.89 and we have the prices that she used
13 per kilowatt in that table, capacity of \$22.74,
14 transmission costs of \$6.82, distribution costs of
15 \$17.93.

16 I will say there is -- I should have
17 mentioned on the energy costs -- on both of these
18 costs there's an adjustment in the work paper for
19 losses and reserves that's an appropriate adjustment.
20 But those numbers are not found in the testimony.
21 They're just in work papers.

22 But adding up those dollar per kilowatt
23 year costs, there's a total of \$47.50 is the cost of
24 each kilowatt hour and the prices that she assumed.
25 If you take the 107 dollars we talked about before

1 that's going to be incurred by -- for each vehicle and
2 divide it by 47 dollars per kilowatt year, we know
3 that approximately 2 kilowatts per vehicle is what is
4 assumed that we would have to pay -- and the way we
5 pay for capacity is we pay it to MISO, the -- the
6 regional transmission organization.

7 So the -- the only way that this math
8 works is if we're buying at least two kilowatts of
9 demand for each vehicle for the net margin per vehicle
10 in this -- to work out to this number.

11 And that on Exhibit 9 -- so what we see
12 from that, the two kilowatts, if you compare it to the
13 empirical evidence in Southern California Edison's
14 Charge Ready program where they were using at the --
15 our system peak where we incur those capacity costs is
16 usually the hour ended at 5:00 p.m.

17 Where those customers in California
18 charging pattern would apply, we would have somewhere
19 around a half of a kilowatt of demand. The number
20 underlying Staff's analysis is over 2. So you can see
21 it on that exhibit that it's roughly four times as
22 high as the empirical evidence that we've presented
23 would suggest it ought to be.

24 BY MR. OPITZ:

25 Q. So all of that I guess boils down to you

1 **came up with this demand that would be required under**
2 **Staff's assumptions. Am I correct to understand that**
3 **by overlaying this orange bar over the ICF charging**
4 **study, it's demonstrating that the Staff's figures are**
5 **unreasonable?**

6 A. Yes. I think that it's -- it's highly
7 unrealistic to assume that we would ever incur on an
8 av-- on an average across all of the vehicles on our
9 system incur two kilowatts of demand per vehicle.

10 And you can see on the Exhibit 9, the
11 note there, you know, suggests that if you're
12 incurring 2 kilowatts of capacity and many of the
13 vehicles are charging at 6.6 kilowatts, which was also
14 an assumption that both Ms. Lange and I shared, that
15 there was -- there would be 31 percent of EVs charging
16 during that peak hour.

17 But the other interesting point about it
18 I think that's important to note is that if that much
19 energy is being consumed in that hour, it has to come
20 away from somewhere else. So it's basically all the
21 rest of the hours would have to get pushed down
22 substantially.

23 And you'd have to believe that people
24 were actually charging in hour -- in that one hour
25 over -- over double what they are in any other hour of

1 the day, regardless of the speed of the charging that
2 they're actually using Just to get that much energy,
3 to get that much capacity requirement, they'd have to
4 consume almost a quarter of the energy needs of any
5 individual vehicle on a daily basis in one hour of the
6 day and then do the rest of the 75 spread out over all
7 these other hours.

8 It's -- it's frankly just unrealistic to
9 assume that charging would be that concentrated,
10 especially given the evidence we have. And, you know,
11 I think that it just speaks to the -- to the
12 usefulness of those margin estimates and informing how
13 much an electric vehicle is going to cost us to serve.

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

15 MR. OPITZ: That's all I have, Judge.

16 JUDGE DIPPELL: Thank you. Is there
17 cross-examination from ChargePoint?

18 MR. COMLEY: No questions.

19 JUDGE DIPPELL: Sierra Club?

20 MR. ROBERTSON: No questions.

21 JUDGE DIPPELL: Division of Energy?

22 MR. LANAHAN: No, thank you, Your Honor.

23 JUDGE DIPPELL: Office of Public Counsel?

24 MR. CLIZER: Yes, just briefly.

25 CROSS-EXAMINATION MR. CLIZER:

1 **Q. Mr. Wills, in developing your Direct**
2 **Testimony you relied on the 2017 IRP filings that**
3 **Ameren made. Correct?**

4 A. For -- for a number of assumptions, yes.

5 **Q. And that has a high, a low and a base**
6 **adoption rates. Correct?**

7 A. For vehicle adoptions?

8 **Q. Yes.**

9 A. Yes, that's correct.

10 **Q. You would agree that EV adoption rates**
11 **are already on track to meet the base level predicted**
12 **in the 2017 IRP. Correct?**

13 A. I would agree that they're -- that they
14 are tracking currently around that. I wouldn't say
15 that they necessarily will con-- that leads us to
16 believe that in ten years we'll know where they'll be.

17 **Q. And you would agree that the EV program**
18 **as you proposed is expected to lead to even higher**
19 **adoption rates. Correct?**

20 A. Even higher than what would otherwise
21 happen, but not necessarily even higher than the base
22 case.

23 **Q. Just a second.**

24 MR. CLIZER: That's all. Thank you.

25 JUDGE DIPPELL: Thank you. Staff?

1 CROSS-EXAMINATION BY MS. MERS:

2 Q. Good afternoon.

3 A. Good afternoon.

4 Q. Are you familiar with the data requests
5 that Ameren Missouri prepared in this case?

6 A. Man-- I have seen probably all of them.
7 I've prepared some of them. My familiarity varies
8 depending on which one you're asking about.

9 Q. All right. Well, we'll ask and see how
10 familiar you are then.

11 MS. MERS: I'd like to mark an exhibit.
12 I believe that we are on 109.

13 JUDGE DIPPELL: Yes. 109.

14 MS. MERS: And if I could approach.

15 JUDGE DIPPELL: Yes. Does that data
16 request have a number?

17 MS. MERS: Yes. It is 1 actually.

18 (Exhibit 109 was marked for
19 identification.)

20 BY MS. MERS:

21 Q. And you prepared the answer to this data
22 request; is that correct?

23 A. Yes.

24 Q. Can you read the response?

25 A. There was no EV load shape involved in

1 the development of the margin calculations in
2 testimony. As such, no such load shape is available
3 to provide.

4 **Q. Did you update this DR response?**

5 A. No, I did not. But I -- well, not in the
6 form of the data response, but we did provide updated
7 information regarding load shapes to Staff in the
8 course of the case, yes. But we didn't submit it
9 through -- I don't believe we submitted it through
10 this.

11 **Q. Were those load shapes used in your**
12 **Direct -- updated load shapes, did you correct your**
13 **Direct Testimony with that or --**

14 A. No. Because I think the way --

15 **Q. Okay. Thank you.**

16 A. Okay.

17 **Q. All right. And another data request.**
18 **This one is kind of -- if I can find it. I apologize.**
19 **One motion.**

20 MS. MERS: If I may approach again.

21 JUDGE DIPPELL: Yes.

22 MS. TATRO: Do you have a copy for me?

23 MS. MERS: I'm not going to be offering
24 that. I'm going to be offering exhibits related to
25 the DR.

1 JUDGE DIPPELL: Can you show it to the --
2 his attorney?

3 MS. MERS: Yes. I apologize for that.
4 Yes.

5 MS. TATRO: Thank you.

6 MS. MERS: I apologize.

7 BY MS. MERS:

8 Q. And you prepared the answer to that DR as
9 well?

10 A. Yes, I did.

11 Q. Okay. And then for the purpose of your
12 marginal revenue analysis, you assumed that 20 percent
13 of EV charging would occur on peak; is that correct?
14 I think if you look towards the last sentence of the
15 DR response, that's what that implies.

16 A. The last sentence of the whole response?
17 On the back?

18 Q. I believe so.

19 A. So I just want to clarify, when we say on
20 peak, the -- can mean it -- the IPL study that's the
21 subject of this, looked at a peak period. And we --
22 and I used it to infer an amount of energy for a peak
23 hour.

24 So it -- what it says is, This further
25 suggests that 20 percent assumption of CP, which is

1 coincident peak is what that means, impact is
2 reasonable and even conservative. So I don't -- maybe
3 if you restate the question, I could answer it more
4 precisely.

5 **Q. I believe that you have answered it --**

6 **A. Okay.**

7 **Q. -- actually, so thank you.**

8 **A. Okay.**

9 **Q. And in that DR, Staff had asked for you**
10 **to please provide the time periods identified as on**
11 **peak with the reference to the assumption that**
12 **20 percent of the EV charging would be on peak.**
13 **Correct? And that's the IPL study I think you were**
14 **just referencing.**

15 **A. Well, the question does say to provide**
16 **that, yes.**

17 **Q. And your response I believe is the US**
18 **Department of -- or at least starts, The US Department**
19 **of Energy study titled Evaluating Electric Vehicle**
20 **Charging Impacts and Customer Charging Behaviors,**
21 **Experiences from Six Smart Grid Investment Grant**
22 **Projects relied upon and cited as Footnote 8 in your**
23 **testimony, did not specify the on peak period of the**
24 **subject utility, Indian-- Indianapolis Power and**
25 **Light, IPL.**

1 **Ameren Missouri utilized the 20 percent**
2 **finding by IPL noted in the DOE study as an assumption**
3 **to determine the coincident peak impact of charging.**
4 **The on peak period for IPL is extremely likely to**
5 **encompass -- encompass, excuse me, Ameren's Missouri's**
6 **coincident peak hour and the energy consumption in the**
7 **peak periods which contain the CP hour is a reasonable**
8 **proxy for the impact of charging within the CP hour.**

9 **Given the lack of other specific data**
10 **available regarding peak charging behavior, Ameren**
11 **Missouri considers this to be a reason-- reasonable**
12 **assumption.**

13 **Is that a correct statement of your**
14 **answer?**

15 A. It -- well, you read it precisely, so
16 yes.

17 Q. **Great. So in other words, you modeled**
18 **your assumptions about charging behavior in Ameren's**
19 **territory on the charging load shape of IPL?**

20 A. From my Direct Testimony, that's what I
21 did.

22 Q. **And this has impact on capacity cost**
23 **assumptions, among other things?**

24 A. That's -- yes, that's exactly what it has
25 an impact on.

1 Q. Did you review the IPL program?

2 A. Just in the -- in the study that I
3 reference, the -- the write-up of it that was included
4 in the US Department of Energy study.

5 Q. Okay.

6 MS. MERS: This I will mark as an
7 exhibit.

8 JUDGE DIPPELL: That will be Exhibit 110.

9 (Exhibit 110 was marked for
10 identification.)

11 BY MS. MERS:

12 Q. All right. I'll let you take a moment to
13 familiarize yourself with the document, but does this
14 document indicate that it is a rate EVX time of
15 service for electric vehicle charging on customer
16 premises tariff?

17 A. That's what the heading appears to say it
18 is, yeah.

19 Q. Okay. And if you could look at the
20 second page of the document, does it state what times
21 are on peak?

22 A. It looks like 2:00 p.m. to 7:00 p.m.

23 Q. And that's for the summer. Correct?

24 A. Yes. That is correct.

25 Q. And then for non-summer months?

1 A. 8:00 a.m. to 8:00 p.m.

2 Q. Okay. And can you tell what is the rate
3 difference for charging on peak in the summer versus
4 off peak in the summer?

5 A. On peak is 12.15 cents and off peak is
6 2.33 cents.

7 Q. Okay. And then what is the rate
8 difference for charging on peak in the summer versus
9 off peak in the -- off peak -- on peak in the winter
10 versus off peak in the winter, excuse me?

11 A. On peak is 6.9 cents and off peak is 2.7.
12 I left off trailing decimals if that's okay, but --

13 Q. That -- that is fine.

14 MS. MERS: Okay. And at this time I'd
15 like to offer Exhibit 110.

16 JUDGE DIPPELL: Would there be any
17 objection to Exhibit 110, which is the Indianapolis
18 Power and Light Company rate EVX time of use service
19 for electric vehicle charging on customer premises?

20 I see no objection. I will admit it.

21 (Exhibit 110 was received into evidence.)

22 BY MS. MERS:

23 Q. Currently is Ameren Missouri's charge for
24 residential energy after 7:00 p.m. in the summer
25 two cents?

1 A. No, it is not.

2 Q. Is Ameren Missouri's charge currently for
3 residential energy after 8:00 p.m. in the winter less
4 than three cents?

5 A. No, it is not.

6 Q. So Ameren Missouri's customers don't have
7 the same incentive to charge off peak versus on peak
8 like IPL customers do; is that correct?

9 A. If all of the customers that were
10 included --

11 Q. I believe that's a yes or a no question.

12 A. It's a maybe.

13 Q. It's maybe?

14 A. Or it's an I don't know.

15 Q. Okay.

16 A. Because I don't know if the numbers in
17 the study were all derived from --

18 Q. "I don't know" is a perfectly acceptable
19 answer.

20 A. Okay. Okay. I don't know.

21 Q. Do you know does the -- I believe it was
22 Southern California Utility that was referenced in
23 Exhibit 9, do they have time of use?

24 A. I'm -- I think they have a time of use
25 offering.

1 MS. MERS: Okay. I think that should be
2 enough for everybody up here. And I'd apologize these
3 are not stapled, but I'd like to mark another exhibit,
4 if I could approach.

5 JUDGE DIPPELL: It would be Exhibit 11--
6 111.

7 MR. LOWERY: Your Honor, may I inquire
8 about whether 109 was offered and admitted or not? I
9 might have missed it.

10 JUDGE DIPPELL: Exhibit 109 has not been
11 offered.

12 MR. LOWERY: Okay.

13 MS. MERS: Is that the --

14 JUDGE DIPPELL: That was Data Request
15 Number 1.

16 MS. MERS: Oh, I can go ahead and offer
17 it at this time if anybody has --

18 JUDGE DIPPELL: I guess Data Request
19 Number 1, which is marked as Exhibit 109, has been
20 offered. Would there be any objections to that coming
21 into the record?

22 Seeing none, I will admit Exhibit 109.

23 (Exhibit 109 was received into evidence.)

24 JUDGE DIPPELL: Okay. I'm sorry,
25 Ms. Mers. The last document that you handed me were

1 the same as the -- right? This is all Exhibit 111?

2 MS. MERS: Yes. Additional copies for
3 the Commissioners not present.

4 JUDGE DIPPELL: And it also indicates
5 that it's confidential; is that correct?

6 MS. MERS: Yes. So we will go in-camera,
7 have to.

8 JUDGE DIPPELL: Okay. I will mark that
9 as confidential as well. Hang on just one moment.

10 MS. MERS: Sure.

11 JUDGE DIPPELL: Okay. We will go
12 in-camera for the next bit of questions. If there's
13 anyone in the hearing room who is not an authorized
14 person to hear confidential information, I'd ask you
15 to leave.

16 MS. TATRO: Looks fine.

17 (REPORTER'S NOTE: At this point, an
18 in-camera session began, which is contained in Volume
19 3, pages 230 through 234.)

20
21
22
23
24
25

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

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

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

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

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

1 (REPORTER'S NOTE: At this point, public
2 session resumed.)

3 BY MS. MERS:

4 **Q. Okay. If we turn to your Direct**
5 **Testimony on page 35 -- I'll give you a chance to get**
6 **there.**

7 A. Okay. I happen to be really close since
8 my correction was on 37, so there we go.

9 **Q. All right.**

10 JUDGE DIPPELL: And I don't think I made
11 it clear for the court reporter, but we're back in the
12 regular public session.

13 BY MS. MERS:

14 **Q. So you state, In addition, the Unanimous**
15 **Stipulation and Agreement approved by the Company in**
16 **the Company's last general rate proceeding, which was**
17 **File Number ER-2016-0179 included a commitment by the**
18 **Company to make modifications in its next general rate**
19 **proceeding to the Company's residential time of use**
20 **rate offering with a goal of, among other things,**
21 **encouraging off peak vehicle charging.**

22 **Is that an accurate reading of that?**

23 A. You read it correctly.

24 **Q. All right. And if we go to your**
25 **Surrebuttal though on page 46 and give you -- both of**

1 **us actually a chance to get there -- could I have you**
2 **read lines 10 through 15 into the record, please?**

3 A. Did you say on page 46?

4 **Q. Yes.**

5 A. Lines?

6 **Q. Starting with, However.**

7 A. However, based on the procedural schedule
8 in this case, Charge Ahead could not possibly begin
9 until a few months into 2019 and program benefits will
10 take time to accumulate from that point.

11 Do you want me to keep going?

12 **Q. Yes.**

13 A. Just tell me when to stop.

14 **Q. Okay.**

15 A. Under the rate moratorium that does not
16 allow rates to be changed until April 1st, 2020,
17 considering the 11-month process that must be
18 undertaken, a rate filing is possible as early as
19 May 2019, just a couple of months into the potential
20 initiation of Charge Ahead.

21 **Q. Okay. Thank you.**

22 A. Uh-huh.

23 **Q. I assume you're familiar with the**
24 **stipulation that was filed in ER-2016-0179?**

25 A. I am.

1 **Q. Do you happen to have a copy up there**
2 **with you?**

3 A. I do not.

4 MS. MERS: All right. If I could
5 approach.

6 BY MS. MERS:

7 **Q. Handing you a copy of that stipulation.**

8 A. Okay.

9 **Q. So if you turn to page 18 of the**
10 **stipulation, Section N states, Time of use rates.**
11 **Ameren Missouri agrees to publicize its time of use**
12 **rates on its website and agrees to file a proposed**
13 **amendment to its residential time of use rates in its**
14 **next general rate case after reviewing the results**
15 **from existing studies and soliciting input from**
16 **interested stakeholders.**

17 **Is that an accurate reading?**

18 A. Yes.

19 **Q. Okay. What input has Ameren Missouri**
20 **solicited from interested stakeholders to develop time**
21 **of use rates?**

22 A. We have had a few workshops on
23 residential rate design; there was some limited
24 discussion of time use rates. We were initially
25 focused primarily on some of the other features of

1 this stipulation that required us to look at inclining
2 block rates and other -- other rate structures, but
3 there was some discussion of time of use rates in
4 that -- in -- in those workshops.

5 **Q. Do you recall when those workshops were**
6 **held?**

7 A. There was one last November sometime.
8 There was a second maybe January, maybe February. I
9 don't know.

10 **Q. Okay.**

11 A. Of this year. I think there were two
12 different times we got together with the groups
13 pursuant to the stipulation.

14 **Q. Okay. I'll take my copy back of the**
15 **stipulation. Thank you.**

16 **Are you familiar with the USOA definition**
17 **of extraordinary?**

18 A. Not -- not really explicitly. I've
19 probably heard it discussed around me and I probably
20 have s-- well, I have some familiarity, but I don't
21 think I could recite it.

22 **Q. Okay. Would -- does this sound familiar**
23 **then, that the USOA definition is that extraordinary**
24 **refers to events that are of unusual nature and**
25 **infrequent in nature and events that are of**

1 **significant effect which are abnormal and**
2 **significantly different from the ordinary and typical**
3 **activities of the company and would not be reasonably**
4 **expected to reoccur in the reasonable [sic] future?**

5 A. I mean without -- I would -- I trust that
6 you read it correctly. I've seen that you can read
7 accurately pretty well here today, so I trust your
8 reading.

9 Q. **I was going to say I actually have the**
10 **USOA, so I should have asked -- or entered this first.**
11 **That might have made things easier. So I'll go ahead**
12 **and do that now.**

13 MS. MERS: I'd like to mark another
14 exhibit.

15 JUDGE DIPPELL: It's 112.

16 MR. CLIZER: Judge, while she's handing
17 these out, do we have a name for this exhibit?

18 MS. MERS: Portion of the USOA relating
19 to extraordinary items, Instruction 7.

20 JUDGE DIPPELL: Can you give me a cite
21 specifically? I see it's part 101 7.1 through --

22 MS. MERS: I think it's just 7.

23 JUDGE DIPPELL: Oh, okay.

24 (Exhibit 112 was marked for
25 identification.)

1 BY MS. MERS:

2 **Q. Do you recognize this as an excerpt from**
3 **the USOA, specifically Instruction 7 relating to**
4 **extraordinary items?**

5 A. Based on your representation, I do -- I
6 have no reason to doubt that that's what it is, I
7 guess.

8 **Q. The -- the USOA is several hundred pages**
9 **so we can make that available to you, but I thought**
10 **I'd try to limit --**

11 A. I accepted your representation, so.

12 **Q. All right. Okay. Do you agree with this**
13 **definition of extraordinary?**

14 A. I don't have -- it applies to an
15 accounting setting. I don't really have an opinion of
16 what constitutes an extraordinary accounting event.
17 I'm not an accountant.

18 **Q. Okay. So you're not an expert in**
19 **accounting?**

20 A. No.

21 **Q. You don't have a CPA?**

22 A. I do not. I have --

23 **Q. Not an auditor?**

24 A. No. I think I said as much in my
25 testimony. I acknowledged I was not an accountant.

1 **Q. So are you familiar, even with the lack**
2 **of formal accounting knowledge, with the USOA's**
3 **directive that net income shall reflect all items of**
4 **profit and loss during the current period? I believe**
5 **you can find that --**

6 MS. TATRO: I'm going to object that
7 she's calling for a legal conclusion.

8 MS. MERS: It's the USOA. It's not a
9 legal --

10 JUDGE DIPPELL: Can you -- can you
11 restate your question Ms. Mers? I'm sorry. I'm just
12 asking you to repeat it for me.

13 MS. MERS: Sure. I had asked that -- if
14 he was familiar with the USOA directive, the
15 accounting directive, that net income shall reflect
16 all items of profit and loss during the current
17 period?

18 JUDGE DIPPELL: I'll allow him to answer
19 if he knows.

20 THE WITNESS: My explic-- I'm not
21 explicitly familiar with that. It sounds like
22 something accountants may -- may value in putting into
23 their rules, but --

24 BY MS. MERS:

25 **Q. If I give you a moment to read the**

1 **definition under extraordinary items, Instruction 7,**
2 **could you confirm that that's the first sentence?**

3 A. Okay. That's the first sentence, I
4 think. I mean it sounds like what you said.

5 **Q. Do you think the Commission is correct in**
6 **following the USOA on this matter?**

7 A. If any extraordinary items come up, I
8 think they probably ought to follow that. I don't
9 think the Charge Ahead has any extraordinary items in
10 it, so.

11 **Q. Okay.**

12 A. So I don't know that it's relevant to
13 anything that I am proposing in this case, but I think
14 when those things happen, they probably should follow
15 the USOA.

16 **Q. All right. And would you agree a tracker**
17 **mechanism is a mechanism that measures actual**
18 **expenditures against a baseline amount set in rates to**
19 **track and potentially include in rates any regulatory**
20 **liability or asset resulting from the under- or**
21 **over-collection compared to the baseline amount?**

22 A. As a non-accountant, that sounds about
23 like what I think of a tracker as doing.

24 **Q. And are you familiar with Staff's**
25 **criteria for the authorization of a tracker mechanism?**

1 A. No.

2 Q. Okay. I believe it's in our position
3 statement, but the criteria is --

4 MS. TATRO: Now she's testifying, so I'm
5 going to have to object.

6 BY MS. MERS:

7 Q. Okay. So you're not aware of the
8 criteria, so you wouldn't be aware of any Commission
9 decisions that follow that criteria?

10 A. No. I mean not explicitly aware of any.

11 Q. And you wouldn't be aware then if that
12 criteria is different from the extraordinary standard
13 discussed in your Surrebuttal for cost deferrals in
14 general?

15 A. I assume it's something different, but I
16 don't know what it is that's different, so.

17 Q. Okay. Is Ameren Missouri actually
18 requesting a tracker mechanism be approved in this
19 case?

20 A. Yes. I didn't use the word "tracker,"
21 but what I described in my testimony is what I think
22 of as a tracker.

23 Q. And you were the only witness to file
24 testimony on this accounting request?

25 A. I believe I was.

1 **Q. And you didn't, when formulating that**
2 **testimony, review any prior decisions of the**
3 **Commission or testimony to know what Staff's criteria**
4 **was?**

5 A. I didn't review to look for Staff's
6 criteria, no. I -- I -- I did review some orders to
7 confirm that the Commission had authorized deferral
8 accounting authority.

9 **Q. Okay. On page 56 of your Surrebuttal**
10 **Testimony you discuss a storm tracker requested by**
11 **Ameren Missouri approved by the Commission in**
12 **ER-2012-0166. Do you know if staff opposed that storm**
13 **tracker?**

14 A. I do not know. If they opposed it? Is
15 that -- was that your question?

16 **Q. Yes.**

17 A. Yes, I don't know.

18 MS. MERS: If I could approach.

19 JUDGE DIPPELL: Go ahead.

20 BY MR. MERS:

21 **Q. I'll be handing you the Direct Testimony**
22 **of Staff Witness John Cassady in that case. And if**
23 **you could read lines 8 and 9.**

24 A. After the first period --

25 **Q. Yes.**

1 A. -- starting there?

2 The Staff is opposed to the Company's
3 proposed plant and service accounting mechanism and
4 two-way storm tracker. The Staff's --

5 Q. Okay.

6 A. That -- that's enough?

7 Q. Yeah, that's enough. Thank you.

8 All right. And do you know if Staff
9 continued to oppose that storm tracker in Ameren's
10 next rate case, ER-2014-0258?

11 A. I don't specifically remember on that.

12 Q. I'm going to hand you the 2014 testimony
13 of John Cassady. And does lines 1 and 2 state that
14 Staff opposes the two-way storm tracker?

15 A. It recommends discontinuation of that. I
16 guess I would characterize that as opposition to it.

17 Q. Okay.

18 A. Do you want that back?

19 Q. Thank you. And were you aware that in
20 the 2014 case the Commission discontinued the storm
21 tracker?

22 A. I probably was aware. I don't
23 specifically remember that. I was around in that
24 time. I -- so if that's the case, then I probably
25 heard about it at the time.

1 **Q. Okay.**

2 A. I can't verify it independently that it
3 happened.

4 **Q. I've got the Report and Order. All**
5 **right. So I'll give you a moment to read through**
6 **pages 44 and 46 just to refresh your recollection.**

7 A. Sorry. I was just reading. Page 44 was
8 on here twice, so I was just reading a duplication.
9 Sorry.

10 **Q. I apologize for that. Hopefully page 46**
11 **was --**

12 A. 46 is not on here.

13 **Q. All right. Well, I'll just ask you about**
14 **page 44 then. Does the Commission state, you know, in**
15 **their -- that one of the reasons for elimination is**
16 **that they have a general skepticism of trackers?**

17 A. It's -- it states that in the last case,
18 they expressed a general skepticism. So I -- I don't
19 know if that's what they based their decision on or
20 not, but.

21 **Q. Okay. Turning back to your testimony on**
22 **page 56, you discuss a 2014 Empire cost tracker**
23 **proposal in your Surrebuttal Testimony. Do you know**
24 **what specific cost Empire was seeking to track in that**
25 **proceeding?**

1 A. I did read it. I know it had related to
2 the conversion of -- of a unit to gas-- to gas, I
3 believe, if I'm remembering it correctly. I don't
4 remember the -- there may have been a -- I -- I have
5 general familiarity, but I don't know -- I can't
6 specifically describe all of the costs that were at
7 issue.

8 **Q. Okay. I'm going to hand you the Direct**
9 **Testimony. It is a public version since there is**
10 **highly confidential information from another utility.**
11 **And the portion relating to the tracker request, so.**

12 A. So there's multiple pages of the
13 tracker -- the generating unit upgrade section --

14 **Q. I believe --**

15 A. -- or where?

16 **Q. -- the tracker request was for a new**
17 **Riverton 12 maintenance contract. So if you could**
18 **look through that and see if the document refreshes**
19 **your recollection about the costs they were seeking to**
20 **track.**

21 A. I think it starts a little bit in here,
22 it looks like.

23 Okay. I've read it.

24 **Q. So would you agree that it's a tracker**
25 **for a new maintenance contract?**

1 A. Yes.

2 Q. Okay. And since it was a new maintenance
3 contract, it was a new cost. Correct?

4 A. Presumably, yes.

5 Q. And then I believe you stated in your
6 testimony that it was highly -- highly variable.
7 Correct?

8 A. Yes. I said that, yeah.

9 Q. So as a new cost that was highly
10 variable, isn't it true that the cost would be
11 difficult to predict for the purpose of setting rates?

12 A. Probably so.

13 Q. What was the value of Ameren Missouri's
14 rate-base at the time of its last general rate
15 proceeding in Case Number ER-2016-0179?

16 A. I -- I can't rattle the number off -- off
17 hand.

18 Q. Would you agree it was over 7 billion?

19 A. I expect so.

20 Q. Would you consider a capital expenditure
21 of approximately 18 million to be material in
22 comparison with a rate-base amount of 7 billion?

23 A. I don't --

24 MS. TATRO: I'm going to object. Is she
25 asking for the accountant's definition, for Mr. Rate

1 Design's sign's definition? I'm not sure what she's
2 asking here. It's unclear.

3 BY MS. MERS:

4 **Q. I will be asking for just the plain**
5 **meaning significant impactful, you -- not -- yeah,**
6 **as -- as you meant the material as you wrote your**
7 **testimony.**

8 A. Absolutely. I think 18 million dollars
9 is material to the Company.

10 **Q. Okay. You were part of the recent Ameren**
11 **Missouri case, EA-2018-0202. Correct?**

12 A. The -- is that the wind? Yeah.

13 **Q. Yes.**

14 A. Yes, I was a part of that.

15 **Q. Are you familiar with the reply brief**
16 **your counsel filed in that case?**

17 A. I -- I may have seen it. I don't
18 remember the specifics of what's included in it.

19 **Q. I'm going to be handing you a copy of**
20 **that reply brief. I promise I'm not going to be**
21 **asking you any scary legal questions.**

22 **So on page 6 the statement is made, Is**
23 **OPC arguing that in adopting PISA, the General**
24 **Assembly wanted to encourage more frequent rate cases?**
25 **If one is going to speculate about legislative intent,**

1 **the Company respectfully submits that no rational**
2 **legislator would want more frequent rate cases and the**
3 **resulting constituent communications that those rate**
4 **cases almost certainly generate.**

5 **Is that an accurate reading?**

6 A. I think you read it accurately.

7 **Q. Would you agree that that implies the**
8 **General Assembly wanted to decrease the frequency of**
9 **rate cases by adopting PISA?**

10 A. No.

11 **Q. Do you agree with this statement?**

12 A. Which statement?

13 **Q. The one I just read.**

14 A. The -- that if one were -- you mean the
15 statement if one were going to speculate about
16 legislative intention, the Company respectfully
17 submits that no rational legislator would want more
18 frequent rate cases?

19 **Q. The entire thing, but yes, that portion**
20 **as well.**

21 A. I -- I generally agree with the Company's
22 assertion on that.

23 **Q. Okay. All other things being equal, do**
24 **you believe a utility re-- will report higher earnings**
25 **under the PISA provisions of SB 564 than if it was not**

1 **able to utilize PISA?**

2 A. In what time per-- I -- I know there are
3 some accounting conventions that -- that get to the
4 recognition of earnings. I don't think re-- I'm a
5 little bit out of my depth. I don't think immediately
6 that we -- we would, but I could be mistaken since I'm
7 not an accountant. I think at some point in time
8 there might be earnings that we will recognize that we
9 otherwise wouldn't have.

10 **Q. Okay. And if you know, does Ameren**
11 **Missouri plan to file a general rate case on the**
12 **earliest date possible under the PISA rate moratorium**
13 **provision of SB 564?**

14 A. I do not know of any plans to do that at
15 this point.

16 **Q. Do you know of any plans of when you**
17 **currently might file your next rate case?**

18 A. I know that there's a window within --
19 within which we will file, because there's a
20 moratorium that we couldn't file I think because of
21 the PISA moratorium by May -- until May -- around
22 May 1st of next year. And there's a en-- as long as
23 we want to keep a fuel adjustment clause, there's an
24 end deadline of when we would have to file that is
25 sometime in the summer of the next year, I think. You

1 know, unl -- otherwise we would lose our fuel
2 adjustment clause. So we'll be evaluating the timing
3 within that window.

4 **Q. Okay. Thank you so much for your time**
5 **and I have no further questions for you.**

6 JUDGE DIPPELL: I show that we didn't --
7 were you going to offer Exhibit 112, which was the
8 USOA Section 7 definition of extraordinary?

9 MS. MERS: Yes. I apologize. I'd like
10 to offer Exhibit 112.

11 JUDGE DIPPELL: Will there be any
12 objection to that?

13 MS. TATRO: Yes, there will be. I don't
14 believe she's laid sufficient foundation. Mr. Wills
15 is not an accountant. He said he'd never seen it
16 before, that he'd only take it on her word that it was
17 part of the USOA. If she wants to take notice of it,
18 but I don't think it can be admitted as an exhibit.

19 MS. MERS: Can I respond?

20 JUDGE DIPPELL: Go ahead.

21 MS. MERS: As Mr. Wills is the only
22 person testifying on the deferral, the fact that he's
23 not an accountant -- I mean if -- if they wanted an
24 accountant to testify about accounting matters, it was
25 their duty to provide one. I am making due with the

1 closest that I have and the available witness that is
2 available to me.

3 MS. TATRO: That doesn't provide
4 foundation. That's an argument she can make in her
5 brief.

6 JUDGE DIPPELL: I tend to agree with
7 Ms. Tatro that I don't believe that we can admit it as
8 evidence based on his foundation. However, if you
9 would like to ask that I take official notice of that
10 are publication -- this is a regulation. Correct?

11 MS. MERS: Yes, it is. Yeah, official
12 notice would be fine.

13 JUDGE DIPPELL: Would there be any
14 objection to the Commission taking official notice of
15 USA -- USOA -- and is there a full citation? It's
16 part 101, but part 101 of --

17 MR. LOWERY: There is, but I'm not -- I
18 don't know it.

19 JUDGE DIPPELL: That will be good enough.

20 MS. MERS: We can get that to you
21 certainly, Judge.

22 JUDGE DIPPELL: It's USOA, part 101 of
23 the code there somewhere. Section 7 is the definition
24 of extraordinary. Would anyone have an objection to
25 the Commission taking official notice of that

1 defini ti on?

2 MS. TATRO: We do not.

3 JUDGE DIPPELL: Then in that case, the
4 Commi ssi on wi ll take offi ci al noti ce. And that has
5 been marked as Exhi bi t 112, j ust for referen ce.

6 MS. TATRO: Your Honor, I am presuming
7 that we' ll get the actual cita ti on so that we all know
8 exact ly -- I' m sure that Mark can give that to us.

9 JUDGE DIPPELL: Yeah. We will get that
10 before we conclude thi s hearing.

11 Are there any ques ti ons from the Bench?
12 Com mi ssi oner Kenney?

13 COMMI SSI ONER KENNEY: Thank you.

14 QUESTIONS BY COMMI SSI ONER KENNEY:

15 **Q. Good afternoon, Mr. Wills.**

16 A. Good afternoon.

17 **Q. Are you having a good day?**

18 A. Reasonabl y wel l. Yeah. Reasonabl y good,
19 yeah.

20 **Q. You get to go home tonight?**

21 A. We' ll see.

22 **Q. I think you will after you' re done here**
23 **so -- unless you' re going to do something in Jeff**
24 **City.**

25 **I have a ques ti on for you. Are you**

1 familiar with Mr. Justis's Direct Testimony, those --
2 that -- those charts he has regarding -- on pages 10,
3 11, 12 and 13 of his Direct Testimony?

4 A. I'm sure I am. Can I pull them up really
5 quickly?

6 Q. Sure.

7 A. Can I get there?

8 Q. Yeah.

9 A. I do have his testimony.

10 Q. It's on the 50 states and the District of
11 Columbia. It's just percentages of EV vehicles versus
12 percentages of registered vehicles and vehicles sold
13 in 2016.

14 A. Yes. I am there.

15 Q. He told me -- he told me to ask you a
16 question.

17 A. Okay. I was -- I was -- I was here, but
18 I don't remember the exact question so you can ask
19 again.

20 Q. Well, I notice that in -- it's the
21 pattern of the number of EV vehicles through 2016
22 compared to the registered vehicles of 2016 is about
23 six and a half per 10,000 according to these numbers
24 on his --

25 A. Are you talking about just in Missouri?

1 **Q. Just in Missouri .**

2 A. Are you talking about the Missouri
3 number? And where --

4 **Q. Line 34 --**

5 A. Okay.

6 **Q. -- on page 12.**

7 A. Yeah. I'm just getting there. I'm
8 sorry.

9 **Q. If you take the 3524 and divide it by the**
10 **5.46 million, you get about six and a half. And I'm**
11 **just pointing to the trends. And then in 2016, of**
12 **those vehicles -- EV vehicles sold compared to**
13 **standard vehicles, it's about 28 per 10,000. So**
14 **that's about -- a little over four times greater than**
15 **then -- than just the number of vehicles. So to me,**
16 **that would show a trend that we're selling -- people**
17 **are purchasing more EV vehicles -- not many --**

18 A. I think -- I think that there is a growth
19 in EV vehicles.

20 **Q. Well, that's what I want to ask you.**
21 **Have you done any projections of what you feel the EV**
22 **market -- or do you have any numbers that could direct**
23 **me that would show me that in Missouri, there are --**
24 **or in the Ameren territory, excuse me, that Ameren**
25 **Missouri projects an increase of EV vehicle sales?**

1 A. Yes. So -- and I think Mr. Justice
2 referenced that this comes out of our IRP. We do
3 it -- we have a forecast as a part of our load
4 forecast that looks at the range of EV adoption as one
5 of the drivers of --

6 **Q. Is that anywhere in the testimony?**

7 A. Yes. Yes. I can find it.

8 **Q. Is that in your testimony?**

9 A. Yes, it's in my Direct Testimony. And it
10 doesn't have, you know, all the year by year values,
11 but I -- I pulled some data points out of that that I
12 can --

13 **Q. Is it Direct or is it --**

14 A. Direct.

15 **Q. Okay.**

16 A. So around page 30 it looks like or --
17 around page 30. So I -- I said -- there's a question
18 there, Given the considerable uncertainty and ultimate
19 adoption rates of vehicles, please discuss the range
20 of outcomes that could be realized based on high base
21 and low adoption forecasts included in the 2017 IRP.
22 And throughout there I talk a little bit about it.

23 And then Table 30 -- or page -- Table 6
24 on page 31 actually has a few of the values from the
25 low base and high adoption scenarios, how many

1 vehicles we would expect on average over the next ten
2 years.

3 **Q. That's what I wanted to ask you about.**

4 A. Okay.

5 **Q. I mean, because those numbers, even on**
6 **the low adoption, is twice as many as we even have in**
7 **the state right now.**

8 A. Yeah. We -- we expect adoption to
9 accelerate and we expect it to accelerate even more if
10 it's enabled by a program like -- like Charge Ahead.
11 You know, actually right below this table, there's
12 some -- some external references to some projections
13 that are -- that are out in the public.

14 **Q. Right.**

15 A. You know, and I think I -- let -- let me
16 give you a little bit of context for it too also,
17 because I think this is -- this is really important.
18 You know, I -- I -- if I recall correctly, you might
19 not have been here during Ms. Tatro's opening, but she
20 talked about some of the points that --

21 **Q. I was not, you're correct.**

22 A. -- we've -- we've made here is that the
23 auto manufacturers are increasing their investment
24 significantly in these vehicles. And not only are
25 they bringing out new -- new product lines, but

1 they're also displacing -- displacing gasoline product
2 lines. If you -- you probably heard the news last
3 week that General Motors is doing away with most of
4 their gasoline sedans.

5 So we think Missourians are going to be
6 faced with a -- a vehicle purchase market where
7 there's a lot more electric option and a lot fewer
8 gasoline. And so two -- I think two things are
9 important because of that. One is that if we don't
10 have charging infrastructure, people are going to have
11 really limited choice on what vehicles they're going
12 to purchase.

13 But secondly, even with limited charging
14 infrastructure, we're going to see some adoption and
15 acceleration of EV. So we -- we do think that the
16 pace with -- without our program will accelerate it
17 some and with our program can accelerate even more.
18 And since we think that EVs bring net benefits to the
19 system, they're good for rates.

20 **Q. Is that due to -- is that due to a number**
21 **of events like the mileage restrictions and -- I mean**
22 **when you're selling a lot more SUVs and you have to**
23 **get that mileage down to -- you know, the overall**
24 **mileage has to go up by federal laws. Is that part of**
25 **it or --**

1 A. I -- I think that might be --

2 **Q. You said you're --**

3 A. I think that might be a very small part
4 of it. I think there's a lot of -- you know, as
5 consumers are experiencing EVs, I think consumer
6 preferences are moving towards it. And I also think
7 that the -- you know, you've got a number of countries
8 and states that are putting in EV either goals or
9 explicitly prohibiting. You know, if you look at some
10 of the European countries, they're prohibiting
11 gasoline vehicles in certain countries after a certain
12 year.

13 **Q. My -- my wife wanted to buy an EV vehicle**
14 **last -- about a year ago and I told her no. I said --**
15 **I mean --**

16 A. Me -- your wife and my wife might get --
17 get along well.

18 **Q. She has -- no, she has a -- she has a**
19 **C-Max, her second one. But I said the fact that the**
20 **Commission, we defeated the charging stations in**
21 **Kansas City, you can't get around.**

22 A. You're -- don't let her talk to my wife
23 then because I -- I have an electric vehicle. I have
24 a Leaf.

25 **Q. A Leaf?**

1 A. Yes. And she would --

2 Q. **Is that like the 25-mile one or**
3 **something?**

4 A. No, it's about 100 miles.

5 Q. **Okay. That's not bad.**

6 A. And we were out and I -- you know, she
7 was about to go on an errand and I sent it -- sent her
8 in it when it was about half charged. And I got a
9 really angry phone call on my way back -- on her way
10 back and she was really scared she wasn't going to
11 make it. So I think your -- I understand where your
12 wife's concern is coming from.

13 Q. **No, no. It wasn't her concern. She**
14 **wanted to do it.**

15 A. Oh, okay.

16 Q. **She has a C-Max, which is one of those --**
17 **I mean, it's a gasoline but it runs on -- it's got the**
18 **battery packs in it so -- and it's efficient; 41, 42**
19 **miles a gallon. But she wanted an all electric.**

20 A. Yeah. And I -- well, and one of the
21 other trends I think driving it -- and I saw a report
22 on this recently and I apologize, I can't remember who
23 put out the report -- but I think that the hybrids
24 that have the batteries and the electric motor are --
25 at least some folks have said -- and I -- you know,

1 this is a study that I saw, that it's going to be more
2 cost effective to have either a motor or an internal
3 combustion engine, but not to maintain all the parts
4 of both in there. So I think that might be driving
5 some of the move towards all electric also, but
6 there's a lot of factors.

7 **Q. So you guys are like the Field of Dreams.**
8 **Right?**

9 A. Yeah.

10 **Q. No, I mean that. Don't think -- I mean,**
11 **you have to look at what I said. What's the Field of**
12 **Dreams?**

13 A. If you build it, they will come.

14 MR. LOWERY: It's a great movie.

15 THE WITNESS: Yeah. I --

16 BY COMMISSIONER KENNEY:

17 **Q. That's your -- maybe that should be your**
18 **slogan.**

19 A. I think if -- if we build it, they'll --
20 they'll come even more. Because I think some are
21 going -- some are coming. Right? But I think
22 they'll -- they will come in great --

23 **Q. You just said they're not -- they're not**
24 **going to come if you don't have a place they can**
25 **charge.**

1 A. Not in -- not in nearly as great -- I
2 mean, people like me might go ahead and buy one and
3 make their wife, you know, go through that experience,
4 but we'll get a lot more people if we build it.

5 **Q. Thank you.**

6 A. Uh-huh.

7 QUESTIONS BY JUDGE DIPPELL:

8 **Q. Mr. Wills, I just have a couple questions**
9 **myself, but and that -- I apologize if I should have**
10 **asked these earlier of Mr. Justis, but will the --**
11 **will the EV chargers that Ameren's planning proposing**
12 **in this, will they have -- will they be capable of**
13 **time of use rates?**

14 A. So we -- we don't have a requirement that
15 they be capable, but most of the ones that we expect
16 to be installed would be capable of them as long as we
17 have -- you know, if we have the rate offerings and
18 have the metering to build a time of use rate, I think
19 most of them would probably be -- well, I -- many of
20 them I know will be. My expectation is it's most, but
21 Mis-- Mr. Justis would probably have had a better
22 sense of how much that is. But -- but we do not -- we
23 don't require them to be capable of it.

24 **Q. And will they have battery storage**
25 **capabilities?**

1 A. I don't think the chargers themselves
2 would, but I think they could be -- I think you could
3 put in a battery near it if you -- you know, in fact,
4 in our list of eligible costs for incentives, if a
5 customer wants to use a battery to mitigate like a
6 demand charge that they may incur due to high demand
7 charging, we considered a battery as an eligible cost.

8 So they could pair it with batteries, but
9 I don't think it would be necessarily integrated into
10 the charger if that was your question.

11 **Q. And if the -- are there actually chargers**
12 **with that capability available on the market now?**

13 A. The capability of?

14 **Q. To do a battery --**

15 A. Well, I -- I -- I don't think -- like I
16 said, I don't think they're integrated in it, but I
17 think you can put a battery near the charger and, you
18 know, feed -- feed the vehicle from it.

19 **Q. But there are chargers available with a**
20 **time of use?**

21 A. There's one in my garage.

22 **Q. Okay. Okay. Thank you.**

23 JUDGE DIPPELL: Is there further
24 questions, recross based on Bench questions from --

25 COMMISSIONER KENNEY: I -- excuse me.

1 JUDGE DIPPELL: I'm sorry.

2 COMMISSIONER KENNEY: I have one more
3 question I failed to ask earlier and I wasn't at the
4 openings in case it was addressed and I apologize.

5 FURTHER QUESTIONS BY COMMISSIONER KENNEY:

6 Q. On your -- what are they, type 1, type 2
7 charging units?

8 A. Yeah.

9 Q. What are the -- and I remember I saw it
10 somewhere. What's the ratio on the ones projected on
11 the highway?

12 A. So the highway I think they would be at
13 minimum 50 kilowatts and I think they could be -- I
14 mean they could be substantially higher, but I think
15 we think there might be 150 kilowatts in the -- or
16 what we might be expecting as -- as -- you know, it's
17 going to be -- so the way we propose the highway is
18 it's subject to proposals of developers.

19 But I think maybe it could be -- it will
20 definitely be a minimum of 50, could be 150, and it's
21 possible some developers may even try to go to higher
22 charging speeds, but that will be based on their own
23 assessment of trade-offs between, you know, the speed
24 of charging and the costs they're going to occur, you
25 know, further demand charges that we have in our rates

1 and things like that.

2 **Q. Thank you.**

3 A. Uh-huh.

4 JUDGE DIPPELL: Thank you. Is there
5 further cross-examination based on Commission
6 questions from Renew Missouri?

7 MR. OPITZ: No, thank you, Judge.

8 JUDGE DIPPELL: ChargePoint?

9 MR. COMLEY: None. Thank you.

10 JUDGE DIPPELL: Sierra Club?

11 MR. ROBERTSON: No, thank you.

12 JUDGE DIPPELL: Division of Energy?

13 MR. LANAHAN: No, thank you, Judge.

14 JUDGE DIPPELL: Office of Public Counsel?

15 MR. CLIZER: Brief.

16 RE-CROSS-EXAMINATION BY MR. CLIZER:

17 **Q. Commissioner Kenney asked you a question**
18 **regarding the numbers in your IRP filing. I think he**
19 **was kind of trying to get to see whether those numbers**
20 **were in your testimony at some point. That -- do you**
21 **agree with that?**

22 A. I recall that question.

23 **Q. Yes. You would agree that those numbers**
24 **are -- have been included with the OPC's Supplemental**
25 **Rebuttal as well?**

1 A. I believe that a number from that was
2 used in the Supplemental Rebuttal. I don't
3 necessarily agree with how it's being used, but I
4 agree that the number came out of -- actually -- ac--
5 in-- well, yes, okay. You're -- yes, I do agree
6 with -- that the number is found in this table.

7 **Q. Okay. Thank you very much. That was my**
8 **only question.**

9 JUDGE DIPPELL: Staff?

10 MS. MERS: No, thank you.

11 JUDGE DIPPELL: Is there redirect?

12 MS. TATRO: Yes.

13 JUDGE DIPPELL: Is there going to be
14 extensive redirect? I'm looking at taking another
15 short break before we finish up.

16 MS. TATRO: I would really appreciate a
17 break.

18 JUDGE DIPPELL: Okay. Let's take a
19 ten-minute break and come back at a quarter till.

20 (A recess was taken.)

21 JUDGE DIPPELL: Before we start with
22 redirect, I just wanted to do a little bit of
23 housekeeping. My plan for the rest of the day was to
24 finish up Mr. Wills and then have Division of Energy's
25 witness come up because her availability issues. But

1 before we do that, are there going to be
2 cross-examination questions for DE's witness?

3 MR. CLIZER: Maybe just one or two very
4 short ones.

5 JUDGE DIPPELL: Okay. Okay. Then we
6 will proceed with that and then we'll talk a little
7 more housekeeping at the very end.

8 So go ahead, Ms. Tatro.

9 MS. TATRO: Thank you.

10 REDIRECT EXAMINATION BY MS. TATRO:

11 **Q. So Mr. Willis, let's go back to the**
12 **questions that the Office of Public Counsel asked you**
13 **when he talked about the 2017 IRP and the high, low**
14 **and base case for EV adoptions. Do you recall those**
15 **questions?**

16 A. Yes, I do.

17 **Q. Now, could you explain to the Commission**
18 **what could cause the low case to happen in absence of**
19 **our program?**

20 A. Well, I think there's a lot of barriers
21 to EV adoption, and Mr. Justice identified several of
22 those in -- in his Direct Testimony originally. You
23 know, it's about a number of things. Battery costs
24 are still -- it's still higher up front costs because
25 of the price of batteries.

1 If -- certainly, you know, without Charge
2 Ahead, if we're in that world, range anxiety is going
3 to be a major barrier. We talked about how -- with
4 Commissioner Kenney a moment ago how difficult it can
5 be to get where you're going if you don't have this --
6 if you don't have this infrastructure that we're
7 proposing to build.

8 So when you're trying to establish a
9 baseline to measure growth against, that's got to be
10 in a pre-Charge Ahead world. I think the lack of
11 charging infrastructure would be a major factor that
12 would cause you to go to the low end.

13 And then there's consumer familiarity.
14 You know, right now, you know, it's just not on
15 people's minds to buy an electric vehicle. They don't
16 understand the benefits of them.

17 So there's -- there's numerous factors
18 that can -- that -- and all kind of beyond the scope
19 of our program. Some of them within and some of them
20 beyond the scope of our program that could keep
21 adoption low.

22 **Q. So let's assume for a moment that the low**
23 **case comes true.**

24 A. Okay.

25 **Q. And let's also assume that the Commission**

1 **has adopted OPC's performance incentive mechanism.**

2 A. Okay.

3 **Q. Are you familiar with that performance**
4 **incentive mechanism?**

5 A. Yes. I've reviewed it.

6 **Q. So in order to obtain the performance**
7 **incentive, how much -- how much -- many more vehicles**
8 **will Ameren Missouri have to incentivize?**

9 A. Well, if -- if the -- if the true
10 baseline -- and I guess we'll never really observe --
11 but if you're saying that without our program we would
12 have been at the low case and there would have been
13 11,346 vehicles in 2028 in our -- in our table here,
14 so without our program assume that.

15 And then if we -- doctor if we had to get
16 to 7,500 above the base case of 24,000, we would have
17 to add close to 20,000 vehicles through our program
18 for -- because, again, you know -- and I mentioned to
19 the Office of Public Counsel's question that I
20 disagreed with how they used our base case number
21 because they took it as kind of a point estimate of
22 what -- what will happen without our program. And we
23 have a broad range of outcomes that could happen
24 without our program. Adoption could be very low or
25 very high.

1 And your point is if it's going to be
2 very low without our program, then if they've based
3 our in-- our performance mechanism on an assumption
4 that we would have achieved the base case, we have to
5 make up all the difference from the low to the base
6 and then go up another 7,500 vehicles. We'd have to,
7 you know, really have made over 20,000 vehicles happen
8 just to get any cost recovery.

9 **Q. Then Staff, Ms. Mers, asked you some**
10 **questions and she talked about -- I think it's Exhibit**
11 **109, which you may have up there with you, which was**
12 **Staff's Data Request 1 that talked about load shapes.**
13 **Do you recall that discussion?**

14 A. Yeah, I recall it. Yes.

15 **Q. Okay. And you indicated that you had**
16 **provided updated information during the course of the**
17 **case. And she then asked you if you updated the load**
18 **shapes used to -- in your Direct Testimony.**

19 A. And the answer is we -- we updated some
20 analysis in Surrebutal Testimony, but there was
21 not -- I think she asked me if I had any -- if -- why
22 I didn't correct my Direct Testimony because I got new
23 load shapes.

24 And I didn't think my -- my Direct
25 Testimony was incorrect. I just think that we found

1 supplemental information with which to refine our
2 estimates in Surrebuttal. And I think they're even
3 more accurate, but I don't think they were incorrect
4 and warranted a correction to my Direct Testimony.

5 **Q. Okay. So in your opinion, did it impact**
6 **the validity of your Direct Testimony on that topic?**

7 A. No.

8 **Q. Then Ms. Mers took you through -- I don't**
9 **have what exhibit number it was, but it was Data**
10 **Request Number 2 and it dealt with IPL and this**
11 **20 percent on peak. Do you recall those questions?**

12 A. I do.

13 **Q. Did you rely solely on the IPL curve and**
14 **experience in developing your position in this case?**

15 A. In Direct Testimony, that was the only
16 reference that we had. But in Surrebuttal, we've
17 introduced a lot of evidence that actually
18 corroborates that the true peak impact is
19 significantly less than what we used off of the IPL
20 study.

21 So, you know, the IPL -- again, I -- I
22 kind of took some shortcuts just to say that if
23 20 percent of the energy was during a peak period,
24 then let's conservatively assume that, you know,
25 20 percent of the vehicles are charging during the

1 peak hour. I think that was substantially
2 conservative even -- and I recognize that the fact
3 that they're on time of use rates is relevant to
4 understanding what the peak impact would be, but also
5 the -- the evidence that Ms. Mers gave me was that the
6 peak period was five hours long.

7 So if 20 percent of the energy was
8 consumed over five hours, then the average hour had
9 about 4 percent of the energy. So we were not only
10 conservative, we were extremely conservative with how
11 we applied that.

12 But better yet, we went on and we kind
13 of -- when Staff kind of questioned us using just that
14 study, we went out and found more information in the
15 Southern California Edison study. We got ahold of the
16 Progress Energy study that I cited. And then we used
17 an NREL simulation to look at charging load shapes
18 that was also -- that we found and was available.

19 **Q. Did those studies include time of use**
20 **rates?**

21 A. I don't believe -- so I'm going to address
22 each one to the extent that I know it. For the --
23 I'll start with the progress because I know for a fact
24 that one -- there was a control group with no time of
25 use rates and a study -- test group with time of use

1 rates. And we used the load shape that was from the
2 control group that did not have time of use rates. So
3 that load shape is based on customers that have no
4 rate incentive to shift their load.

5 And then the Southern California Edison,
6 my understanding and recall, that's one that we got
7 from ICF that Mr. Pickles, who testified earlier,
8 works for. One of his colleagues gave me that -- that
9 load shape. And in my discussion with him, he said it
10 was a sample of the whole population. There might
11 have been a few customers on a time of use rate, but
12 by and large, they were customers on the regular rate.

13 And incidentally, if you look at the
14 Progress Energy, which we know was not with time of
15 use rates, and the Southern California Edison curve,
16 they -- visually they are almost identical. So I
17 mean, they're -- they're very corroborating of -- of
18 the charging patterns that -- that would be expected.

19 **Q. And I think the last one you talked about**
20 **you said NREL. What is that?**

21 A. Oh, I'm sorry. That's the National
22 Renewable Energy Laboratory. And the load shape we
23 got from them was not actually a metering study, so
24 I -- I gave it a little bit less weight. But it also
25 was based off of a simulation tool that they put a lot

1 of -- I can't rattle off all the factors they put in,
2 but it was -- it was a pretty robust engine that
3 looked at a lot of different factors about when people
4 are going to charge and simulated that load shape that
5 was shown in my -- and that I don't believe -- well,
6 I -- I don't recall if they mentioned what rate design
7 they would be on, but I don't believe it was assuming
8 a time of use rate.

9 **Q. And how did that result compare to, for**
10 **example, the progress load shapes?**

11 A. It actually had -- it was -- actually it
12 had a little bit more peak impact than the other ones,
13 but it was still not so much to make our program not
14 cost effective. It was still well within the realm of
15 cost effectiveness.

16 **Q. Okay. And then Exhibit 110, which is the**
17 **time of use rate for IPL, do you have that up there**
18 **with you?**

19 A. I'm sure I do. I just have to find it.
20 Okay.

21 **Q. And she asked you if IPL customers had a**
22 **different incentive because they have this time of use**
23 **rate and you answered, I don't know. Do you recall**
24 **that?**

25 A. Yes. I recall that.

1 **Q. Why don't you know?**

2 A. Well, I think customers who are on this
3 tariff do have that, but I believe that that -- I
4 don't know whether the study was all customers that
5 are on this rate or not all customers that are on this
6 rate. So I don't know if this applied or to what
7 extent, if at all, this applied to the customers in
8 that study.

9 I -- I see that they have the rate, but I
10 don't know how it interacted with the customers who
11 were included in this study. So I think if -- if a
12 customer was on this rate, they would have an
13 incentive to charge off peak. I just don't know if
14 that's represented in the data that -- that we -- we
15 got from out of their study.

16 **Q. And is it possible there could be other**
17 **reasons customers might not want to be on the rate?**

18 A. Absolut-- well, I pre-- I assume that
19 this -- well, there -- there certainly could -- yes,
20 there could be. I -- there could be a lot of
21 scenarios and I'm -- I'd have to study the rate in
22 more detail to kind of come up with the best examples,
23 but there are certainly reasons folks might not want
24 to be on a -- on a given rate design.

25 **Q. And the next exhibit that Ms. Mers handed**

1 you was Data Request 18 and it was confidential, but I
2 don't think I'm going to talk about anything
3 confidential so we don't need to go in-camera.

4 I think it was labeled Exhibit 111.

5 A. Okay.

6 Q. And I just want -- the question is at
7 what level charging typically occurs at home?

8 A. The -- the typical home charger that
9 I've -- that I'm familiar with, like the one I have in
10 my garage and the one that I think that is the most
11 common on the marketplace is a 6.6 kilowatt charger.

12 A lot of other folks might actually just
13 plug straight into the wall if they don't -- if they
14 don't need to charge fast. So that would be even --
15 even slower. I think it's one or two kilowatts if you
16 just plug into the wall. The -- by far I think in the
17 market the most common is the 6 to 7 kilowatt charger.

18 Q. Then Ms. Mers talked to you about the
19 last rate case and the Stipulation and Agreement as it
20 applies to time of use rates. Do you remember that
21 conversation?

22 A. I do.

23 Q. Do you think that Ameren Missouri has
24 violated the terms of that Stipulation and Agreement
25 as it relates to time of use rates?

1 A. No, I don't.

2 Q. Okay. Does the stipulation have a timing
3 requirement as to when all of this, you know,
4 conversations with S-- taking input from Staff and
5 other parties is supposed to occur?

6 A. Just before we file the case. So not
7 knowing when the case is, there's no hard deadline
8 right now.

9 Q. Does Ameren Missouri have a 60-day notice
10 pending for a rate case?

11 A. No.

12 Q. Is there anything preventing -- well,
13 first of all, I think you indicated there had already
14 been some discussions?

15 A. Yes. We -- we had two sessions of --
16 the -- there's some other issues that we had to
17 discuss in terms of rate design and we did discuss
18 time of use in some -- in -- to some degree in those
19 discussions. We've had two meetings with a broad
20 group of stakeholders from -- from that case.

21 And then we've still got, you know, like
22 you said, significant time that we can continue
23 discussions on the -- those time of use provisions
24 beyond what we've already done.

25 Q. So is it your opinion that you have

1 **completely fulfilled the requirement in the**
2 **Stipulation and Agreement?**

3 A. Not yet.

4 Q. **Then Ms. Mers talked to you about the**
5 **USOA and the definition of extraordinary. Right? And**
6 **she's talking about our cost recovery proposal. Do**
7 **you remember that discussion?**

8 A. Yes, I do.

9 Q. **Are you familiar with how other states**
10 **recover costs related to EV charger incentive**
11 **programs?**

12 A. Certainly I am for the -- for the
13 programs that we cited in testimony that we were
14 familiar with. The Rocky Mountain Power in Utah,
15 they're collecting costs through a surcharge adder.
16 That's an outside of rate kind of rider mechanism that
17 gets added to the bill.

18 And AEP Ohio's electric vehicle charging
19 incentive, they're being recovered through what they
20 call a Smart City Rider, which is again a -- kind of a
21 single issue outside of a rate case type of approach
22 that's added to the bill.

23 And then in Massachusetts, the National
24 Grid was the program that we looked at there. I'm
25 pretty -- you know, I don't remember the name like of

1 a rider, but I'm pretty sure that it was outside of
2 rates there. I may be able to double check that in my
3 testimony.

4 **Q. Does Ameren Missouri have the ability to**
5 **collect these charges outside of base rates in a rate**
6 **case?**

7 A. It's my understanding that we can't do
8 that in Missouri as a single issue rate-making type
9 of -- of problem.

10 **Q. And after that, Mr. Wills, there were**
11 **quite a few questions about Staff criteria for a**
12 **tracker and positions Staff has taken in various**
13 **cases. Do you remember those conversations?**

14 A. I do.

15 **Q. Can you explain to me the difference, in**
16 **your opinion, between a Staff position and a**
17 **Commission order?**

18 A. Sure. Well, I think -- I mean it's
19 almost on its face, you know, the -- a Staff position
20 is something that they -- you know, one party to a
21 rate case has asserted. A Commission order is
22 something that's been affirmatively endorsed by the
23 Commission and put into place. So whether or not we
24 co-- you know, consistent with past Staff positions
25 isn't really, I think, the germane question to -- to

1 the Commission.

2 **Q. Ms. Mers asked you about the Empire cost**
3 **tracker. Do you remember that conversation?**

4 A. Yes, I do.

5 **Q. Is there a public policy reason to track**
6 **new costs? Or could there be, I should say?**

7 A. Sure. If you're -- if you're going to
8 undertake a new investment or a new program and those
9 costs are not in rates, that -- the -- the fact that
10 they're not in rates can be an impediment to a utility
11 undertaking that investment or program. So a tracker
12 can be used as a -- kind of a bridge to put
13 something -- until something can be put into rates
14 eventually.

15 **Q. And is there a public policy reason why**
16 **the Commission should track the costs for Charge**
17 **Ahead?**

18 A. Absolutely. I think -- you know, this is
19 a beneficial program for our customers, but if we're
20 unable to track them, almost -- most of the program
21 costs will most likely be lost to Ameren Missouri
22 entirely despite the fact that we're making prudent
23 investments that are going to help build
24 infrastructure for our customers that, frankly, we --
25 financially won't make sense for us to make those

1 investments if we're going to lose most of them
2 because they don't -- never show up in a rate case or
3 make it timely into rates.

4 **Q. So how do you think that position impacts**
5 **a utility's willingness to try new and innovative**
6 **programs?**

7 A. I think it's -- it's significant. And
8 when you speak of new and innovative programs, there's
9 a program we got approval of this -- this summer
10 called the Renewable Choice Program that was -- that
11 is, I think, recognized as a new and innovative
12 program.

13 And it has some tracking mechanisms built
14 into it because there are costs that are going to be
15 new and there's a number of reas-- I don't think
16 there's any costs that -- that are going to go through
17 that tracker that meet an extraordinary definition.
18 And I don't think that, you know, they're particularly
19 volatile.

20 There's just reasons that that program is
21 going to develop new costs that need to be put into
22 one bucket or another in between rate cases, and we're
23 going to do that as a part of that innovative program.

24 **Q. So what's the public policy -- or public**
25 **interest benefit of Charge Ahead?**

1 A. The public interest benefit is -- it's --
2 it's -- there's many things in the public interest. I
3 think most directly relevant what we've -- what we've
4 talked about is the fact that this new load, when it's
5 added in -- and it's not going to have a substantial
6 peak impact, it's going to be largely during off
7 peak -- it will spread the fixed costs of our system
8 over a greater amount of usage. Since usage is the
9 denominator of a rate calculation, the rates are lower
10 if we have higher levels of usage.

11 But beyond that, I think there's a really
12 important public policy consideration and what that
13 is, is -- we've talked about it a couple times
14 today -- that electric vehicles are going to make up a
15 larger and larger share of -- of the electric vehicle
16 market. And Missourians are going to be shopping in
17 that market and they're -- they're going to be not
18 able to access the best vehicles or the newest
19 vehicles and some of the conventional gasoline-fired
20 options are going away.

21 So if we don't build that infrastructure,
22 our customers don't have the same level of choice that
23 customers in other state who are participating in this
24 market have. So I think that regardless of whether
25 we've caused the adoption, the fact that we invest the

1 money that we're going to earn from those vehicles
2 charging, even if it's, you know, at home and it's not
3 through these chargers, support -- is supportive of
4 the costs that we're going to incur on their behalf to
5 provide that.

6 I could go on on more benefits though.
7 There's, you know, the emissions reductions that we've
8 talked about at length. There's the -- you know,
9 well, I did talk about the consumer choice. There is
10 the performance of the vehicles is outstanding. I'm a
11 driver, it's a great -- it's a great driving
12 experience.

13 And on the Business Solution side,
14 there's additional benefits in terms of safety and
15 productivity of the workplaces that Mr. Pickles talked
16 about in his Direct Testimony. So I think there's
17 myriad benefit, public policy benefits that are worth
18 doing a little tracker to cau-- to -- to -- to make
19 sure that we recover the costs of the program.

20 **Q. Now, still say-- staying with the public**
21 **policy benefits that this program can bring, have you**
22 **heard the phrase "efficient utilization"?**

23 A. Yeah. I think I said it about a hundred
24 times in my written testimony.

25 **Q. So -- so what does that mean to you?**

1 A. What it means is that -- and again,
2 it's -- there's some elaboration on this in my
3 testimony at length, but -- in my written testimony.

4 But we build a largely fixed cost system.
5 And once we build it to meet a certain amount of
6 demand, those costs aren't going away. So what we
7 want to do is make sure that we're us-- we're using
8 that infrastructure as much as we can to spread those
9 costs out across more usage. Because that way on a
10 per unit basis, that infrastructure is more cost
11 effective for our customers.

12 **Q. And that happens when load is added at --**
13 **at what times?**

14 A. Frankly, it's any time but the system
15 peak hour that -- for which we plan our capacity. So
16 it's -- as long as it's outside of anything that's
17 going to impact what we have to build capacity for,
18 which is our highest load of any given year, any time
19 you're outside of that it's largely going to be
20 beneficial.

21 **Q. Has Ameren Missouri's peak load changed**
22 **over the years?**

23 A. Is it the magnitude of it or the --

24 MS. MERS: I'd like to object. I'm not
25 sure I know what this line of questioning is being

1 tied back to for both questions from the Bench or
2 questions from -- from other parties.

3 MS. TATRO: Well, Ms. Mers asked a lot of
4 questions about IPL and the amount that load will --
5 peak load could be impacted. That was the 20 percent
6 number that was discussed. She also talked about the
7 Empire case and the fact that it's a tracker and it
8 was for a new cost, which he said there were public
9 policy reasons for doing so. And I -- this question
10 is a combination dealing with both of those issues.

11 JUDGE DIPPELL: I'm going to -- I'm going
12 to allow it, but if we could keep answers to questions
13 brief. I'm hearing a lot of, well, it's in my
14 testimony. And if it's in your testimony, then it's
15 already in the record.

16 So proceed, Ms. Tatro.

17 BY MS. TATRO:

18 **Q. Has -- I think the question was, has**
19 **Ameren Missouri's peak load, what we build the system**
20 **to serve, has that need changed over time?**

21 A. Yes. It's changed. And there's been
22 times in history where it grew significantly, there's
23 been times when it's gone down due to either, you
24 know, like a customer like Noranda going out of
25 business or energy efficiency programs that reduce

1 peak demand or just general lack of load growth. So
2 it's gone both up and down over time.

3 **Q. Okay. I have no further questions.**

4 JUDGE DIPPELL: Okay. Thank you very
5 much. Mr. Wills, I believe that concludes your
6 testimony.

7 THE WITNESS: Thank you.

8 JUDGE DIPPELL: We can go ahead. We're
9 going to take things a little out of order then and
10 take Division of Energy's witness next.

11 MR. LANAHAN: Thank you, Judge. I call
12 Cheryl yn Kelley to the stand.

13 (Witness sworn.)

14 JUDGE DIPPELL: Thank you.

15 CHERYLYN KELLEY, being first duly sworn, testified as
16 follows:

17 DIRECT EXAMINATION BY MR. LANAHAN:

18 **Q. Would you please state your name and**
19 **business address for the record?**

20 A. Cheryl yn Kelley. And it's 301 West High
21 Street, Jefferson Ci ty, Mi ssouri 65102.

22 **Q. Thank you. Did you cause to be filed two**
23 **items of Rebuttal and Surrebuttal Testimony marked as**
24 **Exhibits 300 and 301?**

25 A. Yes, si r.

1 **Q. Do you have any additions or corrections**
2 **to that testimony?**

3 A. No.

4 **Q. If I asked you the questions posed in**
5 **your Rebuttal and Surrebuttal Testimony again, would**
6 **they be the same today?**

7 A. Yes.

8 **Q. Are the answers true and correct to the**
9 **best of your knowledge?**

10 A. Yes.

11 MR. LANAHAN: I would offer Exhibits 300
12 and 301 for admission into the record and tender any
13 cross-examination.

14 JUDGE DIPPELL: Thank you. Would there
15 be any objection to Exhibit Number 300, which is the
16 Rebuttal Testimony of Cheryl yn Kelley, and 301, which
17 is the Surrebuttal Testimony of Cheryl yn Kelley?

18 Seeing none, I will admit those into the
19 record.

20 (Exhibits 300 and 301 were received into
21 evidence.)

22 JUDGE DIPPELL: Is there any
23 cross-examination for Ms. Kelley by Staff?

24 CROSS-EXAMINATION BY MS. MERS:

25 **Q. Good evening, Ms. Kelley.**

1 A. Hi .

2 Q. In regards to your 10 percent low-income
3 proposal, would DE be open to working with parties and
4 examining the utilization rates of the Kansas City
5 Power & Light Clean Charge Network chargers and
6 correlating that with low-income areas in KCPL to see
7 if there's any lessons we can learn to both locate
8 chargers in low-income areas but also have a
9 probability of those chargers being utilized?

10 A. Sure.

11 Q. All right. That's all I have. Thank
12 you.

13 JUDGE DIPPELL: Office of Public Counsel?

14 MR. CLIZER: Yes, briefly.

15 CROSS-EXAMINATION BY MR. CLIZER:

16 Q. Good afternoon -- or good evening.

17 A. Hello.

18 Q. As Staff just indicated, you have
19 recommended a 10 percent of the overall incentives be
20 paid -- or utilized for low-income communities.
21 That's correct?

22 A. Yes, sir.

23 Q. Just out of curiosity -- or why exactly
24 do you feel -- or why does DE feel it's important for
25 low-income customers to have charging stations?

1 A. Well, in my testimony I say not only
2 low-income but also those who are underserved. So
3 it's my belief that if all customers are going to be
4 paying for this program, then there should be an
5 attempt made to help all of these customers -- these
6 low-income and underserved customers -- have the time
7 to take advantage of the financial incentives as the
8 market progresses a little bit more.

9 **Q. And how did DE come to its 10 percent**
10 **figure?**

11 A. 10 percent came from when I was looking
12 around at what was going in other utilities.
13 Eversource allocated 10 percent to environmental
14 justice communities, and so that can include
15 low-income customers as well as many others. But I
16 wanted to specifically target those I considered
17 low-income and underserved.

18 **Q. And I'm just unfamiliar with Eversource.**
19 **That would be --**

20 A. Massachusetts.

21 **Q. Thank you.**

22 A. Uh-huh.

23 **Q. I have no further questions.**

24 JUDGE DIPPELL: Thank you. Is there any
25 cross-examination from the Sierra Club?

1 MR. ROBERTSON: No, Your Honor.

2 JUDGE DIPPELL: ChargePoint? Sorry.

3 Mr. Comley stepped out.

4 Renew Missouri?

5 MR. OPITZ: No, thank you, Judge.

6 JUDGE DIPPELL: Ameren?

7 MS. TATRO: No questions.

8 JUDGE DIPPELL: Anything from the

9 Commission? Commissioner Kenney?

10 COMMISSIONER KENNEY: No. Thank you,

11 Ms. Kelley.

12 JUDGE DIPPELL: Is there any redirect?

13 MR. LANAHAN: No, thank you, Judge.

14 JUDGE DIPPELL: All right then. I

15 believe that concludes your testimony, Ms. Kelley.

16 I'm sorry you had to wait all day for that.

17 THE WITNESS: It was wonderful. Thank

18 you.

19 JUDGE DIPPELL: You may step down.

20 All right. While I was feeling that

21 things were slowing down there and that we weren't

22 going to get any farther today, but then -- so I had

23 only planned to go that far today. If that --

24 COMMISSIONER KENNEY: Keep going.

25 JUDGE DIPPELL: Keep going?

1 COMMISSIONER KENNEY: Anybody want to
2 object to keep going?

3 JUDGE DIPPELL: The next witness on the
4 list is actually Mr. Owen and he is not available
5 until tomorrow. And ChargePoint wi -- ChargePoint's
6 witness I believe the parties had indicated that they
7 did not have any questions or at least I was told that
8 by Mr. Comley during a break that you don't have any
9 questions but there are some Commission questions.
10 And so if there's no objection, I'm going allow him to
11 appear by phone tomorrow morning first thing as our
12 first witness.

13 MS. TATRO: And I'm sorry. Who was that?

14 JUDGE DIPPELL: ChargePoint's witness,
15 Mr. Ellis.

16 MS. TATRO: Okay. Thank you. I --

17 JUDGE DIPPELL: And took Ms. Kelley. And
18 Dr. Marke would be our next witness and I allowed him
19 to go home because of a sick child.

20 So I believe that -- Commissioner, I know
21 you'd like to keep going, but I think we're going to
22 have to call it a day.

23 COMMISSIONER KENNEY: All right. I'm the
24 only one that wants to work around here.

25 MR. LOWERY: But we're going to be done

1 way before Friday.

2 COMMISSIONER KENNEY: I would hope
3 tomorrow.

4 MR. LOWERY: I would -- I would think --
5 I would think your hope will come true.

6 JUDGE DIPPELL: Okay. Well, with that
7 then, is there any other witness availability or
8 issues with regard to that?

9 MR. LANAHAN: Just a note, Judge. Seeing
10 as the Division of Energy has no further witnesses and
11 no cross-examination for the remaining witnesses, I
12 would ask to be excused for the remainder of the
13 hearing.

14 JUDGE DIPPELL: And -- and you may. And
15 any other party that has previously told me or
16 otherwise may be excused. I just give my usual caveat
17 that if you're not in the hearing room, then you are
18 waiving your right to object to whatever may happen in
19 this room.

20 So -- okay. Well, I believe then we can
21 get started again in the morning at 8:30. Is there
22 anything further?

23 I would like to ask you all to look at
24 what exhibits you might have tomorrow and make a lot
25 of copies of them. I need a copy for myself and the

1 Commissioners, even if they are not in the room at the
2 time so that they can have a copy and review it later.
3 Obviously if it's something you hadn't planned for, I
4 understand, but I'd like you to try to get some
5 copies.

6 I also wanted to say -- and I meant to
7 say this on the record when everyone was here this
8 morning. I wanted to thank Staff especially for their
9 position statement, which actually followed the rules,
10 which were cite to your testimony for your -- for your
11 statement of positions. And so I will expect all of
12 you to follow that rule in your briefs, if you would
13 please cite to the record when we get to that point.

14 So with that being said, we can adjourn
15 for the day and return at 8:30 in the morning. Thank
16 you.

17 (WHEREUPON, the hearing was adjourned
18 until December 5, 2018 at 8:30 a.m.)

19
20
21
22
23
24
25

INDEX

1		
2		
3	Opening Statement by Ms. Tatro	26
4	Opening Statement by Mr. Opitz	47
5	Opening Statement by Mr. Comley	48
6	Opening Statement by Mr. Robertson	52
7	Opening Statement by Mr. Lanahan	56
8	Opening Statement by Mr. Clizer	59
9	Opening Statement by Ms. Mers	73
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		

AMEREN EVIDENCE

TOM BYRNE

8	Direct Examination by Mr. Lowery	91
9	Cross-Examination by Mr. Clizer	93
10	Cross-Examination by Ms. Mers	94
11	Cross-Examination (In-Camera) by Ms. Mers	97
12	Questions by Chairman Silvey	100
13	Questions by Commissioner Kenney	104
14	Cross-Examination by Mr. Clizer	108
15	Cross-Examination by Ms. Mers	109
16	Redirect Examination by Mr. Lowery	110

PATRICK JUSTIS

13	Direct Examination by Ms. Tatro	116
14	Cross-Examination by Ms. Mers	120
15	Questions by Commissioner Kenney	131
16	Redirect Examination by Ms. Tatro	136

DAVID PICKLES

17	Direct Examination by Mr. Lowery	147
18	Cross-Examination by Mr. Clizer	151
19	Cross-Examination by Ms. Mers	165
20	Cross-Examination (In-Camera) by Ms. Mers	167
21	Redirect Examination (In-Camera) by Mr. Lowery	168
22	Questions by Commissioner Kenney	177
23	Further Redirect Examination by Mr. Lowery	183

STEVEN WILLS

21	Direct Examination by Ms. Tatro	204
22	Cross-Examination by Mr. Opitz	207
23	Cross-Examination by Mr. Clizer	218
24	Cross-Examination by Ms. Mers	220
25	Cross-Examination (In-Camera) by Ms. Mers	230
26	Questions by Commissioner Kenney	254
27	Questions by Judge Dippel	263
28	Further Questions by Commissioner Kenney	265
29	Recross-Examination by Mr. Clizer	266

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

DIVISION OF ENERGY EVIDENCE

CHERYLYN KELLEY	
Direct Examination by Mr. Lanahan	287
Cross-Examination by Ms. Mers	288
Cross-Examination by Mr. Clizer	289

	EXHIBIT INDEX	MARKED	REC'D
1			
2	AMEREN:		
3	Exhibit 1		
4	Surrebuttal Testimony of Tom Byrne	14	93
5	Exhibit 2		
6	Direct Testimony of Patrick Justis	14	119
7	Exhibit 3-C		
8	Surrebuttal Testimony of Patrick Justis,	14	119
9	Confidential		
10	Exhibit 4		
11	Direct Testimony of David Pickles	14	151
12	Exhibit 5		
13	Surrebuttal Testimony of David Pickles	14	151
14	Exhibit 6		
15	Direct Testimony of Steven Wills	14	207
16	Exhibit 7		
17	Surrebuttal Testimony of Steven Wills	14	207
18	Exhibit 8		
19	Missouri map showing charging station	20	3
20	Locations		
21	Exhibit 9		
22	EV Usage Graph	20	3212
23	Exhibit 10		
24	Revised Table 2	14	9151
25	Exhibit 11		
26	Handwritten pie chart	20	3194
27	Exhibit 12		
28	Work papers	19	6203
29	STAFF:		
30	Exhibit 100		
31	Staff Report	14	
32	Exhibit 101		
33	Rebuttal Testimony of Sarah LK Lange	14	

1	Exhibit 102	
	Rebuttal Testimony of Byron M. Murray	14
2		
	Exhibit 103	
3	Rebuttal Testimony of Mark L. Oligschlaeger	14
4		
	Exhibit 104	
5	Surrebuttal Testimony of Robin Kliethermes	14
6		
	Exhibit 105	
7	Surrebuttal Testimony of Sarah LK Lange	14
8		
	Exhibit 106	
9	Surrebuttal Testimony of Byron M. Murray	14
10		
	Exhibit 107	
	E-mails 127131	
11		
	Exhibit 108	
	Agenda	127131
12		
	Exhibit 109	
13	Data Request 1	220228
14		
	Exhibit 110	
15	Indianapolis Power and Light Company	
	Rate EVX Time of Use Service for Electric	
16	Vehicle Charging on customer premises	225226
17		
	Exhibit 111-C	
	Partial Response to Data Request 18,	
18	Confidential	234234
19		
	Exhibit 112	
	Portion of USOA	239
20	OFFICE OF PUBLIC COUNSEL:	
21		
	Exhibit 200	
	Rebuttal Testimony of Geoff Marke	14
22		
	Exhibit 201	
23	Supplemental Rebuttal Testimony	
	Geoff Marke	14
24		
	Exhibit 202	
25	PowerPoint	203

1	Exhibit 203-Confidential	
2	Contract, Confidential 152153	
3	DIVISION OF ENERGY:	
4	Exhibit 300	
4	Rebuttal Testimony of Cheryl yn Kelley	14288
5	Exhibit 301	
6	Surrebuttal Testimony of Cheryl yn Kelley	14288
7	RENEW MISSOURI	
8	Exhibit 400	
9	Surrebuttal Testimony of James Owen	14
10	CHARGEPOINT	
11	Exhibit 650	
11	Rebuttal Testimony of James Ellis	14
12	Exhibit 651	
13	Surrebuttal Testimony of James Ellis	14
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		

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

CERTIFICATE OF REPORTER

I, Tracy Thorpe Taylor, CCR No. 939, within the State of Missouri, do hereby certify that the testimony appearing in the foregoing matter was duly sworn by me; that the testimony of said witnesses was taken by me to the best of my ability and thereafter reduced to typewriting under my direction; that I am neither counsel for, related to, nor employed by any of the parties to the action in which this matter was taken, and further, that I am not a relative or employee of any attorney or counsel employed by the parties thereto, nor financially or otherwise interested in the outcome of the action.

Tracy T. Taylor

Tracy Thorpe Taylor, CCR



A				
a.m 226:1 294:18	acceleration 259:15	accumulate 236:10	36:3,7 59:2 279:17,22	adjust 148:20
AAO 84:2,9,11 85:7,25 86:1 87:13,15,18 94:8,12,17 112:3	acceptable 194:18 227:18	accurate 95:11 95:20 120:11	283:5 285:12	adjusted 156:19 211:7
AAOs 84:21	accepted 240:11	123:7 125:6	adder 279:15	adjustment 196:2 215:18 215:19 251:23 252:2
aback 146:3	access 31:6 42:25 50:2,9 50:17 57:18 58:5 76:18 283:18	126:4,8 128:15 129:2 154:8 176:17,19 235:22 237:17 250:5 272:3	adding 38:22 188:7 215:22	adjustments 113:5
ABC 146:1	accessibility 83:17	176:17,19 235:22 237:17 250:5 272:3	addition 57:24 58:9 70:5 235:14	administer 71:10
ability 24:10 61:11 100:14 100:23 104:15 141:23 280:4 300:8	accessible 43:24	accurately 211:17 239:7 250:6	additional 19:8 30:21 33:12 34:23 36:4 40:3 47:16 57:10 58:11,18 60:16,18 61:10 61:12 70:9 71:2 75:5,6 76:21 83:19 103:11 114:19 127:24 128:4,9 164:22 229:2 284:14	administration 79:4
able 21:21 22:5 29:5 31:1 54:8 61:4 62:2 64:4 66:22 74:25 100:24 103:25 124:18 140:7 140:18 191:17 212:5 251:1 280:2 283:18	accompanying 51:10 52:6	accustomed 43:5	61:12 70:9 71:2 75:5,6 76:21 83:19 103:11 114:19 127:24 128:4,9 164:22 229:2 284:14	administrative 70:5,13,24 71:9,11 79:3 83:14 162:24 176:4
abnormal 239:1	accomplished 121:23	achieve 56:10 67:20,23	76:21 83:19 103:11 114:19 127:24 128:4,9 164:22 229:2 284:14	admission 92:23 119:12 150:23 202:2 288:12
absence 74:8 145:6 160:24 268:18	account 64:18 65:1,12,17 66:14 82:22 112:25 113:4 172:19 173:5,6 180:1	achieved 271:4	admit 37:7 93:2 119:16 131:7 151:3 153:19 203:15 207:18 211:25 226:20 228:22 253:7 288:18	admitted 193:16 210:15 228:8 252:18
absent 64:1	accountant 240:17,25 251:7 252:15 252:23,24	acknowledged 240:25	address 15:15 15:20 67:1 116:11,13 129:4,14,19 164:4 201:4 204:12,14 273:21 287:19	adopt 37:24 adopted 43:3 60:3 64:1 109:12 270:1
Absolut-- 276:18	accountant's 248:25	act 54:15	addressed 27:16 59:25 265:4	adopters 114:5
absolute 40:21	accountants 241:22	acting 56:3	addressing 128:16	adopting 75:19 249:23 250:9
absolutely 45:16 45:21 68:6 144:17 182:3 249:8 281:18	accounted 36:5 113:13	action 41:25 42:23 82:13 300:11,15	adequate 57:19 74:20 90:3	adoption 26:21 27:21 28:3 29:20 31:24 55:19 60:14,16 60:24 76:6,10 76:17 81:17
AC 49:4	accounting 83:1 94:23 110:19 110:22,24 111:3,9 240:15 240:16,19 241:2,15 243:24 244:8 245:3 251:3 252:24	actions 39:20 56:17	adequately 84:4	
ac-- 267:4	accrue 39:18	act 54:15	adjourn 294:14	
accelerate 42:6 258:9,9 259:16 259:17	accruing 64:25	actual 36:20 37:10 64:6 70:18 79:5 113:7 137:13 154:23,25 155:19 157:8 164:5 165:2 195:14 196:23 200:5 242:17 254:7	adjourned 294:17	
accelerating 144:8		actuality 41:6		
		ad-- 29:8		
		add 36:1 39:6 54:13 56:21 190:4,8 270:17		
		added 29:8,14		

108:21 124:21 125:20 134:2 159:3,15 163:11 219:6 219:10,19 257:4,19,21,25 258:6,8 259:14 268:21 269:21 270:24 283:25 adoptions 61:11 61:13 64:6 66:5,24 219:7 268:14 advance 44:19 56:8 advanced 35:4 50:18 advancing 115:12 advantage 54:8 290:7 adversarial 130:2 advocates 12:24 123:12 AEP 43:20 44:3 279:18 affect 70:17 107:5,6,8,9 108:8 affirmatively 280:22 affordability 56:13 affordable 29:23 afraid 212:22 afternoon 35:23 48:2 151:25 152:1,2 165:12 165:13 177:22 177:23 204:11 220:2,3 254:15 254:16 289:16 agenda 17:24	127:16,23 128:3,8 131:1 145:11 298:11 agent 71:6 aggregate 121:20 215:12 aggressive 134:9 aging 44:6 ago 24:21 25:4 105:9 150:5 260:14 269:4 agree 19:19 94:17 95:1,25 154:15 157:18 158:1 159:6,10 159:12,14,16 159:18 161:10 193:14 219:10 219:13,17 240:12 242:16 247:24 248:18 250:7,11,21 253:6 266:21 266:23 267:3,4 267:5 agreed 71:18 agreement 76:2 159:25 235:15 277:19,24 279:2 agrees 20:7 160:16 237:11 237:12 ahead 14:5 23:24 24:1 25:15 26:4,19 28:6,15 30:1 30:14 34:7 37:20 39:19 40:11,19 41:3 43:16 44:22 47:25 51:11,13 51:22,25 52:13 55:18 56:21	57:25 68:3 69:4,6 72:19 72:22,24 77:11 77:17 79:21 85:15,16 90:21 91:2,17,21 116:4 118:12 120:13 121:1 128:17 129:4 146:25 147:17 149:13,14,20 152:15 165:24 172:7 178:10 181:11 187:3 202:22 203:20 204:4 210:21 228:16 236:8 236:20 239:11 242:9 244:19 252:20 258:10 263:2 268:8 269:2,10 281:17 282:25 287:8 ahold 273:15 aid 18:20 aimed 49:7 61:8 77:10 air 29:12 78:8 103:5,6 104:9 109:9,10 114:1 114:5,5,14 179:2 airline 172:12 airlines 172:14 184:7,8,9,19 airport 38:4 70:16,21,24 71:5 162:21 163:18 164:21 176:12 178:22 181:21 183:9 184:6 airport's 183:24	airports 51:5 70:18 164:5 176:6,14 177:1 177:7 al-- 77:12 81:1 alienate 192:1 aligns 40:10 51:22 80:15 allocated 79:1 122:18 142:7 142:11 290:13 allocating 58:2 allocation 140:17,18 allocations 141:20,23 allow 17:20 50:8 78:8 100:17 111:15 114:4 135:11 137:5 139:6 192:11 236:16 241:18 286:12 292:10 allowable 87:19 allowance 19:2,5 19:10,25 81:9 82:5 allowed 61:1 65:13 172:4 292:18 allowing 50:23 allows 46:5 77:4 82:23 83:3 85:7 173:9 alternatives 77:7 77:13 altogether 83:21 ambiguity 175:15,18 amendment 237:13 amenity 53:5 Ameren 11:14 12:4,7 14:8,18	14:23 18:10,16 18:25 19:20,22 20:2,7,21 22:8 23:2 24:14 25:22 26:23 27:7 28:22,25 30:15 33:3 34:1,7,8,16,22 34:24 35:19 36:17 37:11 38:6,10,25 39:3,15,23 40:4,18 43:15 44:22 51:25 54:13 57:5 60:12,17 61:1 61:18,22,25 62:4,10,22,24 63:6,24 64:1,2 64:8,17,24 66:7,15,17,22 67:2 70:7,15 70:16 71:1 75:7,9,23 76:4 76:9,14 77:8,9 79:17 80:17,22 82:9 83:23,24 84:3,10 85:21 88:13 95:16,18 113:12 115:24 117:13 124:8 128:16 129:3 129:13,16,18 129:23 133:11 145:1 152:7 153:9 155:10 155:20 156:15 156:18,18 160:15,19 172:4 173:6 176:13 183:3 188:12 195:14 196:23 200:19 202:12,18
--	--	--	---	--

203:7 214:13 219:3 220:5 224:1,10 226:23 227:2,6 237:11,19 243:17 244:11 248:13 249:10 251:10 256:24 256:24 270:8 277:23 278:9 280:4 281:21 285:21 286:19 291:6 295:6 297:2 Ameren's 21:15 51:10,15 52:6 56:20 57:17,25 59:20 61:10 62:7,8,15 63:4 63:13,15 64:7 66:2 69:11,24 70:2,4 75:16 77:14 79:2 80:15 81:6 82:4,23 83:20 84:19 87:21 96:9,12 144:22 146:21 156:11 157:20 158:4 203:20 204:4 224:5,18 245:9 263:11 Ameren-specific 156:8,15 America 32:5 33:10,16 79:22 80:1 118:15 138:25 139:22 139:24 American 156:10,13 197:4 AMI 100:17 amicus 17:7,11	amor-- 65:16 amortization 39:5 65:16 85:12 amortize 63:4 amortized 65:15 amortizes 63:5 amount 22:16 23:6,7 39:7 62:1 63:1 65:12 78:23 84:7,24 85:13 112:11 113:14 134:12 176:3 190:3 191:18 211:7 214:20 222:22 242:18 242:21 248:22 283:8 285:5 286:4 amounts 19:10 30:22 analogous 111:18 analogy 103:4 analysis 36:7 37:17,19 41:1 50:20 74:10 78:16 79:11 82:22,25 121:16 127:24 128:4,9 156:22 157:1 161:5,13 163:9 177:2 178:16 191:16 191:19 200:22 209:6 213:3,8 213:15 216:20 222:12 271:20 analysts 56:25 analytics 49:6 angry 261:9 announced 42:2 42:12 43:10,18	annual 84:8 95:15 annually 67:17 answer 24:6 26:12 34:18 35:2 48:2 55:8 55:20 58:21 86:4 87:25 155:5 172:16 190:2 192:7 220:21 222:8 223:3 224:14 227:19 241:18 271:19 answered 23:20 223:5 275:23 answers 92:15 92:18 119:5 150:20 207:6,8 286:12 288:8 anticipate 17:10 anticipated 164:6 anxiety 106:9 137:12 269:2 anybody 228:17 292:1 anyway 104:11 188:2 apologize 65:24 147:24 154:10 157:24 172:8 174:17 221:18 222:3,6 228:2 246:10 252:9 261:22 263:9 265:4 apparently 155:5 Appeals 24:25 appear 41:19 113:16 292:11 appearance 14:12,17	appearing 14:25 15:13 74:2 300:6 appears 35:25 152:21 225:17 applicable 177:13 application 11:13 14:7 49:25 50:5,11 51:10 52:6 75:19 174:21 175:1 applications 49:6 applied 200:2 273:11 276:6,7 applies 240:14 277:20 apply 111:10 162:1 176:6,23 216:18 appreciate 25:20 91:16 104:12 267:16 approach 19:6 23:2,2 25:3,6,6 28:23 75:24 76:23 84:7 130:2 135:16 149:16 220:14 221:20 228:4 237:5 244:18 279:21 appropriate 46:3,19 58:10 65:5 85:12,18 85:22 103:20 115:8 136:23 137:20 158:19 177:8 200:7 215:19 appropriately 83:16	appropriations 141:1,10,13 approval 11:14 14:9 20:13 56:22 58:1 80:12 141:19 282:9 approve 40:13 44:22 56:20 59:24 60:5 71:14,17,19 75:18 77:8,9 80:11 84:18 102:20 approved 19:20 21:23 40:15 43:11 52:7 102:19 111:17 111:19,24 112:9,12 141:4 145:7 235:15 243:18 244:11 approving 43:20 approximately 84:6 95:16 122:23 123:15 125:7 142:25 157:13 216:3 248:21 apps 53:16 April 236:16 area 125:6 126:2 201:8 areas 58:8,12 76:25 181:6 289:6,8 argue 85:10 203:1,1 arguing 249:23 argument 253:4 artist 186:18 aside 45:18 80:6 asked 16:5,12 17:9,16 27:1
--	--	--	---	---

76:9 77:8,9 86:15 88:13 110:18 112:14 112:20 113:20 113:20 114:18 126:10 131:20 136:18 143:16 144:10 155:2,4 184:25 195:10 195:15 199:1 203:6 207:4 223:9 239:10 241:13 263:10 266:17 268:12 271:9,17,21 275:21 281:2 286:3 288:4 asking 18:10 20:19 25:10 39:3,6 60:9 68:13 71:17 105:21 110:22 110:24 111:1 145:25 172:22 220:8 241:12 248:25 249:2,4 249:21 asks 47:23 aspects 49:25 Assembly 249:24 250:8 asserted 280:21 assertion 53:10 250:22 assessment 157:5 162:22 265:23 asset 39:25 242:20 assigned 14:11 80:14,24 81:14 assist 58:17 assists 56:7 associated 37:6	39:11 44:14 48:17 177:7,13 208:15 association 17:8 123:9 156:6 197:10 Associations 156:2 202:16 assume 67:13 73:14 101:10 142:15 157:19 158:4 160:17 164:1 172:24 192:9,10 193:3 208:25 217:7 218:9 236:23 243:15 269:22 269:25 270:14 272:24 276:18 assumed 78:21 191:16,23 215:24 216:4 222:12 assumes 172:22 assuming 84:3 142:10 275:7 assumption 67:15 102:9 104:17 172:17 192:11 213:24 217:14 222:25 223:11 224:2 224:12 271:3 assumptions 41:4,5 74:9 78:17 79:11 81:2 82:4 102:11 211:9 214:10,12 217:2 219:4 224:18,23 assured 74:16 attached 174:23 175:1	attachment 128:22,24 155:25 attempt 40:15 61:2 290:5 attend 129:9 attended 129:11 attention 35:12 36:21 61:17 attorney 222:2 300:13 attorneys 73:10 73:12 96:20 attract 24:3 attributable 113:17 auction 143:8,8 auditor 240:23 August 128:14 128:17 129:4,9 130:12,17 131:2 authority 59:3 86:17,24 88:3 94:23 110:19 110:23 111:3,9 244:8 authorization 242:25 authorize 111:1 authorized 96:9 96:19 229:13 244:7 auto 42:1 51:5 52:20 258:23 automotive 42:4 AV 73:19 av-- 217:8 availability 173:15 267:25 293:7 available 17:17 32:1 33:13 47:25 48:2	49:12 50:4 53:6,7 54:6 77:13 80:24 86:4 122:15 139:5 221:2 224:10 240:9 253:1,2 264:12 264:19 273:18 292:4 Avenue 12:6 14:20 116:13 204:14 average 36:22 37:1 115:4,9 213:9,12 214:2 217:8 258:1 273:8 award 140:19 awards 140:6 aware 111:16 112:21 125:15 125:17,18 126:9,14,18,22 131:22 132:1 132:10 133:19 243:7,8,10,11 245:19,22 awareness 121:13 137:10 axis 154:16,21	222:17 235:11 238:14 245:18 246:21 261:9 261:10 267:19 268:11 286:1 back-up 42:17 background 32:13 145:23 146:2 backing 201:3 bad 185:17 261:5 badgering 130:7 bag 178:20 baggage 180:14 balanced 44:17 banks 53:4 bar 36:21 37:2 208:5,19,19 209:19 210:7 211:14 217:3 barrier 31:24 102:17 106:10 159:15 269:3 barriers 27:21 28:2 58:11 159:1,3 181:1 268:20 base 40:25 74:10 219:5,11,21 257:20,25 268:14 270:16 270:20 271:4,5 280:5 based 21:16 37:1,7 41:3 45:9 60:7 61:7 64:11 66:16 67:15 68:8 71:20 82:25 88:14 101:15 101:17,23 103:16 107:17 109:20 113:19
---	---	---	--	---

118:20 122:19 161:12 164:8 182:12 187:15 192:10 209:19 211:15 213:2,2 213:11 236:7 240:5 246:19 253:8 257:20 264:24 265:22 266:5 271:2 274:3,25 baseline 242:18 242:21 269:9 270:10 basically 86:10 130:1 140:9 143:2,9,13 145:24 194:2 199:22 217:20 basis 113:6 146:2 211:13 218:5 285:10 batteries 189:1 261:24 264:8 268:25 battery 30:7 47:15 188:15 189:12 261:18 263:24 264:3,5 264:7,14,17 268:23 bear 73:25 75:6 138:4 becoming 193:7 began 96:23 166:1 229:18 beginning 164:9 195:1 begins 35:23 118:17 begun 33:20 behalf 14:23 15:1,4,13,19 52:12 59:18	74:2,3 284:4 behavior 37:10 162:13 208:17 224:10,18 Behaviors 223:20 beholder 129:13 beli-- 273:21 belief 92:19 207:9 290:3 believe 16:20 17:3 24:18 25:15 26:18 33:19,20 40:13 48:5 59:3 60:12 62:13 65:4 66:25 67:6 69:14 73:18 74:8 79:17,25 86:16 88:17 102:3,16 102:18 103:11 103:19 104:13 105:15 108:7 110:9 115:22 118:25 119:8 127:8,11 128:21 129:11 132:11 146:14 152:12 155:21 156:3 162:15 162:19 175:14 175:19 176:19 180:2 192:5 193:11,13 197:20 198:21 201:17 203:20 208:5 217:23 219:16 220:12 221:9 222:18 223:5,17 227:11,21 241:4 243:2,25 247:3,14 248:5	250:24 252:14 253:7 267:1 275:5,7 276:3 287:5 291:15 292:6,20 293:20 believed 128:18 129:5 believers 188:8 believes 43:3 85:22 belt 86:20 163:17,24 184:1 Bench 131:13 186:14 254:11 264:24 286:1 benchmarks 101:24 beneficial 26:11 26:15,17 28:11 37:23 55:16 76:23 126:2 152:8 281:19 285:20 beneficiary 122:17 138:14 140:2 benefit 23:1,12 26:22 29:16 34:24 53:3,10 54:3,20 57:7 67:23 74:16,17 82:25 108:22 109:6 114:11 137:8 139:12 178:11,18 181:14 192:19 282:25 283:1 284:17 benefited 114:3 114:7 benefiting 21:22 181:10	benefits 27:14 28:8 29:7 38:22 39:18 41:5,6 44:14 53:22 57:10,11 76:6,19 79:6 81:3,7,20 82:19,21 83:18 108:18,20 113:21 114:11 114:15 134:2 192:19 205:5 236:9 259:18 269:16 284:6 284:14,17,21 best 30:7 60:23 92:19 153:11 199:12 207:9 210:9 276:22 283:18 288:9 300:8 better 21:21 23:16 29:12 55:7,8 70:16 76:25 77:7 101:16 105:21 137:5 186:19 193:19 195:12 263:21 273:12 betting 76:10 beyond 29:7 163:4 269:18 269:20 278:24 283:11 bias 42:23 big 37:3 55:15 106:9,10 138:21 208:9 biggest 46:23 bill 113:13 279:17,22 billing 50:17 billion 42:8 43:8 43:9 95:16	248:18,22 bit 26:24 32:14 144:7 160:1 183:7 188:20 194:23 199:22 214:6,11 229:12 247:21 251:5 257:22 258:16 267:22 274:24 275:12 290:8 black 154:10 blended 192:15 block 238:2 blue 33:4,8 34:4 35:12 36:19 37:14 199:3 208:5,14 211:1 board 22:5 209:11 212:16 212:21 boils 216:25 bolts 61:15 64:16 bonds 114:23 booked 64:18 Boonville 33:22 34:1,3 boost 27:10 bottom 33:24 117:20 158:2 163:13 202:15 bought 33:16 box 12:12 13:1,5 14:22 176:11 176:18 break 28:2 91:2 91:3,9 146:19 203:18 204:3 267:15,17,19 292:8 break-even 20:5 breaks 197:16 breathe 53:24
--	---	--	--	--

114:14	building 12:22	115:22 295:7	canceling 42:15	16:8,8 21:8
bridge 281:12	30:9 33:10	297:3	cap 64:21 75:20	55:24 93:13
brief 17:7,11	53:11 55:11	Byrne's 43:7	75:21 78:23	107:25 120:2
86:24 87:25	79:22 104:10	Byron 86:3	175:24 176:1	136:7 151:19
132:14 249:15	189:12	298:1,8	capabilities	182:20
249:20 253:5	buildings 191:13		263:25	case 14:6 24:7
266:15 286:13	built 33:3,5 34:6	C	capability 182:1	24:18,20,24
briefly 93:17	55:12 103:22	C 12:1	264:12,13	25:1,3,10,17
177:20 218:24	282:13	C-Max 260:19	capable 263:12	27:7 28:19,20
289:14	bulk 121:9	261:16	263:15,16,23	28:21 34:10
briefs 17:18	bunch 128:22	cabs 38:3	capacity 36:4,6	39:6,12,19
294:12	business 14:8	calculate 20:22	37:5 81:3	47:22 48:1
bring 18:4 23:9	15:15 26:21	22:16	178:21 209:1,2	55:13 59:19
40:14 61:16	27:19 28:16	calculated 44:19	213:15 214:14	60:21 62:7,15
73:8 143:2	30:6 37:21	209:17 211:10	215:2,5,13	62:19 63:1,2,7
259:18 284:21	39:22 48:18	211:15,19	216:5,15	63:16 65:8,10
bringing 258:25	52:17 60:2,8	calculating	217:12 218:3	65:19,21,22
brings 66:6	68:3 69:6 71:8	19:25	224:22 285:15	66:16 68:9
156:23	71:21 77:11,19	calculation	285:17	71:8 75:8,14
broad 270:23	78:13 85:15	209:20 210:2	Cape 176:4	84:19 85:2,6,8
278:19	96:10 111:23	212:5 283:9	capital 40:4,7	85:11 86:20
broader 23:14	116:11,13	calculations	41:17 114:22	87:18,23,23
28:20 31:14	173:8 204:12	221:1	114:25 115:3,4	88:20 89:9
brought 57:8	204:13 284:13	California 35:14	115:9,10	95:10 105:11
Brydon 12:11	286:25 287:19	43:11 132:23	248:20	105:12,13
16:8	businesses 37:24	134:17,17	caps 77:1	110:23 111:13
bucket 282:22	51:6 53:3	208:15 216:13	captive 74:10	115:14 116:17
budget 77:2	57:15	216:17 227:22	capturing 23:17	126:10,13,16
78:23 79:1,4	buy 42:22 70:2	273:15 274:5	car 31:9 46:1,7	134:20 135:16
81:10 82:5	82:12 260:13	274:15	53:4 82:12	137:20 144:11
83:12,22	263:2 269:15	California's	103:1 180:25	144:22,22
117:13 121:10	buyers 31:10	134:5	card 50:22	150:7 161:2
140:23 141:6	137:7	call 26:18 28:15	care 53:18 62:23	172:23 185:16
177:8	buying 31:11	35:12 36:21	143:2	185:17 190:2
budgets 77:1,14	69:25 113:22	90:8 115:24	carefully 52:16	190:18 191:5
81:3 121:7,8	114:1 179:2	146:22 160:11	cari-- 124:9	191:11 195:4
build 34:3 87:23	216:8	261:9 279:20	carry 152:7	204:18 210:2
103:13 132:9	bypass 31:10	287:11 292:22	carrying 66:10	213:11 219:22
143:10 262:13	Byrne 40:18	Callaway 113:1	67:6,12	220:5 221:8
262:19 263:4	90:22 91:9,18	called 37:21	cars 42:22 43:2	236:8 237:14
263:18 269:7	91:23 92:2,3	69:17 282:10	43:5 82:10	242:13 243:19
281:23 283:21	92:21,23 93:5	calling 241:7	103:1,11,12	244:22 245:10
285:4,5,17	93:19 94:5	calls 65:24 76:9	104:16	245:20,24
286:19	108:6 110:18	camera 186:22	Carter 12:11	246:17 248:15

249:11,16 251:11,17 254:3 265:4 268:14,18 269:23 270:12 270:16,20 271:4,17 272:14 277:19 278:6,7,10,20 279:21 280:6 280:21 282:2 286:7 cases 26:22 39:12 45:12 48:23 75:1 86:20,21,22 249:24 250:2,4 250:9,18 280:13 282:22 Cassady 244:22 245:13 catches 118:25 categories 140:6 140:10,19 142:4 209:3 213:14 215:1,2 category 174:7 174:14,17 183:20 cau-- 284:18 causation 75:5 cause 79:17 92:3 268:18 269:12 287:22 caused 126:2 147:20 283:25 causes 36:4 147:8 caveat 142:1 293:16 CC 127:13 CCN 40:24 CCR 11:21 300:4,18	cellular 50:23 Center 12:18 16:2 cents 70:9 71:3 214:17,20 226:5,6,11,25 227:4 certain 26:21 37:25 69:13 181:18 213:8 260:11,11 285:5 certainly 18:3 18:15 45:5 55:3 180:13,22 190:21 250:4 253:21 269:1 276:19,23 279:12 certainty 40:21 76:1 CERTIFICATE 300:2 certificates 55:4 certify 300:5 cha-- 45:25 chain 206:13 Chairman 11:18 20:14 22:1,2 26:7 41:20 44:24 48:4,10 52:11 55:22 56:1 58:23,24 59:7 69:1,2 72:5,7 86:6,8 86:14 87:12,24 88:2,5 100:9 100:11,13 109:24 110:1 131:13 295:10 challenge 29:24 30:2 challenges 58:14 chance 66:15	235:5 236:1 change 25:2 31:1 118:5 141:23 147:21 147:21 206:22 changed 206:15 236:16 285:21 286:20,21 changes 119:1,3 141:16 146:6,7 147:25 changing 64:22 characterizati... 130:6 163:1 characterize 96:4,8 157:5 245:16 characterized 209:22 charge 23:24 24:1 26:19 28:5,15 30:1,7 30:14 34:7 37:20 39:19 40:11 41:3 43:15,24 44:22 46:6 47:25 50:8 51:11,13 51:21,24 52:13 55:18 56:20 57:25 68:2 69:6 71:20 77:11,17 79:21 85:15,16 100:19 112:5 120:13 121:1 125:16,25 126:19 128:17 129:4 178:10 181:6,11 208:15 216:14 226:23 227:2,7 236:8,20 242:9 258:10 262:25	264:6 269:1 275:4 276:13 277:14 281:16 282:25 289:5 charged 32:6 40:5 102:13 261:8 ChargePoint 12:10 15:11,13 21:3 48:8,11 48:14,15,18,23 49:3,9,14,18 49:19,20,24 50:2,6,7,12,13 50:21 51:7,9 93:7 101:1,4,7 102:2 107:20 119:22 136:2 151:14 182:15 218:17 266:8 291:2 292:5 299:9 ChargePoint's 51:1,17,23 52:5 53:13 292:5,14 charger 22:13 23:9 27:2 32:24 35:4,6 45:25 82:11 145:16 264:10 264:17 277:8 277:11,17 279:10 chargers 23:14 24:12 25:5 31:5 80:2,3 82:23 85:23 100:25 101:4,8 101:22 102:17 142:7,11,21 263:11 264:1 264:11,19 284:3 289:5,8	289:9 charges 265:25 280:5 charging 22:9 22:18 23:16,22 24:4,7,11,15 24:21 25:9 26:20 27:5,20 27:22 28:1 30:17,23 31:2 31:7,18,22 32:17 33:2,4 33:11 35:8,13 35:22,25 36:1 36:10,20,22 37:16 41:13 42:24 43:9,14 43:19,20 47:19 48:16,20,21,25 49:1,4,8,11,13 49:15,16,17,21 49:22,23 50:1 50:4,9,16,19 50:24 51:18,20 52:1,4 53:1,3,8 53:14,18,19 57:2,5,19,22 58:3 60:18,22 75:1,3 76:18 76:21,22 77:3 77:5 79:22 80:13,14 81:2 81:15,24,25 82:2,3,14,17 82:25 83:4,6,8 83:17 86:10 87:22 90:2 93:24 101:20 101:21,23 102:1,24,25 103:3 104:18 106:1,5,23 108:12 117:8 118:6,16 121:9
---	--	---	--	--

122:20 124:12 125:15,19 127:25 131:21 131:23 132:5,9 133:12,23 137:4,8,13 139:12,14,17 140:11,22 142:13,18,25 144:15 178:22 180:21 181:7 181:12,20,22 208:17 216:18 217:3,13,15,24 218:1,9 222:13 223:12,20,20 224:3,8,10,18 224:19 225:15 226:3,8,19 235:21 259:10 259:13 260:20 264:7 265:7,22 265:24 269:11 272:25 273:17 274:18 277:7 279:18 284:2 289:25 297:14 298:15 Charles 33:22 charm 52:14 chart 35:11,12 35:22 36:18,25 132:16 174:10 174:14 186:1 193:19 208:4,9 297:19 charta-- 31:1 charts 132:13 255:2 check 280:2 Cherylyn 56:24 287:12,15,20 288:16,17 296:2 299:4,5	Chevy 106:16 child 292:19 choice 29:12 259:11 282:10 283:22 284:9 choose 139:22 chose 61:22 chosen 140:24 Chouteau 12:6 14:19 116:13 204:14 citation 155:13 155:16,17,23 156:3 195:11 195:16 253:15 254:7 cite 134:16,19 206:11 239:20 294:10,13 cite-- 197:13 cited 35:17 80:3 112:22 156:2 197:13 204:24 223:22 273:16 279:13 cities 124:21 citing 173:14 City 11:8 12:9 12:12,16 13:2 13:5 15:16,21 16:4 33:22 80:4 106:17 123:17,18,20 125:6 126:2 138:5 254:24 260:21 279:20 287:21 289:4 City's 144:22 claim 177:5 claimed 64:2,8 clarifies 19:24 clarify 107:13 172:14 175:5 189:5 211:5	222:19 class 75:1 156:20 157:2 196:2 197:4,14 198:6 199:13 classification 180:7 clause 251:23 252:2 clean 29:22 125:16,25 126:18 289:5 cleaner 30:11 114:14 clear 17:23 24:5 31:25 37:14 47:18 60:15 62:14 77:23 183:6,12 184:13 196:21 197:2 201:22 205:18 213:1 235:11 clearly 84:21 climb 125:14 Clizer 13:1 15:4 15:4 21:13 59:11,15,18 68:6,11,14,21 68:23 69:5 72:12,16 73:2 73:5,11,14,17 73:22 93:17,18 94:1 108:4,5 113:20 120:6 136:12 148:24 151:7,23,24 152:11,23 153:1,4,7,14 153:23,24 155:4,8 158:22 182:24 185:1,4 193:22 194:3 195:2,10	196:19 199:1 202:10,12 203:2,12,13 218:24,25 219:24 239:16 266:15,16 268:3 289:14 289:15 295:5,8 295:25 296:3 Clizer108 295:11 Clizer151 295:17 Clizer218 295:22 close 159:18 214:8 235:7 270:17 closely 131:24 closest 83:9 253:1 closure 42:12 cloud 50:22 cloud-based 50:14 Club 12:20 15:23,24,25 21:5 52:10,12 93:14 107:22 119:24 123:23 136:4 151:16 182:17 218:19 266:10 290:25 CNG 79:13 187:13 co-- 181:5 280:24 co-ops 33:1,7 coasts 67:6 code 253:23 coin-operated 53:15 coincident 223:1 224:3,6	coincides 125:19 collaborate 85:17 collaborative 31:15 32:20,22 34:20 76:15 80:18 83:11 122:19 123:8 124:4 138:16 139:20 Collaborative's 32:16 colleague 133:20 colleagues 274:8 collect 63:1 65:13,21 66:1 66:9,15,18,19 66:22 85:8 89:13 280:5 collecting 63:8 279:15 collection 50:20 62:6,16,19 65:18 collections 65:14 Collectively 26:18 collects 62:9 colleges 51:2 colored 138:22 colorful 130:5 colors 32:25 Columbia 12:3 12:23 14:22 123:19 255:11 column 117:8,12 117:18 118:7 174:16 197:3 202:12,18 com-- 114:3 combination 178:15 197:13 286:10 combustion
--	---	--	---	---

<p>29:10 31:11 43:5 54:11 157:6 160:6 162:2,7,9 165:5 179:8,9 187:7,10,11 188:15 189:1 189:17 200:16 262:3 come 16:24 25:20 40:9 61:18 66:18 89:9 91:10 103:22 137:3 139:21 143:6 143:14 198:5 212:5 217:19 242:7 262:13 262:20,22,24 267:19,25 276:22 290:9 293:5 comes 62:9 87:8 122:17 146:20 154:12,19 257:2 269:23 comfort 41:8 46:6 comfortable 31:10 43:23 137:9 178:17 coming 42:3 47:17 78:21 102:8 137:23 138:8,9,25 144:21 202:9 202:18 211:24 228:20 261:12 262:21 Comley 12:8 15:12,14,15 21:4 48:9,10 52:9 93:8 107:21 119:23</p>	<p>130:23 131:4 136:3 151:15 182:16 218:18 266:9 291:3 292:8 295:3 Comm-- 69:1 comment 89:17 comments 21:16 27:23 138:15 commercial 49:4 49:12,19 Commission 11:1 13:6 14:24 15:1 17:19,24 19:21 20:12 24:22 28:21 34:9 44:8 45:3 47:6 47:23 48:10 52:16 56:2,19 59:4,17,20,24 60:5,9 71:14 71:17 74:1 75:18 80:11 84:18,25 85:2 85:4,5,11,14 86:25 88:19 94:8 107:17 109:20 111:1 111:14,17 112:9 116:11 131:22 134:20 138:1 184:12 204:12 242:5 243:8 244:3,7 244:11 245:20 246:14 253:14 253:25 254:4 260:20 266:5 268:17 269:25 280:17,21,23 281:1,16 291:9 292:9 Commission's</p>	<p>61:16 69:12 79:18 84:2 111:4,24 Commissioner 22:4,8 26:25 26:25 62:13 72:8,9,14,18 72:20,23 73:24 85:21 88:6,8 104:23,24,25 113:19 131:14 131:15,16 133:15 135:25 177:17,19,21 183:10 186:16 254:12,13,14 262:16 264:25 265:2,5 266:17 269:4 291:9,10 291:24 292:1 292:20,23 293:2 295:10 295:14,19,23 295:24 Commissioner's 25:13 182:12 Commissioners 11:19 25:19 27:8 40:12 41:19 73:9,12 152:16 229:3 294:1 commitment 80:17 235:17 commitments 52:21 common 277:11 277:17 communicatio... 250:3 communities 52:18 54:7 58:4,20 139:17 143:15 289:20</p>	<p>290:14 Community 75:8 companies 27:19,20,24 51:4 135:12 177:24,25 178:11 179:19 180:11 company 11:14 12:13 14:8 16:10 20:24 22:13 27:4,17 29:5 39:6 40:10 68:15,17 93:22 100:14 105:3 110:22 111:17 114:4 114:22 128:10 175:1 178:5 179:22 208:23 226:18 235:15 235:18 239:3 249:9 250:1,16 298:14 Company's 31:12 41:12 47:23 68:18 90:20 114:18 115:12 235:16 235:19 245:2 250:21 compare 18:25 214:1 216:12 275:9 compared 29:10 37:10 70:11,13 132:21 133:7 144:2 242:21 255:22 256:12 compares 95:15 comparing 124:20 comparison</p>	<p>248:22 compelling 35:5 compensate 61:25 competition 25:4 57:23 79:12 200:12 200:15 competitive 51:20 52:1,25 143:8,11,11,12 complete 49:14 106:15 123:5 124:11 completely 53:23 175:22 279:1 components 30:22 160:10 composite 154:7 compounds 54:2 comprehensive 56:18 176:22 compromised 123:13 con-- 51:20 125:19 126:1 219:15 concentrated 218:9 concept 27:13 concepts 41:9 conceptually 83:9 concern 25:4 78:25 80:22 81:23 184:12 261:12,13 concerned 187:23 concerning 70:23 193:1 concerns 58:13 59:20 69:10</p>
---	--	---	---	--

128:5,12 129:16,22 conclude 85:14 254:10 concludes 77:15 115:23 126:1 146:15 287:5 291:15 conclusion 51:24 241:7 conclusions 147:22 condition 58:6 80:15,18 conditioned 80:12 conditioner 179:2 conditioners 114:1,5 conditioning 78:9 103:5,6 104:9 109:9,10 114:6 conditions 56:21 58:1 59:1 86:21,22,22 87:2,4,10,15 87:16 conducted 30:25 35:14 38:9,13 conference 127:18,21 128:18 129:5 129:10,19 130:13 131:2 145:22 146:8 conferences 130:17 confident 54:14 confidential 96:20 119:10 119:15 152:21 229:5,9,14	247:10 277:1,3 297:7 298:17 299:1 confirm 242:2 244:7 confirmed 203:8 conform 184:15 confused 174:17 confusion 183:7 connected 50:21 connection 58:14 cons-- 85:18 Consequently 36:1 conservative 41:4 223:2 273:2,10,10 conservatively 272:24 consider 24:15 55:3 71:22 177:1 248:20 considerable 257:18 consideration 115:13 283:12 considered 77:2 85:10 177:6 213:11 264:7 290:16 considering 188:16 189:16 236:17 considers 224:11 consistency 21:20 consistent 31:13 85:19 87:21 150:13 184:14 211:10 280:24 constant 198:20 constantly 144:4 constituent	250:3 constitutes 240:16 construct 27:4 34:14 161:18 161:23 constructed 33:20,21,24,25 34:5,12 construction 18:20 60:23 81:9 82:5 187:21 191:12 constructive 127:6 128:12 129:8,12,20 130:3 146:4 constructively 145:15 consultant 28:14 79:2 consume 218:4 consumed 217:19 273:8 consumer 260:5 269:13 284:9 consumers 88:21 260:5 consumes 214:21 consumption 211:8 224:6 contact 16:10 contain 86:22,22 224:7 contained 86:20 96:23 127:17 166:1 229:18 contains 19:16 202:13 contention 76:3 contested 14:16 25:16 context 55:4	258:16 continue 47:14 53:19 65:18,19 95:14 125:14 125:22 134:1 155:7 278:22 continued 42:5 47:11 245:9 continues 54:13 contract 152:7 153:8 165:21 247:17,25 248:3 299:1 contribute 19:7 contributing 124:9 contribution 18:20 143:7 control 50:17 139:24 273:24 274:2 controls 191:23 convenience 17:8 55:4 107:4 convenient 146:20 conventional 283:19 conventions 251:3 conversation 46:14 143:19 277:21 281:3 conversations 27:24 131:1 278:4 280:13 conversion 164:3 247:2 convince 139:3 convinced 164:2 cooperative 31:16 coordinate	22:11 coordinating 32:21 copies 73:8 89:21 90:12 149:13,19 152:14,15 229:2 293:25 294:5 copy 72:10 73:15 153:8,25 208:8,10,11 221:22 237:1,7 238:14 249:19 293:25 294:2 copy/paste 147:19 corporate 191:7 correct 92:7,8 92:18 93:21,24 93:25 95:23,24 100:3 108:16 108:21 109:7 122:8,15 123:6 123:9 124:1,12 124:21 125:10 125:11 128:1,6 128:11 129:16 129:24 130:14 130:17,18 132:21 133:3,8 141:21 149:8 150:15 152:4,8 152:10,13 153:9 154:9,13 154:14 157:5 159:2,7 160:22 161:10,11,18 161:24 162:15 162:22 163:5 163:11,15,16 163:18 164:11 164:12,20 172:20 173:6
---	--	--	--	--

173:10,25 174:7,24 175:13 176:6,7 180:21 181:12 182:9 183:16 183:21,22 184:22,24 185:14 192:13 193:13 195:17 196:19,20 197:1,6,24 198:3,8 201:25 202:7 205:20 206:4,17,23 207:8 208:2,13 211:2 217:2 219:3,6,9,12 219:19 220:22 221:12 222:13 223:13 224:13 225:23,24 227:8 229:5 242:5 248:3,7 249:11 253:10 258:21 271:22 288:8 289:21	289:6 correlation 154:16 155:5,6 correspond 117:22 corridor 27:5 28:20 31:18 53:8 80:6,8,9 80:16 87:22 117:19 118:9 122:21 124:10 124:11 127:25 143:10 corroborates 272:18 corroborating 274:17 cost 18:23,25 19:1,13 21:24 23:7 24:9,10 28:25 29:2,6 36:4,6 38:11 38:21 39:7 40:4,7 41:16 41:25 55:6 65:2,3 70:13 70:13 75:4,6 77:6 78:14 81:11,19 82:6 82:24,25 83:2 83:15,24 85:10 89:9 93:23 95:17 114:22 114:25 115:2,4 115:9,9 117:9 117:10 122:6 143:6 181:2 185:7 192:7,19 201:10,20,21 205:7 209:3 213:12,14,17 214:2,10,14,23 214:25 215:1 215:23 218:13	224:22 243:13 246:22,24 248:3,9,10 262:2 264:7 271:8 275:14 275:15 279:6 281:2 285:4,10 286:8 cost-benefit 74:10 78:16 79:11 177:2 cost-of-service 19:3 costs 18:18 19:4 19:14 22:19 23:11,17 24:3 24:7,8 27:10 30:21 37:5 39:2,4,5,13,17 39:24 45:11,24 54:20 61:11 66:10,10 67:10 67:12 68:16,19 70:5,7,14,24 70:25 71:9,12 75:3,22 77:16 79:3 81:3 83:14 84:12,12 84:13,14 85:8 85:9 88:25 89:5 103:25 114:9 162:24 176:4 177:6,12 177:12 213:17 214:20,25 215:11,14,14 215:17,18,23 216:15 247:6 247:19 264:4 265:24 268:23 268:24 279:10 279:15 281:6,9 281:16,21 282:14,16,21	283:7 284:4,19 285:6,9 Council 12:20 15:25 123:23 counsel 13:3 15:3,5 21:12 45:8 56:4 59:10,19 85:3 88:24 93:16 108:3 120:5 124:18 131:20 136:11 151:22 158:16 182:23 218:23 249:16 266:14 268:12 289:13 298:20 300:10,13 Counsel's 46:11 270:19 count 64:5 123:15 counted 63:23 counties 155:20 156:17 countries 260:7 260:10,11 country 191:8 county 156:19 couple 16:15 24:20 44:25 100:11 105:8 145:10 187:6 236:19 263:8 283:13 course 34:21 39:12 54:19 104:3 181:15 214:21 221:8 271:16 court 11:21 14:4 15:2,6,10 16:11 17:3 24:25 73:8,12 90:12 149:21	235:11 courts 84:21 cover 23:11 30:22 77:16 covered 18:19 24:8 covering 75:2 covers 40:4 CP 222:25 224:7 224:8 CPA 240:21 crafted 31:13 create 39:17 58:10 80:8 128:3,8 137:4 142:21 208:23 created 144:24 creates 39:15 42:22 creating 49:7 75:1 creation 56:16 criteria 242:25 243:3,8,9,12 244:3,6 280:11 criticism 127:7 criticize 157:1 critique 127:5 137:3 cross 119:12 207:13 cross-examina... 16:18 17:1 92:24 93:5,18 94:4 107:17 108:5 109:20 109:22 114:17 119:20 120:9 150:25 151:12 151:24 165:10 165:11 182:12 195:2 207:23 207:25 218:17 218:25 220:1
---	---	---	--	---

266:5 268:2	225:15 226:19	155:9	187:16	deferral 84:4,19
288:13,23,24	264:5 276:12	data 37:8 49:6	dealerships 51:6	244:7 252:22
289:15 290:25	286:24 298:15	50:20,23 69:22	53:4	deferrals 243:13
293:11 295:8,9	customer's 23:9	156:17 158:6	dealing 71:4	deferred 64:18
295:9,11,11,14	customers 18:18	164:25 176:11	286:10	64:25 65:12,17
295:17,17,18	19:7,9,11,12	176:17 195:14	deals 69:17	84:24 85:10
295:21,22,22	21:22 23:6,15	196:1,3,23	dealt 105:1	110:24
295:23 296:3,3	26:15,23 27:14	197:2,4,7,8,19	272:10	deferring 115:13
crosshatch	29:11 30:4	197:22,23	debate 183:12	define 140:3
192:12	35:9 38:25	203:8 220:4,15	debt 65:2,3	defined 77:1
cry 81:19	39:14,18,20	220:21 221:6	67:14 93:23	definitely
crystal 184:13	40:2,6,10	221:17 224:9	114:19 115:1,5	265:20
CSEP 56:19	41:11,22,23	228:14,18	115:6,7	definition 161:3
CT 49:16	44:15 49:9	257:11 271:12	December 11:7	189:6 190:14
curiosity 289:23	51:1 57:6,6	272:9 276:14	17:17 79:25	238:16,23
current 18:16	67:24 74:11,17	277:1 298:13	125:19 294:18	240:13 242:1
23:18 38:18	79:7 82:19,21	298:17	decide 16:25	248:25 249:1
57:5 64:19,19	102:24 103:1,8	date 20:20 62:23	25:9 87:2	252:8 253:23
76:24 241:4,16	103:9,14 104:8	251:12	decided 25:5	254:1 279:5
currently 59:19	108:25 109:2,3	David 35:15	138:13 160:6,7	282:17
100:16 105:24	109:5 114:12	38:7 146:22	decimals 226:12	definitively
137:5 140:20	114:13 156:19	147:2,7 295:16	decipher 212:16	121:5
178:5,7 179:5	183:13,19,19	297:8,10	decision 34:12	degree 278:18
179:7,21 182:1	216:17 227:6,8	day 35:1 53:24	40:22 62:7	delay 45:16
187:9 188:25	227:9 274:3,11	72:15 82:2	76:11 132:3	delegation 17:25
219:14 226:23	274:12 275:21	90:23 184:18	178:16 180:23	demand 26:13
227:2 251:17	276:2,4,5,7,10	218:1,6 254:17	246:19	209:24 212:6
curve 195:3	276:17 281:19	267:23 291:16	decisions 38:16	215:6 216:9,19
199:2 200:1,2	281:24 283:22	292:22 294:15	40:25 103:2	217:1,9 264:6
200:7 272:13	283:23 285:11	days 17:14	243:9 244:2	264:6 265:25
274:15	289:25 290:3,5	DC 49:4,10,15	decline 125:10	285:6 287:1
curves 214:14	290:6,15	49:21 80:2	125:12,20	demands 83:6
customer 18:20	cut 78:6	117:23 118:10	declining 126:15	demonstrate
18:24 19:4,15	cutting 181:18	132:17	126:20 165:2	101:5 154:23
30:8 37:10		DE 57:25 58:2,6	decompose	189:15 210:4
47:11 49:6	D	289:3,24 290:9	213:19	demonstrated
53:5 74:10	d/b/a 11:14	DE's 268:2	decrease 250:8	83:25 200:5
78:10 100:19	daily 218:5	deadline 251:24	decreases 105:4	demonstrates
109:10 126:4	dark 33:4	278:7	dedicated 79:4	37:9
172:18 173:4,5	Darrin 126:15	deal 63:12 94:13	deep 53:25	demonstrating
173:9,24 174:2	126:19	141:8 184:19	defeated 260:20	217:4
175:12,25	dashboard	dealer 159:17	Defense 12:20	demonstrative
177:11 183:13	50:25	160:11,13	15:25 123:23	73:7 90:1,11
183:25 223:20	dashed 154:11	dealers 78:3	defer 59:5 85:7	193:23

denied 84:20 85:25 86:1 131:22	Design's 249:1	177:7 221:1	23:1,4,19	158:15,18
denominator 283:9	designed 20:2 23:13,14 52:16	develops 49:3,5 54:9	24:14 25:11	165:9,23 172:3
Department 12:15 56:4 63:18 140:5 223:18,18 225:4	69:15 71:14,22	Diana 12:11 16:8	26:1,4 44:24	174:19,22
depend 114:25	78:22 184:5 188:5	dictating 86:10	45:7,14 46:15	175:4 177:17
dependent 61:12 62:7 64:14	designs 49:3,5	diesel 140:12 179:9,11,12,17 187:11	46:19,25 47:2	182:11,15,17
depending 22:23 45:12 220:8	desire 141:24 159:18	diff-- 199:2	47:5 48:4,7	182:19,21,23
depends 110:11 157:12	despite 281:22	difference 19:17 64:23 83:1	52:8 55:21,25	182:25 183:2
deploy 27:25	detail 48:14 197:11 276:22	94:12 114:10	58:23 59:8,14	186:12,21
deploying 52:4	details 51:17 146:1	200:1 226:3,8 271:5 280:15	68:4,7,13,20	187:2 193:13
deployment 27:22 57:2	determination 84:20 132:8	differences 113:15	68:22,25 69:3	193:17,25
deploys 49:3,5 114:23	determinations 85:13	different 18:22 27:24 32:24,25	72:5,8,19,22	194:4,9,12,17
depth 251:5	determine 38:10 63:12 66:4	45:5,6 60:3	73:4,6,13,16	194:21 196:6
derive 214:19	85:12 87:18	70:18 94:15	73:21,23 86:6	202:4,8,11,22
derived 209:15 209:25,25 227:17	113:5 125:22 224:3	111:15 181:5 181:11,18	88:6,11 89:3	203:4,10,14,17
describe 130:23 154:7 202:17 247:6	determining 62:9 63:15 86:18	184:19 238:12 239:2 243:12 243:15,16 275:3,22	89:15,23 90:5	204:2,7 206:21
described 243:21	develop 28:15 31:4 76:16	difficult 84:13 146:5 188:20	90:10,15 91:1	206:24 207:14
describes 51:21 57:1	103:7,9 104:15	192:1 212:16	91:8,13,17,20	207:22 210:13
describing 209:16	developed 28:22 31:17 33:9	248:11 269:4	92:25 93:4,7,9	210:21 211:23
description 90:3 117:8 150:5	44:13 61:7	diffusion 154:12 195:3 199:2	93:11,14,16	212:11,19,25
design 47:21 83:20 161:20 184:14 188:12 237:23 275:6 276:24 278:17	71:8 200:10	200:1,2,7,9,16 200:17	94:2 96:17	218:16,19,21
	developers 265:18,21	dinner 35:10	100:6,9 104:23	218:23 219:25
	developing 47:19 61:18 219:1 272:14	Dippell 11:16 14:5,10,24 15:3,7,11,12 15:17,22 16:4 16:12 18:2 20:14,25 21:3 21:5,7,9,11,14 21:25 22:3	107:16,20,22	220:13,15
	development 12:15 47:15 56:5 57:10,23 60:18 159:7,11 159:15,19		107:24 108:1,3	221:21 222:1
			109:19 110:14	225:8 226:16
			115:21 116:1,4	228:5,10,14,18
			116:25 118:3	228:24 229:4,8
			118:11 119:13	229:11 235:10
			119:19,22,24	239:15,20,23
			120:1,3,5,7	241:10,18
			126:25 130:9	244:19 252:6
			130:21,25	252:11,20
			131:6,12	253:6,13,19,22
			135:23 136:2,4	254:3,9 263:7
			136:6,8,10,13	264:23 265:1
			136:15 146:13	266:4,8,10,12
			146:17,25	266:14 267:9
			148:3 149:10	267:11,13,18
			149:15,17,23	267:21 268:5
			150:1 151:1,8	286:11 287:4,8
			151:14,16,18	287:14 288:14
			151:20,22	288:22 289:13
			152:13,20,24	290:24 291:2,6
			153:2,5,16,19	291:8,12,14,19
			155:7 158:12	291:25 292:3

<p>292:14,17 293:6,14 Dippell263 295:24 direct 32:11 35:18 38:6 41:25 57:24 79:12 86:17 91:25 105:2 116:9,16,24 117:6,15 119:4 119:9 120:10 128:20 132:13 132:21 138:18 147:4,10,15,23 148:6 150:2 151:7,9 154:1 155:17 157:15 163:7 176:9 177:6 204:10 204:17,22 205:14 207:5 207:15 219:1 221:12,13 224:20 235:4 244:21 247:8 255:1,3 256:22 257:9,13,14 268:22 271:18 271:22,24 272:4,6,15 284:16 287:17 295:8,13,16,21 296:2 297:5,8 297:11 direction 77:23 300:9 directions 147:22 directive 241:3 241:14,15 directly 47:21 61:18 102:4 107:1 180:9</p>	<p>283:3 director 51:8 disadvantaged 58:4,8 disagreed 270:20 disagrees 60:19 disallowed 89:10 disapprove 71:21 disconnected 175:23 discontinuation 42:13 245:15 discontinued 245:20 discovery 149:7 discretion 83:23 discuss 37:19 128:19 129:6 244:10 246:22 257:19 278:17 278:17 discussed 14:13 59:22 120:14 121:2,7 138:7 161:12 238:19 243:13 286:6 discussing 63:11 196:19 discussion 25:2 27:7,19 28:21 121:18 136:21 138:3 159:22 195:3,6 201:2 201:3 237:24 238:3 271:13 274:9 279:7 discussions 145:18 187:16 278:14,19,23 displacing 259:1 259:1 distance 58:16</p>	<p>117:19 118:8 distant 42:19 distinction 179:25 distribute 148:9 distributed 29:21 30:11 47:16 54:16 distribution 44:4,6 213:16 214:15 215:3 215:14 district 12:13 16:9 85:2,6 156:10 255:10 diverse 56:8 diversify 56:13 divide 65:11 187:8 216:2 256:9 divided 19:2 51:14 Division 15:17 15:19 16:21 21:9 42:7 54:5 55:25 56:3,7 56:23 86:15 93:9 108:1 120:3 136:8 151:20 182:21 218:21 266:12 267:24 287:10 293:10 296:1 299:2 Division's 56:17 56:25 divisions 20:22 Divison 12:17 DNR 32:17 33:13 78:5 122:16 138:13 139:3 140:7,18 140:18,20 141:16</p>	<p>DNR's 139:25 141:7,23 143:1 do-- 200:20 doc-- 147:9 docket 92:4 147:9 doctor 270:15 document 121:4 194:12 196:12 202:20 225:13 225:14,20 228:25 247:18 documents 89:19 145:12 DOE 224:2 does-- 107:6 doing 14:8 28:13 45:2,3 180:25 188:3,3 189:24 191:10 198:25 242:23 259:3 284:18 286:9 dollar 43:9 64:21 70:7 71:1,2 83:22 123:4 124:7 205:3 215:22 dollars 33:13 41:13,14 42:8 43:18 45:17 53:7 57:9 67:17 79:5 80:6 81:10 83:12 84:6 121:12 122:7 122:14,16,24 137:23 138:9 140:1,17 141:14 142:6 142:11,16 214:24,25 215:3,25 216:2 249:8 dops 33:8</p>	<p>dot 33:1 dots 32:13 33:4 33:6,7,8 34:4,4 34:4 80:15 138:22 dotted 199:3 double 217:25 280:2 doubt 240:6 Dovem-- 17:17 downward 19:14 40:8 44:15 126:3 145:2,4 DP-D2 176:9 DP-D2-14 157:15 DP-D2-29 163:7 DPD-2-12 157:24 DPD-2-14 157:22 Dr 71:25 152:14 152:17 154:8 154:12 156:4,9 157:1 162:19 162:23 195:4 197:8,11,13 221:4,25 222:8 222:15 223:9 292:18 draconian 191:25 draw 30:3 185:25 186:1 drawing 212:15 Dreams 262:7 262:12 drew 192:13 drifting 193:7 drive 12:22 31:6 43:4,4 56:9 106:20 137:9 driven 47:11</p>
--	--	--	--	--

driver 38:4 43:25 49:7 50:18 284:11	earlier 27:1 38:8 41:16 140:13 204:24 263:10 265:3 274:7	191:23 192:7 201:10,20,21 262:2 275:14 285:11	49:1,8 50:1,9 50:16 51:3,11 51:14,18,22 52:1,14 53:23 54:10 55:15 57:2 60:1,6,11 64:6 68:24 69:24 70:12 71:19 74:5,12 74:23 75:15,25 77:17,21 78:4 78:18,19 79:21 81:17,21 85:16 85:23,23 96:10 100:20 102:18 102:23,25 103:14,21 104:2,4,8,9 105:16,25 106:4 108:9,24 109:1,4,5 113:12 114:13 123:11,19 137:6,14 138:10 140:11 140:22 141:4 157:2,8,11,21 158:5 159:2,4 160:8,10,10,12 160:19,24 161:15,16,23 162:3,10 164:14 165:2 178:1,2 179:8 183:25 184:21 187:7,9 189:13 189:16 190:1 191:4 197:22 198:6 199:17 199:19 200:15 201:9 208:22 213:24 218:13 223:19 225:15 226:19 259:7	260:23 261:19 261:24 262:5 269:15 279:18 283:14,15 298:15
driver's 62:8	earliest 251:12	effectively 26:11 40:1	electrical 26:21 39:22 178:21	
drivers 43:22 48:21 49:24 50:2,8 53:21 82:10 257:5	early 114:4 136:18 236:18	effectiveness 78:14 83:15 275:15	electrically-po... 37:24 38:20	
driving 57:18 261:21 262:4 284:11	earmarked 122:25 140:22 141:15	efficiency 56:12 112:5 144:20 179:1 286:25	electricity 30:3 34:23 100:15 101:13 178:24 180:4 188:16	
drop 143:18 161:7,13	earn 39:24 208:24 284:1	efficient 11:14 14:9 28:11 30:5 37:22 41:14 47:15 54:11 56:8 261:18 284:22	electrics 188:7,8	
dropped 125:9	earning 65:19	effort 34:17 139:2	electrification 11:15 14:9 28:11,12 30:5 37:22,23 38:3 41:14 52:21 55:16 58:12,19 69:18,18,20 70:16,24 77:24 77:25 78:1,12 140:12 152:8 164:19,23	
drops 144:6	earnings 113:7 250:24 251:4,8	efforts 32:21 34:10 47:23 58:19 164:2	electrify 32:5 33:10,16 34:19 58:5 79:21 80:1 118:15 138:25 139:22 139:23	
dubious 83:6	easel 186:4,7,9	eights 206:15	element 199:8	
due 17:18 29:9 65:5 77:5 79:9 79:11 161:21 203:18 252:25 259:20,20 264:6 286:23	easier 32:14 185:25 212:8 239:11	either 17:21,22 18:21 42:25 58:15 62:20 77:12 82:12 186:3 260:8 262:2 286:23	elements 181:3	
duly 91:23 116:7 147:2 204:8 287:15 300:6	easily 50:8 194:13	elaboration 285:2	eligible 65:18 156:20 174:6 174:13 196:24 198:1,19 264:4 264:7	
duplicate 139:2	East 79:13	electric 11:13 12:13 14:8 16:10 25:1 26:20 27:2,11 27:20 28:9,10 29:25 30:10,14 30:15 34:9,21 35:4 38:18 42:5,9,10,18 43:23,24 44:3 47:13 48:16	eliminate 53:23	
duplication 246:8	easy 212:12,14		elimination 246:15	
duration 199:9	echo 21:15		Ellis 16:23 51:8 53:13 292:15 299:11,12	
duty 252:25	economic 12:15 56:5,9 57:10			
dwelling 30:18	economics 47:11			
dwellings 49:20	economies 57:9			
	ecosystem 49:8			
	Edison 273:15 274:5,15			
	Edison's 208:15 216:13			
	educated 102:11 102:12 104:17			
	educates 56:7			
	education 58:7			
	effect 24:24 64:4 106:23 113:11 239:1			
	effective 20:20 28:25 38:11,22 81:12,20 82:7 83:2 185:7			
E				
E 12:1,1				
e-- 64:6				
e-mail 50:5 127:11 128:15 128:15,22 129:2 131:1				
e-mails 127:7,13 145:11 298:10				
EA-2018-0202 249:11				

<p>Ellis's 51:24 ELMO 186:3 emergency 66:12 emerging 56:15 108:23 emissions 29:9 54:12 78:6 284:7 emphasized 58:8 Empire 12:13 16:7,9 21:7 34:13 55:23 93:12 107:24 120:1 123:17 136:6 151:18 182:19 246:22 246:24 281:2 286:7 Empire's 33:7 empirical 35:6 37:8,13 60:20 216:13,22 employed 152:3 300:10,13 employee 53:3 300:13 employer 79:2 employers 53:2 en-- 251:22 enable 29:17 47:15 79:23 81:14 82:8,18 82:20 enabled 57:11 81:22 121:19 136:20 258:10 enables 137:11 encompass 224:5,5 encourage 30:17 46:13 47:9 60:14,23 71:24 182:7 249:24</p>	<p>encouraged 21:17 44:3 encourages 26:21 56:7 83:13 encouraging 60:16 235:21 ended 125:19 138:15 216:16 endorsed 32:18 280:22 energy 12:17 15:17,20 16:21 21:9 29:19 30:3,8 42:7 44:20 51:4 54:16 55:17,25 56:3,7,9,10,18 56:25 85:1 86:15 93:9 108:1 112:5 120:3 136:8 151:20 179:1 182:21 208:25 209:2 211:7 213:15 214:14 214:18,20,21 214:24,24 215:17 217:19 218:2,4,21 222:22 223:19 224:6 225:4 226:24 227:3 266:12 272:23 273:7,9,16 274:14,22 286:25 293:10 296:1 299:2 Energy's 54:5 267:24 287:10 engage 198:24 engaged 27:19 28:13 48:18 engine 162:2</p>	<p>262:3 275:2 engineering 48:19 engines 29:10 31:11 54:11 England 12:11 16:9 enlarged 32:13 enplanements 176:15 ensure 21:22,24 31:5 56:12 58:5 66:13 75:12 82:13 ensuring 61:8 enter 130:20 175:2 194:6 entered 152:6 239:10 entire 34:24 41:5 63:1 121:4 148:19 152:9 156:10 156:12 192:16 212:15 250:19 entirely 62:8 100:16 281:22 entirety 79:18 85:16 137:19 187:5 entities 25:5 138:17 entries 14:12,17 entry 15:14 16:11 159:2,15 environment 26:23 29:9 38:25 56:10 environmental 12:18 16:1 44:14 114:11 114:14 123:11 290:13 equal 64:9 65:2</p>	<p>250:23 equipment 26:22 28:10 37:24 38:1,15 38:16,18,20,21 39:22 48:16,19 51:20 78:18,20 140:13 173:20 178:2,3,19 180:17,21 181:21 183:20 184:21 187:18 equitable 58:5 ER-2012-0166 244:12 ER-2014-0258 245:10 ER-2016-0179 235:17 236:24 248:15 errand 261:7 errands 35:10 error 118:21 errors 147:19 especially 27:2 34:25 52:13 70:11 74:18 144:19 218:10 294:8 essence 64:10 essential 43:22 55:5 77:3 essentially 22:20 48:18 65:9 67:11 70:7 180:2 establish 269:8 estimate 208:24 270:21 estimated 19:1 estimates 41:1 61:20,23 164:17 218:12 272:2</p>	<p>estimating 20:4 estimation 37:4 ET-2016-0246 27:3 ET-2018-0132 11:13 14:7 European 260:10 EV 22:9,18 23:9 23:14,22 24:3 24:7,21 27:4 27:21,22 28:1 28:2,6 30:17 31:5,11,15,24 32:15,20 34:20 35:4,6,13,22 35:24 36:1,7 36:20 39:21 41:13 42:3,16 43:2,9,16,18 43:20 44:13 45:25,25 47:19 48:20 55:19 57:2,13,14,19 60:14,16,18,22 60:24 61:11,12 63:18 66:4,24 68:1 76:6,17 76:18,21 82:18 83:17 90:8 93:23 105:2,3 113:22 117:7 121:1 122:19 122:20 123:8 124:4,20 125:20 128:17 129:4 132:20 133:7,13 137:5 137:7 138:5,16 139:6,20 142:7 142:11,12,18 142:21 144:15 145:16 180:20 180:20 208:13</p>
--	---	---	--	--

219:10,17 220:25 222:13 223:12 255:11 255:21 256:12 256:17,19,21 256:25 257:4 259:15 260:8 260:13 263:11 268:14,21 279:10 297:16 evaluate 58:11 58:13 83:15 136:24 evaluates 94:8 evaluating 223:19 252:2 evaluation 37:11 136:24 EVCS 57:23 EVCSs 57:24 evening 288:25 289:16 evenings 35:24 event 61:4 240:16 events 238:24,25 259:21 eventually 114:3 114:7 153:4 281:14 Eversource 290:13,18 everybody 114:7 176:22 228:2 evidence 35:6 37:13 60:21 93:3 119:18 131:9 151:6 153:22 172:22 172:25 193:6 194:1,8 203:16 207:21 211:24 212:2 216:13 216:22 218:10	226:21 228:23 253:8 272:17 273:5 288:21 295:6 296:1 evidentiary 11:6 72:25 89:20 210:15 evolved 199:22 EVs 29:11 30:5 31:6 38:23 42:19 47:13 52:15,25 53:20 54:8,9,15 57:8 57:11,17 63:13 63:15,21,25 64:3,12 65:10 66:8 76:10 77:16 81:11,18 82:6,18,21 83:1 100:15 101:6 102:8,13 103:16 108:21 109:12 120:13 121:19 126:2 136:19 217:15 259:18 260:5 EVX 225:14 226:18 298:15 EW 80:17 Ex 85:3 exact 255:18 exactly 43:14 45:25 46:7 104:21 189:24 197:8,23 224:24 254:8 289:23 Examination 91:25 110:17 116:9 136:17 147:4 183:5 204:10 268:10 287:17 295:8 295:12,13,15	295:16,18,19 295:21 296:2 examines 85:9 examining 126:9 289:4 example 111:10 112:7 135:3 137:11 140:21 145:20 177:10 192:22 201:15 202:14 275:10 examples 86:21 112:8 276:22 exceed 70:6,25 75:21 161:9 Excellent 159:5 exception 16:20 90:16 137:15 excerpt 240:2 exchange 138:5 exciting 42:25 exclude 156:20 190:9,18,22 191:17,24 192:20 excluded 190:12 excluding 191:24 excuse 49:22 144:18 203:4 224:5 226:10 256:24 264:25 excused 16:5,13 293:12,16 execute 103:23 exemplar 19:17 20:12 exert 19:14 exhibit 72:25 73:7 90:5,6,11 92:9,23 93:1,3 126:25 127:9 131:1,3 149:18 149:22,24	150:24 152:12 152:18 153:15 153:17,21 193:11,20 194:8 196:5,6 196:7,11,22 197:5,8 198:4 198:15,18 202:3,4 203:15 203:16,23 207:15,16 208:6 210:14 210:15,24 211:17,22,24 212:2 216:11 216:21 217:10 220:11,18 225:7,8,9 226:15,17,21 227:23 228:3,5 228:10,19,22 228:23 229:1 239:14,17,24 252:7,10,18 254:5 271:10 272:9 275:16 276:25 277:4 288:15 297:1,3 297:4,6,8,9,11 297:12,14,16 297:17,19,20 297:23,24 298:1,2,4,6,8,9 298:11,12,14 298:16,18,21 298:22,24 299:1,3,5,8,10 exhibited 162:13 exhibits 14:1 17:3,4 89:24 90:1 119:14,16 119:17 126:24 127:2 130:20 130:22 131:8	145:10 147:10 150:19,23 151:2,4,5 175:2 203:25 204:18 207:11 207:20 221:24 287:24 288:11 288:20 293:24 Exhibit 299:12 exist 28:3 104:15 110:4 187:14 existence 102:23 existing 20:8 54:23 55:13 161:22 162:1 187:17,20 188:22,23 200:13 237:15 exists 38:19 expand 58:18 expanding 188:24 189:25 190:24 191:1 expansion 187:19,20,20 188:21 189:10 expansions 188:19 expect 41:20 53:15,19 101:25 115:17 125:14 144:3 144:14,15,19 145:7 199:25 248:19 258:1,8 258:9 263:15 294:11 expectation 37:10 41:23 115:14 263:20 expected 35:2,8 52:25 117:18 117:19,22 118:7,8 121:19
---	--	--	--	---

163:2 205:4 219:18 239:4 274:18 expecting 163:21 265:16 expedited 17:16 expended 45:17 expenditure 65:4 248:20 expenditures 115:12 242:18 expense 55:13 65:16 84:5 104:7 111:22 expenses 46:24 63:5 66:23 83:25 89:14 111:22,25 144:18 experience 30:24 263:3 272:14 284:12 Experiences 223:21 experiencing 260:5 expert 71:24 240:18 explain 138:1 139:25 145:19 185:22 195:18 212:5,17 268:17 280:15 explained 41:15 48:13 60:13 explains 38:7 explanation 212:20 explic-- 241:20 explicitly 209:7 213:20 238:18 241:21 243:10 260:9 express 128:10	expressed 80:21 246:18 extension 14:15 18:16,18,24,25 19:1,4,5,9,10 19:13,14,25 20:11 22:8,10 22:15,19,21 23:3,4,5,13,22 24:3,7,8 25:19 27:10 30:21 59:22 71:17 85:24 130:4 extensions 21:23 extensive 37:17 267:14 extent 43:2 110:6 190:23 273:22 276:7 external 258:12 extraordinary 84:1,16 111:11 111:21 112:1 238:17,23 239:19 240:4 240:13,16 242:1,7,9 243:12 252:8 253:24 279:5 282:17 extreme 37:15 extremely 70:10 224:4 273:10 eye 129:12	fact 29:8 32:19 36:19 41:9 67:4 70:11 81:20 82:19 112:25 114:3 141:12 178:17 209:8 252:22 260:19 264:3 273:2,23 281:9 281:22 283:4 283:25 286:7 factor 19:3 109:15 269:11 factors 85:9 113:18 262:6 269:17 275:1,3 facts 172:22,24 fail 82:12 failed 265:3 fails 39:19 fair 137:2 159:5 fairly 23:16 147:24 193:3 fake-out 100:4 fall 33:14 138:6 familiar 94:7 96:12 126:12 131:24,25 132:2 134:5,7 199:15 210:23 211:13 220:4 220:10 236:23 238:16,22 241:1,14,21 242:24 249:15 255:1 270:3 277:9 279:9,14 familiarity 220:7 238:20 247:5 269:13 familiarize 225:13 family 49:16 far 32:3 33:14	37:9 41:6 73:19 81:18 165:3 277:16 291:23 farther 291:22 fashion 184:13 fast 31:18,21 32:17,24 33:2 33:11 49:4,11 49:15,21 80:2 117:8 144:8 277:14 faster 63:8 favor 31:11 fear 159:13 features 237:25 February 20:19 238:8 federal 113:14 259:24 feed 264:18,18 feedback 129:15 129:22 feel 137:8 256:21 289:24 289:24 feeling 291:20 fewer 259:7 Field 262:7,11 fight 61:19 figure 17:20 124:13,20,22 135:15 154:6 195:13,13 290:10 figures 81:6 112:22 154:7 186:16 196:18 217:4 file 11:13 17:7 17:21,22 20:19 27:3 62:7 65:9 235:17 237:12 243:23 251:11	251:17,19,20 251:24 278:6 filed 16:19 17:8 17:11 19:20 20:13 24:18,20 24:24 45:12 62:25 75:19 130:13 174:20 195:23 196:13 210:1 236:24 249:16 287:22 filing 20:17 63:16 65:10 92:4 147:9 236:18 266:18 filings 219:2 fill 57:21 finally 20:7 63:3 83:8 118:23 finance 39:9 41:17 114:20 financed 67:14 financial 290:7 financially 281:25 300:14 financing 39:7 39:17,24 find 41:21 48:13 50:9 74:25 87:20 117:5 133:13 143:7,9 145:15 155:22 157:16 194:11 209:23 221:18 241:5 257:7 275:19 finding 224:2 findings 35:13 fine 53:25 72:14 180:10 186:7 226:13 229:16 253:12 finish 203:5 267:15,24
F				

firm 35:14	191:1	fork 161:16	fossil 37:25	Friday 293:1
first 14:15 16:17 18:19 19:18,23 22:7,16,17 30:14 34:8 51:15 58:2,13 58:14 59:21 61:17 62:25 63:2,7,11,14 65:21 69:9,16 90:2,18 91:5 91:23 94:18 109:9 114:17 116:7 125:16 134:21 144:14 145:21 147:2 147:25 148:7 148:10 152:10 159:5 190:4 196:15,22 197:3 199:17 201:11 204:8 206:18 210:14 239:10 242:2,3 244:24 278:13 287:15 292:11 292:12	flexibility 31:3 flexible 30:9 54:17 57:8 flow 172:8 fluctuating 193:5 focus 137:19 focused 17:13 102:15 237:25 focuses 121:21 focusing 51:19 folks 113:25 150:14 189:21 189:22 261:25 276:23 277:12 follow 16:17 87:4 90:16 138:13 212:8 212:12,14,23 242:8,14 243:9 294:12 follow-up 172:5 followed 75:4,7 84:25 294:9 following 205:11 242:6 follows 91:24 116:8 147:3 204:9 287:16 footnote 113:9 113:10 154:18 205:25 206:1,2 206:3,5,6,7,9 206:14,16,21 223:22 Ford's 42:8 forecast 200:8 200:10 257:3,4 forecasts 133:22 257:21 foregoing 300:6 forget 41:15,24 65:23	forklift 77:20 157:19 158:3 159:2 160:8,18 160:21,24 161:15 162:2,3 165:3 173:19 173:25 174:1 175:10 179:6 180:20 181:7 183:14 187:5 193:4 197:21 198:6 199:17 201:9,19 forklifts 38:1 69:19,24 78:19 156:20 157:2 157:11 159:4 160:5,12,12,19 161:22,23 162:7,9,10 164:24,25 175:11,21 178:1 183:9 188:25 191:14 192:21,23 196:24 198:1 198:19 199:14 199:19,20 200:15,16 form 221:6 formal 140:8 241:2 formulating 244:1 forth 16:20 41:7 85:1 139:15 forward 20:6 44:10,19 47:24 66:2 74:22,25 75:10 76:12,15 87:5,6 133:14 133:22 135:14 143:2 214:13	found 27:3 28:9 32:11 79:13 214:11 215:20 267:6 271:25 273:14,18 foundation 51:19 202:19 202:24 210:19 252:14 253:4,8 four 71:2 77:18 79:20 81:21 106:18 108:11 108:11 151:7,8 173:21 216:21 256:14 fourth 16:2 143:17 159:17 frame 66:4 136:24 framework 200:21 frankly 218:8 281:24 285:14 free 48:25 49:2 50:8 70:2 76:18 77:20 78:2,14 79:10 83:17 125:15 125:18,23 159:22,25 160:21 161:3,5 161:8 175:21 185:1,5,11,18 185:19 187:23 189:7,8 190:15 190:19 191:21 192:10,18,25 193:7 198:11 201:2,4,9,14 201:15,24 frequency 250:8 frequent 249:24 250:2,18	front 18:21 26:8 30:14 86:17 135:20 198:18 268:24 fu-- 65:19 fuel 55:13 79:14 251:23 252:1 fuel-powered 37:25 fulfill 61:4 fulfilled 279:1 full 66:23 67:23 113:14 122:18 253:15 fully 54:23 functions 20:4 fund 32:1 122:15 142:16 fundamental 61:9 75:4 147:22 funded 77:12 funding 58:18 123:25 140:4 funds 32:2 75:15 77:22 78:10 79:9,24 80:7,8 80:9 124:11 139:21 140:25 further 21:1 24:10 29:15 47:9 60:23 83:3 100:4 107:16 109:18 109:19 130:16 131:10 135:24 146:12 164:19 165:7 177:15 182:11 183:2,5 194:22 203:11 222:24 252:5 264:23 265:5 265:25 266:5

287:3 290:23 293:10,22 295:19,24 300:12 future 25:8 42:10,18,19 47:17 54:18 56:11,12 65:18 133:13 239:4	246:18 247:5 248:14 249:23 250:8 251:11 259:3 287:1 generally 69:14 250:21 generate 40:24 63:14 250:4 generating 247:13 generation 29:14,21 30:11 generations 56:11 generous 66:25 Geoff 298:21,23 germane 280:25 getting 180:20 199:6 256:7 Girardeau 176:4 give 18:3,10 66:11 70:8 71:1,3 73:15 120:14 140:8 145:20 149:20 152:15 153:9 157:16 160:1 173:11 184:10 235:5,25 239:20 241:25 246:5 254:8 258:16 293:16 given 70:11 92:16 111:4 150:6,13 161:20 162:12 195:11,16 199:24 218:10 224:9 257:18 276:24 285:18 giving 117:2,17 GM 52:21 GMO 16:5 21:16 34:13	75:1 go 14:5,6,15 16:21,22,25 18:11 25:15,16 26:4 61:14 69:4 72:19,22 72:24 90:21 91:2,4,6,17,20 96:15,18 112:16,17 116:4 118:11 118:14,19 120:15 127:24 139:18 140:25 141:9 145:9 146:18,25 147:17 149:13 149:14,20 152:15,24 153:6 165:21 165:24,24 172:7 179:3 181:20 187:3 188:5,14,24 189:9 202:22 203:20,21 204:4 205:22 209:10 210:21 212:13 228:16 229:6,11 235:8 235:24 239:11 244:19 252:20 254:20 259:24 261:7 263:2,3 265:21 268:8 268:11 269:12 271:6 277:3 282:16 284:6 287:8 291:23 292:19 goal 21:19 31:4 61:5,10 63:7 67:20 235:20 goals 56:17	57:16 134:24 134:25 260:8 goes 43:17 64:4 85:20 going 14:12,13 14:14 16:16,17 17:5,25 20:6 21:21 23:9,10 23:10,19 25:7 31:1,9 33:21 34:5 35:10 37:15 40:24 42:20 59:23 61:14 63:10,14 66:11 67:5,13 68:2 70:2,17 71:2,10 82:10 89:18 90:15,17 90:17,18 91:12 105:8 106:25 112:16 114:18 115:15 133:14 134:3 135:19 139:14 141:3,6 142:6 145:25 146:4,18 160:1 160:8,18 172:21 175:8 179:2 181:5,10 184:10,19 186:10,23 188:5,6 189:17 191:4,15 193:18 194:14 208:25 209:1 210:3,13,13 214:2 216:1 218:13 221:23 221:24 236:11 239:9 241:6 243:5 245:12 247:8 248:24 249:19,20,25 250:15 252:7	254:23 259:5 259:10,11,14 261:10 262:1 262:21,24 265:17,24 267:13 268:1 269:2,5 271:1 273:21 275:4 277:2 281:7,23 282:1,14,16,21 282:23 283:5,6 283:14,16,17 283:20 284:1,4 285:6,17,19 286:11,11,24 287:9 290:3,12 291:22,24,25 292:2,10,21,21 292:25 good 14:6 15:12 25:6 26:6,6 29:8,11 47:7 59:18 66:3 67:14 73:24,25 79:8,17 93:19 93:20 94:5,6 116:10,12 131:17 139:4 144:5 152:1,2 165:12,13 177:22,23 188:17,18 189:2,5 200:12 200:18 204:11 220:2,3 253:19 254:15,16,17 254:18 259:19 288:25 289:16 289:16 goof 199:7 governments 51:2 grab 196:1 graciously 91:10
G				
ga-- 247:2 gained 165:5 gaining 29:18 gallon 261:19 gamble 76:4,8 game 67:3 75:12 76:9 gaps 57:22 58:15 garage 264:21 277:10 garages 51:4 gas 42:17 54:12 79:15,15,16 85:1 179:6 247:2 gasoline 179:10 259:1,4,8 260:11 261:17 Gasoline's 187:12 gasoline-fired 283:19 gasoline-powe... 42:14 gates 172:13 general 42:9,12 43:3 53:6 56:4 58:9 63:21 79:15,16 157:12 235:16 235:18 237:14 243:14 246:16				

<p>Grain 86:20 grant 40:24 223:21 granted 133:11 graph 90:6,7,9 154:17 155:10 297:16 Gray 33:7 great 12:18 16:1 53:22 72:15 160:13 224:17 262:14,22 263:1 284:11 284:11 greater 48:13 56:10 57:17 60:14 123:18 132:20 165:6 256:14 283:8 greatest 43:2 green 33:6 34:4 75:7 greenhouse 54:12 grew 134:18 286:22 grid 29:1,25 30:3,8,10 44:5 47:15 54:18 126:3 223:21 279:24 gross 163:14 190:10,13 191:21 192:6 192:15 201:11 201:23 ground 38:4 53:23 74:22 78:20 164:23 173:19 178:2,3 181:21 183:20 184:21 group 17:2 31:15 32:18</p>	<p>58:11,13,17 123:10 149:7 273:24,25 274:2 278:20 groups 123:11 181:18 238:12 grow 38:19 growing 42:3 144:7,9 193:4 growth 39:11 56:9 124:25 125:1,5,13 126:3 143:18 143:23 144:2,4 144:5,8,15,25 256:18 269:9 287:1 GSE 163:18 guarantee 40:16 84:22,23 142:8 142:9 guaranteed 68:18 87:15 guarantees 142:5 guess 22:14 26:1 102:14 110:7 175:8 210:19 212:4,6 216:25 228:18 240:7 245:16 270:10 guesses 102:12 guidance 84:25 guideline 87:6 guy 106:16 guys 109:25 262:7</p> <hr/> <p style="text-align: center;">H</p> <hr/> <p>half 37:20 69:23 143:2,13,14 187:6,7,16,19 190:6,7 191:17 191:18,20</p>	<p>201:16 216:19 255:23 256:10 261:8 Hall 22:4 62:13 85:21 Hall's 26:25 hand 116:2 245:12 247:8 248:17 handed 127:16 196:10 228:25 276:25 handing 237:7 239:16 244:21 249:19 handling 69:17 200:18 hands 186:19 Handwritten 297:19 handy 154:1 Hang 186:21 229:9 happen 35:9 139:11,13,15 141:8 161:21 184:7 219:21 235:7 237:1 242:14 268:18 270:22,23 271:7 293:18 happened 21:19 35:3 53:1 94:14,21,24 95:4 111:10 246:3 happening 137:7 156:14 happens 139:13 285:12 happy 34:18 37:18 48:2 58:21 86:24 175:2 209:8</p>	<p>hard 186:13 212:23 278:7 hardware 48:24 harmless 61:4,9 haul 78:7 He'll 48:1 head 140:9 headed 145:22 heading 225:17 headings 174:16 health 54:2 57:11 healthier 56:10 hear 27:24 38:15 96:19 229:14 heard 25:3 27:7 42:11 135:17 195:7,7,7 238:19 245:25 259:2 284:22 hearing 11:6 14:11 16:6 17:13 18:7 32:14 48:15 193:18 212:12 229:13 254:10 286:13 293:13 293:17 294:17 heating 78:9 hel-- 186:19 held 61:3,8 238:6 Hello 289:17 help 68:12 96:20 117:3 138:20 139:11 210:7 281:23 290:5 helpful 138:4 145:21 148:9 210:6 helping 29:3 helps 87:17,22 Henry 12:18 16:1 52:12</p>	<p>hesitant 212:11 Hi 289:1 high 12:15 15:20 37:16 44:11 70:10 71:4,12 78:2,25 79:9 162:24 201:18 216:22 219:5 257:20,25 264:6 268:13 270:25 287:20 high-level 69:9 higher 219:18 219:20,21 250:24 265:14 265:21 268:24 283:10 highest 285:18 highlights 81:7 highly 62:11 161:9 185:7 217:6 247:10 248:6,6,9 highway 22:24 30:19 31:18 32:17 53:7 265:11,12,17 highways 31:23 79:23 hinge 78:17 historic 94:12 111:9 history 111:14 286:22 hit 101:4,25 hitting 102:5 hold 96:17 116:25 165:23 187:2 holder 172:19 173:5,6 holistic 31:4 137:2,4 home 35:9,9</p>
--	--	---	---	---

49:18 50:1 53:18 76:22 101:8 102:13 104:18 107:7,9 108:8,9,13 254:20 277:7,8 284:2 292:19 homeowner 105:25 106:8 106:22 180:25 homeowners 107:10 homes 139:15 homework 27:15 28:13 honest 17:14 honestly 165:19 Honor 15:18 17:12 18:16 21:10 44:20 56:1 90:21 91:22 92:22 93:10 110:16 112:18 115:19 119:25 120:4 136:16 149:20 149:22 150:22 183:4 186:23 193:10 196:4 202:1,2,10,21 218:22 228:7 254:6 291:1 hope 140:14 293:2,5 hopefully 26:2 186:20 246:10 hospitals 51:3 host 48:24 50:15 125:21 hosted 138:6 hosts 50:13 hotels 51:2 hour 35:20 215:7,24	216:16 217:16 217:19,24,24 217:25 218:5 222:23 224:6,7 224:8 273:1,8 285:15 hours 34:25 38:23 54:21 103:18 104:16 213:25 214:4,9 214:16,19 217:21 218:7 273:6,8 house 106:2,5 107:11,12 184:7 housekeeping 267:23 268:7 housing 51:5 hub 176:13 huge 45:16 hundred 240:8 284:23 hundreds 135:7 HVDC 83:4 hybrid 42:16 hybrids 105:17 261:23 hypothetical 160:2 173:2 174:3,4 184:11 hypothetically 172:23 173:3 184:11 <hr/> I I-70 24:22 27:5 28:20 181:12 ICF 28:14,16 35:14 38:7 79:1 152:3,6 153:9 188:12 217:3 274:7 idea 60:13 61:9	66:3 82:13 86:9 identical 274:16 identification 14:3 127:3 149:25 152:19 196:8 203:24 204:1 220:19 225:10 239:25 identified 223:10 268:21 identifies 83:13 identify 159:1,6 162:19 196:12 identifying 58:18 idling 78:5,9 ifs 36:16 II 197:14,16 198:6 199:14 III 156:20 157:2 196:2 197:4,14 197:16 ill-defined 77:13 illustrate 32:9 177:10 201:14 212:9 illustrates 198:16 illustration 36:18 158:2 192:21 illustratively 210:10 imagine 72:20 184:11 immaterial 96:3 96:5 immediate 54:19 immediately 54:7 251:5 impact 19:15 29:3 34:11	36:3 37:4 84:7 96:2,3 223:1 224:3,8,22,25 272:5,18 273:4 275:12 283:6 285:17 impacted 286:5 impactful 249:5 impacts 223:20 282:4 impediment 68:10,12 281:10 impediments 68:15 88:14 implement 27:13 59:4 implementation 44:5 implementing 32:6 implements 18:22 implication 173:17 implicit 89:11 209:22 implies 201:24 222:15 250:7 important 21:19 30:10 57:3 62:10 109:13 109:14,15 217:18 258:17 259:9 283:12 289:24 importantly 31:12 52:3 137:6 imposed 84:12 imposes 20:1 impossible 161:19,20,25 162:6 185:13	201:17 impressive 42:2 improve 29:13 improved 29:1 135:16 improvement 20:11 improvements 56:14 76:24 199:21 improves 83:16 in-- 267:5 271:3 in-camera 96:16 96:18,23 112:18 152:25 153:6 165:21 165:24 166:1 172:6 229:6,12 229:18 277:3 295:9,18,18,23 in-vehicle 50:11 50:12 inability 43:1 inaction 44:10 44:21 inappropriately 157:2 incent 24:12 31:2 39:20 77:16 incented 45:25 77:10 incenting 37:23 incentive 20:9 25:6 38:21 39:15 70:1 71:11 78:19 85:18 103:16 117:9 143:9 160:14 161:2 161:17 163:10 173:9,20,25 174:6 175:10 175:16,20
--	--	---	---	--

182:7 227:7 270:1,4,7 274:4 275:22 276:13 279:10 279:19 incentives 22:18 23:23 24:6 25:10 30:20 43:13 47:21 58:3 70:4 79:6 89:6 117:17 121:9 160:20 160:20 173:21 174:13 175:11 175:25 178:13 178:15 184:6,8 200:20 264:4 289:19 290:7 incentivize 78:7 85:22 108:12 108:24 270:8 incentivized 102:23 103:12 103:12 104:2,5 incentivizes 76:17 incentivizing 77:10 78:12 103:6 175:19 incent 45:19 incidentally 43:21 274:13 inclining 238:1 include 51:1 57:4 76:24 89:24 123:17 177:3 242:19 273:19 290:14 included 39:8 40:3,5,7 66:12 155:23 156:21 157:2 197:25 202:14 213:15 225:3 227:10	235:17 249:18 257:21 266:24 276:11 includes 66:9 123:22 156:4 including 49:11 49:16 50:17 69:11 76:7 138:8 income 84:8 113:11,11,14 241:3,15 incorporating 60:7 incorrect 155:15 271:25 272:3 increase 35:23 36:6 57:15 61:25 102:7 125:5 126:11 126:21 213:12 214:2 256:25 increased 29:12 57:8 62:1 76:5 76:17,20 77:6 109:6 114:8 165:4 increases 35:24 82:24 105:4 increasing 29:20 144:4 258:23 increasingly 29:23 incremental 29:5 incur 65:1 216:15 217:7,9 264:6 284:4 incurred 45:24 46:24 64:17 216:1 incurring 64:24 217:12 independently	246:2 INDEX 295:1 297:1 Indian-- 223:24 Indianapolis 223:24 226:17 298:14 indicate 30:25 225:14 indicated 150:5 185:5,10 271:15 278:13 289:18 292:6 indicates 158:3 229:4 indicating 35:21 individual 121:20 137:3 141:22 172:12 180:11 201:18 218:5 individuals 108:8 162:6,8 induce 61:10,13 63:24 64:7 66:7,24 induced 63:13 64:3,13 65:10 66:5 industrial 156:2 156:6 162:2,7 165:5 202:16 industry-com... 50:22 inefficient 80:9 ineligible 188:9 infer 209:7 213:21 222:22 informal 123:10 information 15:1,5,9 16:10 18:13 20:3 27:18 50:3,4 96:20 104:14	105:14,15 110:5,7 150:6 155:24 201:7 202:17 211:1 211:18 213:21 221:7 229:14 247:10 271:16 272:1 273:14 informed 52:18 56:18 informing 218:12 infrastructure 20:9 27:22 29:2 30:16 43:10,14,19 44:6 47:20 50:10 51:19 52:4 54:23 57:5,22 74:23 103:7,9,13 104:11 107:7,9 114:4 138:11 140:11,23 141:5 189:13 259:10,14 269:6,11 281:24 283:21 285:8,10 infrequent 238:25 inherent 89:3 initial 164:20 initially 237:24 initiation 236:20 injected 195:4 innovate 41:21 innovation 56:15 74:6 innovations 28:8 200:11 innovative 26:17 27:16 282:5,8 282:11,23	input 27:18 28:3 52:17 76:16 237:15,19 278:4 inquire 228:7 inside 179:12,17 inspect 188:6 189:10 inspection 189:18 inspections 188:12 install 32:3,7 122:6 installations 30:20 installed 19:1 32:9 33:17 75:25 78:18 80:1 102:17 263:16 installing 100:25 132:11 instance 202:14 Instruction 239:19 240:3 242:1 insufficient 24:3 integrated 264:9 264:16 integrating 29:25 intend 143:7 intended 53:5 173:18 intending 93:22 intends 63:4 70:8 71:1 intent 249:25 intention 184:6 184:16 250:16 inter-- 79:23 interacted 276:10
--	--	---	---	--

interaction 69:10	intrastate 79:24	islands 117:21 118:6 143:1	Jersey 43:18	116:25 118:3
interest 29:16 44:18 64:25 65:1,20 282:25 283:1,2	introduce 62:17	issue 20:17 45:15 47:23 63:11 93:22 114:19,23 184:16 192:17 192:25 196:16 201:5 247:7 279:21 280:8	job 23:17 56:15 57:14 200:12 200:18	118:11 119:13 119:19,21,22 119:24 120:1,3 120:5,7 126:25 130:9,21,25 131:6,12 135:23 136:1,2 136:4,6,8,9,10 136:13,15 146:13,17,25 148:3 149:10 149:15,17,23 150:1 151:1,8 151:13,14,16 151:18,19,20 151:21,22,23 152:11,13,20 152:24 153:2,5 153:16,19 155:7 158:12 158:15,18 165:9,23 172:3 174:19,22 175:4 177:17 182:11,14,15 182:17,19,21 182:22,23,25 183:2 186:11 186:12,21 187:2 193:13 193:17,25 194:4,9,12,17 194:21 196:6 200:24 202:4,8 202:11,22 203:4,10,14,17 204:2,7 206:21 206:24 207:14 207:22,24 210:11,11,13 210:21 211:21 211:23 212:11 212:19,25
interested 55:15 134:25 138:12 209:14 210:3 237:16,20 300:15	inverse 190:14	issued 27:17 111:5 114:25	John 13:1 15:4 59:18 244:22 245:13	
interesting 134:20 217:17	invest 42:8 283:25	issues 14:16 16:16,19,24 25:17 45:2 46:16,23 56:19 60:1 68:7 127:25 128:10 128:12,19 129:6,7,14,19 129:25 175:21 175:23 178:18 267:25 278:16 286:10 293:8	joined 135:11	
interests 40:10	invested 114:4	ITA 196:1	Ju-- 116:12	
interim 62:17,18	investigation 191:9	item 127:16	judge 11:17 14:5 14:11,24 15:3 15:7,11,12,17 15:22 16:4,12 18:2 20:14,25 21:2,3,5,6,7,9 21:11,14,25 22:3 23:1,4,19 24:14 25:11 26:1,4 36:15 36:16 44:24 45:7,14 46:15 46:19,25 47:2 47:5 48:4,6,7 52:8,11 55:21 55:25 58:23 59:8,14 68:4,7 68:13,20,22,25 69:3 72:5,8,19 72:22 73:4,6 73:13,16,21,23 73:25 86:6 88:6,11 89:3 89:15,23 90:5 90:10,15 91:1 91:8,13,17,20 92:25 93:4,6,7 93:9,11,14,16 94:2 96:17 100:6,9 104:23 107:16,19,20 107:22,24 108:1,2,3 109:19 110:14 115:21 116:1,4	
interior 179:11 179:14	investment 39:10 42:24 43:20 45:21 47:9,10 51:18 51:23 55:6,7 65:5 86:17,18 223:21 258:23 281:8,11	items 239:19 240:4 241:3,16 242:1,7,9 287:23		
intermittency 29:24	investments 43:9,12 281:23 282:1	Ives 126:15,19		
intermittent 29:24	investor-owned 31:16	J		
internal 29:10 31:10 43:4 54:11 157:6 160:6 162:7,8 165:5 179:8,9 187:7,10,11 188:14,25 189:17 200:16 262:2	involve 30:6	James 12:2 14:21 51:8 299:8,11,12		
International 70:22 162:21 197:10	involved 28:16 135:2 220:25	January 17:18 238:8		
interrupt 68:4	involvement 139:20	Jeff 106:17 254:23		
interrupted 145:24	involves 37:23 69:18	Jefferson 11:8 12:9,12,16 13:2,5 15:16 15:21 287:21		
interruption 172:8	IOUs 32:25			
interstate 30:19 80:2,3,4	IPL 222:20 223:13,25 224:2,4,19 225:1 227:8 272:10,13,19 272:21 275:17 275:21 286:4			
intertal 29:10	IRP 104:6 133:19 214:13 219:2,12 257:2 257:21 266:18 268:13			
intervenor 48:12				
interventions 200:18				

218:15,16,19	34:17 42:1	287:12,15,20	67:2 68:1	180:10 181:2
218:21,23	81:13 82:7	288:16,17,23	69:16 134:2	185:25 186:25
219:25 220:13	105:13,22	288:25 291:11	159:24 186:24	187:5,6,15,22
220:15 221:21	110:7,9 115:25	291:15 292:17	189:2 198:14	188:2,13,17,20
222:1 225:8	116:1,7,13,15	296:2 299:4,5	200:21 206:13	188:23 189:1,9
226:16 228:5	119:12 131:17	Kelley's 57:1,12	209:9,11 210:9	190:14,23
228:10,14,18	136:18 145:14	Kenney 11:18	221:18 266:19	191:6,6,7
228:24 229:4,8	146:14 257:1	72:8,9,14,18	269:18 270:21	192:24 195:12
229:11 235:10	263:10,21	88:6,8 104:23	272:22 273:12	196:16 198:10
239:15,16,20	268:21 295:13	104:24,25	273:13 276:22	199:6,19
239:23 241:10	297:5,6	108:7 113:20	279:16,20	208:24 213:10
241:18 244:19	Justis's 119:8	131:14,15,16	281:12	214:18,23
252:6,11,20	255:1	177:18,19,21	Kirkwood	215:11 216:2
253:6,13,19,21		183:10 186:16	123:19	217:11 218:10
253:22 254:3,9	K	254:12,13,14	Kliethermes	219:16 227:14
263:7 264:23	Kan-- 132:7	262:16 264:25	86:3 298:5	227:16,18,20
265:1 266:4,7	Kansas 16:4	265:2,5 266:17	Kliethermes'	227:21 238:9
266:8,10,12,13	33:22 80:4	269:4 291:9,10	76:13	242:12 243:16
266:14 267:9	123:17,18	291:24 292:1	knew 137:16	244:3,12,14,17
267:11,13,18	125:5 126:2	292:23 293:2	139:2	245:8 246:14
267:21 268:5	131:22 132:10	295:10,14,19	know 16:25 17:2	246:19,23
286:11 287:4,8	138:5 144:22	295:23	17:2,14,16	247:1,5 251:2
287:11,14	260:21 289:4	Kenney265	22:9,13 23:7	251:10,14,16
288:14,22	KCP&L 25:1	295:24	25:7,19 26:12	251:18 252:1
289:13 290:24	33:5 34:13	KENNY 72:20	31:7 36:19	253:18 254:7
291:2,5,6,8,12	144:11	kick 22:18	40:23 41:22	257:10 258:11
291:13,14,19	KCP&L's	kilowatt 49:21	46:1,6 73:3	258:15,18
291:25 292:3	144:15	49:21 54:21	96:4,9 100:19	259:23 260:4,7
292:14,17	KCP&L/GMO	103:18 104:16	101:13,19	260:9 261:6,25
293:6,9,14	33:5	212:6 213:25	102:15 103:4	263:3,17,20
295:24	KCPL 75:1,9	214:4,9,16,17	105:1,19 106:6	264:3,18
judgment 90:22	88:20 125:15	214:19 215:3,5	108:10 111:14	265:16,23,25
July 127:18	126:9,10,14,19	215:13,22,24	111:25 112:24	268:23 269:1
130:12	132:7 289:6	216:2,19	113:18 115:5	269:14,14
jumpstart 77:22	keep 29:3 36:4	277:11,17	121:3 124:15	270:18 271:7
June 165:1	40:15 65:22	kilowatts 209:23	125:21 129:13	272:21,24
196:25 203:8	236:11 251:23	215:5,11 216:3	129:18 132:7,7	273:22,23
jurisdiction	269:20 286:12	216:8,12 217:9	133:25 134:20	274:14 275:23
24:23	291:24,25	217:12,13	139:10 140:6	276:1,4,6,10
justice 290:14	292:2,21	265:13,15	143:4 145:25	276:13 278:3
justifies 55:6	keeps 63:18	277:15	150:7 153:3,6	278:21 279:25
justify 84:16	Kelley 16:21	kind 54:17	158:18 162:12	280:19,20,24
176:3	42:7 56:24	59:22 60:12	172:16,18	281:18 282:18
Justis 32:12,21	90:16,19,23	63:10 64:15	179:4,20 180:8	284:2,7,8

285:25 286:24 292:20 knowing 46:8 278:7 knowledge 27:21 33:10 92:19 153:12 241:2 288:9 known 28:11 76:1 knows 68:15 241:19 kW 77:5 82:24 82:25 83:4	179:23 180:1,6 184:1,23 Lambert's 180:8 Lanahan 12:14 15:18,19 21:10 56:1,2 59:5 93:10 108:2 120:4 136:9 151:21 182:22 218:22 266:13 287:11,17 288:11 291:13 293:9 295:4 296:2 landlords 53:14 Lange 36:9 86:3 214:11 215:4 217:14 297:25 298:7 Lange's 36:23 37:19 82:13 208:21 209:6 209:22 211:8 211:16 213:2,5 language 184:15 large 54:15,21 79:15,15 274:12 largely 283:6 285:4,19 larger 42:20,20 66:6 154:11 283:15,15 largest 80:22 latest 105:15 laundry 53:15 law 11:17 12:18 14:11 16:1 84:12 laws 45:6 259:24 lawyers 186:14 lay 210:19 lead 175:21 219:18	leading 28:14 29:6 34:17 48:15 138:17 leads 219:15 Leaf 260:24,25 learn 289:7 lease 172:12 leave 42:24 64:5 68:5 77:2 229:15 leaves 79:5 123:3 leaving 32:8 Lebanon 33:18 led 32:20 left 65:17 66:14 226:12 left-hand 144:1 legal 45:2 46:16 55:2 68:7,10 68:11,14 88:14 241:7,9 249:21 legalities 45:18 legality 45:8 legally 88:23 legislation 106:24,24 legislative 141:19 249:25 250:16 legislator 250:2 250:17 legislators 141:22 legitimate 104:7 187:24 lends 200:21 length 72:2 284:8 285:3 lessons 289:7 let's 14:5,17 22:6 30:13 40:21 90:8 91:2,3,3,3,6	118:14 146:1 149:17 160:9 172:7 184:11 187:3 203:20 267:18 268:11 269:22,25 272:24 level 22:23 37:6 38:18 49:4,10 49:15,16 53:24 82:23 117:23 135:4 219:11 277:7 283:22 levels 41:7 283:10 Lewis 12:2 14:22 liability 242:20 liar 200:25 lift 161:16 light 16:4 33:8 123:18,18,20 138:6 223:25 226:18 289:5 298:14 lighter-colored 32:12 likelihood 36:15 78:2 limit 83:4 240:10 limitation 77:4 limitations 78:5 limited 41:11,15 237:23 259:11 259:13 limiting 77:1 line 14:15 18:16 18:18,24 19:9 19:13 20:11 21:22 22:8,10 22:15,19,21 23:3,4,5,12,21 24:2,7,8 25:19	27:9 30:21 33:25 35:12 36:19 37:14 49:14 59:22 71:17 85:24 95:13,14 117:3 118:17,17,20 118:21,24 121:25 122:2 122:11 123:24 127:13 130:4 147:25 148:2,7 148:10,11,12 148:13,15,16 148:17,18,22 149:2,3,4 154:11,19 155:10 198:17 199:3 201:11 205:1,3,6,18 208:5,14 211:1 213:6,12,23 256:4 285:25 lines 95:8 126:5 156:25 161:6 205:12 236:2,5 244:23 245:13 258:25 259:2 linked 75:15 links 85:12 list 16:19 42:3 43:17 134:16 147:24 202:15 264:4 292:4 listed 42:1 138:18 listened 135:17 listening 71:23 lists 174:6 little 32:14 138:3 144:6 183:7 188:20 194:23 199:22 214:6 214:11 247:21
---	---	--	--	---

L

251:5 256:14 257:22 258:16 267:22 268:6 274:24 275:12 284:18 287:9 290:8 live 87:3,9 LK 297:25 298:7 LLC 11:21 152:3,6 LLP 12:2 14:22 load 26:11,14 28:25 29:5 30:9 34:23 35:1,7,22,25 36:2,3,20,22 37:6 38:23 39:11 50:18 55:11,12 57:8 102:7 109:6 126:3,15,20 144:15,25 206:3,5,7 208:12 211:11 220:25 221:2,7 221:11,12 224:19 257:3 271:12,17,23 273:17 274:1,3 274:4,9,22 275:4,10 283:4 285:12,18,21 286:4,5,19 287:1 loader 163:24 184:1 loaders 163:17 loading 38:2 loads 30:1 54:17 loan 36:20 local 29:12 57:9 157:19,20 158:3,4	locate 57:16 289:7 located 31:22 location 34:2 locations 32:24 33:2 83:14 87:20 90:3 297:15 lodge 53:25 long 78:7 115:3 117:19 118:8 141:25,25 142:1 147:24 191:2,13 199:13,16 251:22 263:16 273:6 285:16 long-distance 137:16 long-range 137:17 long-term 93:22 114:8,19 115:1 115:15,17 longer 45:22 115:8 look 35:11 65:9 66:4 70:18 87:2,18,20 95:13 115:5,6 117:19 118:21 137:18 163:17 173:15 174:5 174:10 185:20 188:19 190:3 191:8,11 198:17 209:5 213:5,12,22 214:16 222:14 225:19 238:1 244:5 247:18 260:9 262:11 273:17 274:13 293:23	looked 60:21 156:12 222:21 275:3 279:24 looking 22:23 32:23 35:3,5 37:5,13 63:17 64:15 87:13 126:5 200:12 213:4 214:8 267:14 290:11 looks 43:21 62:21 125:9 225:22 229:16 247:22 257:4 257:16 lose 65:20 252:1 282:1 loses 215:19 loss 241:4,16 lost 281:21 lot 43:21 46:16 72:1 134:14 135:15 178:18 178:23,25 185:19 195:2,6 209:10 210:8 212:23 259:7,7 259:22 260:4 262:6 263:4 268:20 272:17 274:25 275:3 276:20 277:12 286:3,13 293:24 lots 46:10 140:10 Louis 12:6,19 14:20 16:2 80:4 106:17 116:14 162:21 176:5,12 204:14 low 29:4 219:5 257:21,25	258:6 268:13 268:18 269:12 269:21,22 270:12,24 271:2,5 low-income 54:6 58:3,8,12 74:11 289:2,6 289:8,20,25 290:2,6,15,17 lower 29:6,9 39:14 54:13 145:5,8 192:24 283:9 lowering 54:20 Lowery 12:2 14:21,21 17:12 90:20 91:12,13 91:21,22,25 92:22 110:15 110:17 112:16 112:19 115:19 146:22 147:1,4 149:12,16,19 150:3,22 153:18 155:2 172:21 183:4,5 186:10,13,23 189:4 193:10 193:15,24,25 194:9,11,14,22 194:23,25 196:4,9 200:23 201:1 202:1,7 202:21,23 203:5,6 228:7 228:12 253:17 262:14 292:25 293:4 295:8,12 295:16,18,19 lunch 82:11 146:19 203:18 204:3 lungs 53:25	luxury 74:12 <hr/> M <hr/> M 117:14 204:13 298:1,8 m-- 80:23 ma-- 43:1 Madison 13:4 magnitude 95:9 96:1 112:10 285:23 maintain 262:3 maintained 70:17 maintenance 48:17 247:17 247:25 248:2 major 31:23 52:20 79:23 134:11 269:3 269:11 majority 35:6 36:2 42:14 179:9 make-ready 27:8 76:16 77:2 85:18,24 making 52:20 95:17 181:17 199:10 252:25 281:22 Man-- 220:6 manage 26:11 26:14 50:16,24 140:3 management 50:19,19 111:25 manages 66:7 160:5 manner 26:11 27:16 61:3 103:24 128:5 manufacturer
---	--	--	---	--

<p>48:15 160:13 manufacturers 42:2 52:20 258:23 manufacturing 48:19 map 32:10,15,23 33:15 34:15 80:1,15 86:11 90:2,9 118:16 122:21 138:21 138:21 297:14 march 69:16 margin 36:7 208:22 213:9 213:10 216:9 218:12 221:1 marginal 18:23 19:2 21:23 23:8 76:20 81:3 83:19 222:12 margins 37:5 209:6 mark 12:8 15:14 48:10 72:24 73:3 86:3 89:19 126:24 127:8 149:13 149:14,17 152:11 193:11 193:18 220:11 225:6 228:3 229:8 239:13 254:8 298:3 Marke 71:25,25 152:14,17 156:4,9 162:19 162:23 195:4 197:8,11,13 292:18 298:21 298:23 Marke's 154:8 154:12,20</p>	<p>157:1 marked 14:3 92:9 127:2 149:24 152:18 196:5,7,11 203:23,25 204:18 208:6 220:18 225:9 228:19 239:24 254:5 287:23 297:1 market 27:11 28:14 38:14 42:21 43:1 44:13 51:20 52:1 53:1 54:8 55:15 57:23 69:22,24 74:23 77:10,20,22,23 135:14,18 137:8 154:23 155:19 156:22 157:8,10,13 159:2 162:12 162:14 164:13 164:16,19 165:6 179:7 187:5,8,17,19 188:21 192:25 193:4 196:18 196:24 197:16 197:21 198:6 198:12,18 199:18 200:3,8 256:22 259:6 264:12 277:17 283:16,17,24 290:8 Marketers 17:7 marketing 121:12 164:3 200:19 marketplace 135:18 277:11</p>	<p>Massachusetts 279:23 290:20 master 183:24 mastered 180:1 match 123:25 139:16 211:7 matching 86:11 material 69:17 95:1 111:11 248:21 249:6,9 materiality 84:8 95:4 112:10 materially 29:9 math 124:13 198:5 209:9 213:2 214:6 216:7 mathematically 161:19 209:8 matter 11:13 14:7 17:6 68:9 242:6 300:6,11 matters 18:6 252:24 maximization 76:19 maximizes 83:18 maximum 95:17 mean 22:20 23:12 31:21 46:16 74:21 101:9,15,16 102:8 105:10 107:1,1 133:18 143:24 145:3,9 173:24 180:24 185:6 187:20 187:25 189:6 193:2 222:20 239:5 242:4 243:10 250:14 252:23 258:5 259:21 260:15 261:17 262:10</p>	<p>262:10 263:2 265:14 274:17 280:18 284:25 meaning 27:9 36:3 39:21 58:15 70:25 157:20 201:20 201:21 249:5 means 25:8 41:6 55:5 62:3,8,24 66:21 67:8,19 69:25 71:10 81:17 82:16 143:25 144:1,7 145:4 158:4 160:1 190:14 215:6 223:1 285:1 meant 106:11 249:6 294:6 measure 115:8 125:13 137:19 173:9,19,22 174:6,14,15,16 175:16,20 183:15,21 187:14 201:10 201:19 269:9 measures 30:6 140:15 147:20 174:6,13 175:20 192:17 242:17 mechanism 24:20 45:9 62:17,18 75:11 75:14,20 84:11 88:15,22 89:4 89:12 242:17 242:17,25 243:18 245:3 270:1,4 271:3 279:16 mechanisms</p>	<p>84:17 88:18 282:13 med-- 163:9 medium 163:10 176:13 MEEIA 26:12 69:12 86:22 meet 26:8 62:24 63:6 87:7 89:13 219:11 282:17 285:5 meteed 179:22 meeting 138:7 meetings 22:6 278:19 men 194:19 mention 65:23 65:23 86:9 mentioned 38:8 45:1 106:6 121:6 138:17 158:6 164:5 179:20 187:12 215:17 270:18 275:6 merely 24:2 merits 121:22 Mers 13:4 14:25 14:25 21:15 73:24 74:1 86:13,19 87:17 88:1,4,10,12 88:17 89:7 94:4 96:15 100:3 109:22 110:18 111:8 111:12 120:8,9 122:2,5 126:24 127:4 130:9,10 130:11,19 131:10 136:14 136:18 137:22 138:17 143:16 144:10 145:10</p>
--	--	--	---	--

172:7,9,10 173:1 174:19 174:21,25 175:7 183:1,8 183:23 185:1 220:1,11,14,17 220:20 221:20 221:23 222:3,6 222:7 225:6,11 226:14,22 228:1,13,16,25 229:2,6,10 235:3,13 237:4 237:6 239:13 239:18,22 240:1 241:8,11 241:13,24 243:6 244:18 244:20 249:3 252:9,19,21 253:11,20 267:10 271:9 272:8 273:5 276:25 277:18 279:4 281:2 285:24 286:3 288:24 295:5,9 295:9,11,14,17 295:18,22,23 296:3 met 21:20 32:19 62:22 82:15 84:9 meter 100:22 179:21 metered 35:16 172:15,20 173:4 179:22 180:1 183:24 metering 104:20 208:16 263:18 274:23 meters 100:17 100:17	method 18:23 106:4 methodology 19:13 metric 60:8 61:7 64:11 71:20 103:17 104:13 104:15 metric's 103:20 mic 186:24 Michael 12:14 15:19 56:2 middle 74:22 MIEC 16:12 mile 58:14,14 mile/last 58:13 58:14 mileage 259:21 259:23,24 miles 261:4,19 million 41:13,13 43:18 53:7 64:21 67:17 79:5 80:6 81:10 82:6 83:11,22 84:6 121:10,12 122:7,14,24,24 123:1,4 124:7 124:9 135:14 138:9 140:21 141:5,14 142:6 142:11,15 248:21 249:8 256:10 millions 135:7 mind 36:5 114:12 145:4 185:16 minds 269:15 mine 156:7 204:25 Mine's 154:10 minimal 36:5	minimization 76:18 minimizes 83:17 minimum 31:17 31:20,21 32:3 32:16 33:14 34:11 83:4 142:24 265:13 265:20 minor 205:15 minus 118:22,23 minute 72:13 150:5 157:16 201:3 minutes 91:4 Mis-- 263:21 mischaracteri... 62:11 mishear 108:9 misheard 110:3 MISO 22:5 216:5 missed 228:9 missing 29:17 mission 56:6 Missouri 11:2,8 11:14 12:3,4,6 12:7,9,12,16 12:17,19,22,23 12:24 13:2,5,6 14:8,20,22,23 15:7,8,16,21 18:25 19:20 20:2,7,21 21:1 24:4,13 26:23 27:7 28:1,22 31:15 32:8,15 32:20 33:11 34:1,8,16,19 34:19,24 38:6 39:1,3,16,23 40:18 44:12,20 44:21,22 45:3 47:5,7,8,22	49:13 51:4,21 52:24 56:4 57:14,14,18 79:13,14 83:25 85:1,5 90:2 93:5 95:16 105:17 113:13 116:14 117:13 122:18,19 123:19 124:4,8 128:16 129:3 131:21 132:2,9 133:5 135:25 138:8,16,21 139:21,21 140:4,4,23 142:13,22 145:1 151:12 173:6 182:13 203:7 204:14 207:23 220:5 224:1,11 237:11,19 243:17 244:11 249:11 251:11 255:25 256:1,2 256:23,25 266:6 270:8 277:23 278:9 280:4,8 281:21 287:21 291:4 297:14 299:7 300:5 Missouri's 18:16 19:23 28:25 30:15 31:23 33:3 34:7,22 35:19 36:17 37:12 38:10 40:4 43:15 79:23 80:17 83:23 95:18 195:14 196:23 214:13 224:5	226:23 227:2,6 248:13 285:21 286:19 Missourian's 57:9 Missourians 31:6 42:21,24 56:8 259:5 283:16 misspoke 157:23 mistaken 162:20 251:6 Mister 195:4 mitigate 52:3 264:5 mitigation 78:11 80:5 mix 29:14 30:12 mo-- 192:13 mobile 49:25 50:5,11 model 21:16 85:18,24 modeled 41:10 224:17 modernizing 47:14 modest 41:12 135:4 modification 60:8 71:20 modifications 235:18 modifies 19:22 moment 22:14 45:18 84:3 88:11 116:25 142:10,15 146:11 153:10 165:22,23 173:11 176:1 186:21 225:12 229:9 241:25 246:5 269:4,22
--	--	--	---	---

momentum 29:18	54:10 259:3	237:10	40:12 42:23	46:4 48:17,20
Monday 17:15	Mount 33:18	n-- 23:13	55:1,2,10	50:23 101:14
17:21,22	Mountain 117:7	name 14:10	63:23 81:11	122:6 123:5
money 33:12	279:14	48:10 74:1	100:7 101:4	124:12 125:16
34:5 62:4,9	move 16:16	92:1,2 116:11	102:25 103:3,8	125:25 126:19
64:25 65:7,17	21:18 39:21	147:5 204:12	103:9,13 104:8	137:2,4,16
66:1,9,13	40:19 47:24	204:13 206:8	104:9 108:25	139:5 142:12
67:25 71:3	63:10 76:15	206:10 239:17	109:2,3 113:5	142:21,24
76:8 122:17	82:10 87:5,6	279:25 287:18	121:4 133:23	289:5
138:7,14,19	92:22 119:11	Nancy 11:16	135:1,1,3	networked
139:3,4 140:21	130:3,20	14:10	143:4,10,14	54:17
141:5,11,12,13	135:14 140:18	narrow 198:14	149:14 152:24	networks 35:4
143:1 160:15	198:12 202:2	national 156:16	153:6 158:15	neutral 19:15
284:1	207:11 211:21	157:10 274:21	160:12 163:21	never 68:18
Monroe 12:8	262:5	279:23	165:21 181:20	200:24 215:4
15:15	moved 141:11	natural 12:20	189:21 196:4	215:10 252:15
month 213:25	141:12,12	15:25 123:23	206:15 277:3	270:10 282:2
months 214:3	moves 18:23	140:5 179:6	277:14 282:21	new 28:25 43:1
225:25 236:9	movie 262:14	193:3	286:20 293:25	43:11,17 44:9
236:19	moving 42:17	naturally 187:23	needed 32:3	54:24 55:15
moot 86:2	44:10 79:20	nature 188:11	33:6 50:15	62:17 74:7
moratorium	133:22 260:6	238:24,25	77:22 81:19,25	78:4 81:18
236:15 251:12	multi-family	navigation	124:11 213:21	84:12,12,13
251:20,21	30:18 49:19	50:12	needs 16:21,22	88:18 93:22
morklifts 165:2	51:5 53:9	ne-- 123:5	22:15 30:8	101:6 103:8
morning 14:6	80:20,23 128:1	near 158:2 264:3	49:23 55:12	104:8,9 108:21
15:12 16:23	multi-unit 49:20	264:17	57:20 64:9	108:24 109:12
26:6,7 47:7	multiple 163:2	nearly 57:13	82:6 90:23	114:25 144:20
59:18 73:24,25	175:10,11,19	263:1	101:13 103:8	149:11 159:7
93:19,20 94:5	175:20 247:12	necessarily	218:4	159:10,14,15
94:6 116:10,12	multiply 65:11	23:14 60:15	neither 300:10	159:19 187:21
131:17,18,19	214:3	89:20 129:8	net 37:5 84:8	188:22,23
292:11 293:21	multiplying	219:15,21	188:18 189:20	189:12 191:11
294:8,15	214:5	264:9 267:3	189:20 190:4	200:11 247:16
motion 17:6,15	multitude 36:10	necessary 48:20	190:13 191:21	247:25 248:2,3
18:3 221:19	municipal 31:16	52:25 53:20	192:6,15	248:9 258:25
motions 18:5	municipalities	55:19 57:5	201:11,23	258:25 271:22
motivated 75:12	32:25 33:8	62:15 74:19	208:22 209:6	281:6,8,8
motor 261:24	Murray 86:4	77:3 104:13	213:9 216:9	282:5,8,11,15
262:2	298:1,8	175:3 212:20	241:3,15	282:21 283:4
motorized	myriad 284:17	necessity 55:4,5	259:18	286:8
197:14	_____	need 24:12 31:2	network 31:4,18	newest 283:18
motors 42:10,12	N	31:7,22 32:8	31:21 32:4,16	Newman 15:14
	N 12:1,19	33:2,5 34:6	33:14 34:6,11	news 42:11

<p>259:2 nice 26:8 niche 181:18 Nicole 13:4 14:25 74:1 night 139:13,15 nitrous 54:1 non-accountant 242:22 non-participa... 74:16 76:7 81:8,21 113:21 non-participa... 76:20 non-peak 34:25 38:23 non-ratepayer 77:12 non-recovery 46:17 non-reoccurri... 94:18 non-residential 18:17,24 20:8 23:15 non-sequitur 55:11 non-summer 225:25 nonrecurring 84:1 Noranda 286:24 normal 89:8 111:22 normalized 112:23,24 North 16:2 156:10,12 197:3 note 33:23 36:25 96:22 100:1 146:18 149:5 165:25 172:1 217:11,18</p>	<p>229:17 235:1 293:9 noted 81:25 224:2 notice 252:17 253:9,12,14,25 254:4 255:20 278:9 notifications 50:6 November 17:8 238:7 NOx 140:15 NRDC 21:5 52:12 NREL 273:17 274:20 number 14:6 27:3 28:1 31:21 54:21 57:3 61:12 63:12,15,20,25 64:6,9 65:9 73:3,4 75:15 75:24 77:16 78:17,19,20 93:1 103:16 105:3 111:19 117:3,17,18 118:7,8 121:19 131:2 148:1,1 148:2 156:18 159:1 163:18 174:11 175:24 193:2,20 198:13 201:12 202:25 210:25 214:3 216:10 216:19 219:4 220:16 228:15 228:19 235:17 248:15,16 255:21 256:3 256:15 259:20</p>	<p>260:7 267:1,4 267:6 268:23 270:20 272:9 272:10 282:15 286:6 288:15 numbers 54:15 61:17 62:22,23 66:16,20 81:1 83:14 112:17 127:1 147:20 148:20 149:5 150:12,13 195:6 202:13 202:18 204:25 209:10,12,23 209:25 210:9 211:16 212:8 212:23 213:3 214:8 215:20 227:16 255:23 256:22 258:5 266:18,19,23 numerous 81:1 81:5 269:17 nuts 61:14 64:16</p> <hr/> <p style="text-align: center;">O</p> <hr/> <p>object 172:21 241:6 243:5 248:24 285:24 292:2 293:18 objection 93:1 119:14 130:7 130:22 131:5,6 153:17,18 193:18,21 194:5 202:9,11 202:23 203:15 207:15 211:24 226:17,20 252:12 253:14 253:24 288:15 292:10 objections 151:2</p>	<p>194:3 228:20 objective 64:11 obligations 20:2 observe 270:10 observed 36:20 obstructive 130:2 obtain 270:6 obviously 28:19 52:18 134:13 294:3 occur 22:17 36:13,14 37:15 37:16 39:23 141:20 222:13 265:24 278:5 occurs 34:25 277:7 offer 46:11 48:14 49:2 53:14,15 125:23 150:23 153:14 178:14 184:6,7 211:21 226:15 228:16 252:7,10 288:11 offered 125:15 161:17 194:1 228:8,11,20 offering 160:16 182:7 221:23 221:24 227:25 235:20 offerings 42:3 42:15 47:8 263:17 offers 49:14,17 49:19,20 160:20 offhand 59:6 Office 13:3 15:3 15:5 21:11 59:18 85:3</p>	<p>93:16 108:3 120:5 136:10 151:22 182:23 218:23 266:14 268:12 270:19 289:13 298:20 official 253:9,11 253:14,25 254:4 offset 39:13 144:16,20 offsets 27:9 oh 17:5 72:22 130:25 160:14 178:8 206:17 228:16 239:23 261:15 274:21 Ohio 43:21,25 44:1,3 Ohio's 43:20 279:18 oil 55:13 okay 14:5 16:14 18:9 20:25 22:3,7 23:19 24:14 25:11,13 26:3 46:25 59:7 68:20 73:11 86:14 87:24 89:15,16 90:10 91:1,8 94:10,17 96:15 96:17 100:5,9 101:12 103:15 104:12,22 105:24 106:11 106:14 107:13 110:13 115:21 117:11,25 118:11 120:19 121:24 122:4 122:12,12,14 122:22 123:1 123:24 125:1,3</p>
--	--	--	--	--

125:8 126:14 127:15 128:14 129:1 130:5 132:15 133:17 135:21 142:2,3 154:24 158:14 158:17,20 159:21 165:20 172:3,9,17 173:8 174:12 174:18 175:14 176:2,8,11 177:5,15 178:8 179:14 182:10 186:8,17 187:3 193:17 204:2 205:21 206:12 206:20,24 207:3 208:11 210:18 211:25 218:14 221:15 221:16 222:11 223:6,8 225:5 225:19 226:2,7 226:12,14 227:15,20,20 228:1,12,24 229:8,11 235:4 235:7 236:14 236:21 237:8 237:19 238:10 238:14,22 239:23 240:12 240:18 242:3 242:11 243:2,7 243:17 244:9 245:5,17 246:1 246:21 247:8 247:23 248:2 249:10 250:23 251:10 252:4 255:17 256:5 257:15 258:4 261:5,15	264:22,22 267:5,7,18 268:5,5 269:24 270:2 271:15 272:5 275:16 275:20 277:5 278:2 287:3,4 292:16 293:6 293:20 old 164:14 old-fashioned 186:4 Oligschlaeger 86:3 298:3 once 20:18 35:9 40:6 65:7 71:16 159:13 285:5 one-tenth 95:18 95:22 96:2,7 ones 33:24 101:12 102:6 139:12 192:24 263:15 265:10 268:4 275:12 ongoing 94:15 online 50:19 OPC 55:1,10 60:3,15,19 61:6 67:21 69:7,9 75:13 76:2 88:13,24 103:15 127:6 128:4,9 129:16 129:21 152:12 249:23 OPC's 60:7 68:8 88:14 266:24 270:1 OPEB 111:20 111:21 open 289:3 opening 16:18 24:19 25:16	60:13 62:12 86:9 89:25 208:2 210:16 258:19 295:2,3 295:3,4,4,5,5 openings 265:4 operate 24:21 39:16 43:14 49:10 operating 24:15 operation 179:6 199:16 operations 50:16,24 123:19 operator 48:25 opinion 101:22 103:20 114:2 145:14 240:15 272:5 278:25 280:16 Opitz 12:21 15:8 15:9 21:2 47:6 47:7 48:6 93:6 107:19 119:21 136:1 151:13 182:14 207:24 207:25 210:11 210:18,22 211:21 212:3 216:24 218:15 266:7 291:5 295:3,21 opportunities 38:11 41:22 opportunity 28:10 46:23 66:1 68:16,17 191:15 192:20 198:22 210:19 oppose 245:9 opposed 74:5,6 74:7 86:17 94:14 104:16	173:20 244:12 244:14 245:2 opposes 245:14 opposing 17:22 opposite 89:8 opposition 17:10 17:23 245:16 option 20:9 53:21 259:7 options 53:20 283:20 orange 36:21 37:2 208:5,18 208:19 209:19 210:7 211:13 217:3 order 16:17 17:14 20:12 24:21 28:2,21 40:13 43:19 44:2 47:24 61:6 66:18 67:20 85:17 90:16,24,24 94:23 110:23 111:4,9 137:17 143:10 161:7 161:13 191:14 208:24 246:4 270:6 280:17 280:21 287:9 ordered 88:20 orders 110:19 111:5 244:6 ordinary 239:2 Oregon 132:24 organic 54:1 organization 164:7 216:6 original 19:23 141:16 147:19 originally 200:10 268:22 ought 134:3,3	213:10 216:23 242:8 outage 113:1 outcome 28:5 40:16 83:10 161:9 300:15 outcomes 76:23 257:20 270:23 outline 181:1 outlined 76:12 121:9 outreach 58:7 121:13 163:25 164:4 outside 101:20 107:12 179:13 279:16,21 280:1,5 285:16 285:19 outstanding 128:19 129:6,7 129:14 284:10 outstrip 41:7 outweigh 87:10 over-collection 242:21 overall 67:20 77:4 102:7 192:18 259:23 289:19 overlying 217:3 overnight 38:3 144:23 overrule 203:14 overstated 82:3 Owen 16:22 47:25 292:4 299:8 owner 22:15 48:24 106:4 160:5,16,18,21 owners 48:21 49:1 50:10,10 50:23
--	---	---	--	---

ownership 27:11 47:20 57:24	205:6,11,18,24 213:6,23 214:9	124:9 161:5 176:3 183:8	130:13 149:6 150:6 153:5	35:25 36:2,3 36:22 37:6,17
owning 24:15 25:8	225:20 235:5 235:25 236:3	192:14 194:1 196:14 210:16	195:23 278:5 286:2 289:3	215:6 216:15 217:16 222:13
oxide 54:1	237:9 244:9 246:7,10,14,22	239:21 249:10 249:14 252:17	292:6 300:11 300:14	222:20,21,22 223:1,11,12,23
P	249:22 256:6 257:16,17,23	253:16,16,22 257:3 259:24	partners 123:14	224:3,4,6,7,10 225:21 226:3,4
P 11:18 12:1,1	257:24	260:3 282:23	parts 262:3	226:5,5,8,9,9,9 226:10,11,11
p.m 35:20,25	pages 96:24 120:11,16	Partial 298:17	party 71:7,9 280:20 293:15	227:7,7 235:21 272:11,18,23
216:16 225:22	121:6 132:13	participant 162:20,25	pass 84:1	273:1,4,6 275:12 276:13
225:22 226:1	159:21 166:2	189:6 205:7	pass-through 141:2	283:6,7 285:15 285:21 286:5
226:24 227:3	196:15 229:19	participants 69:23 161:14	passenger 176:15	286:19 287:1
pa-- 124:19	240:8 246:6	163:3,14	Pat 32:12,21 34:17 105:13	peaks 35:19 215:8
pace 259:16	247:12 255:2	188:17 189:2	105:22 116:12	peer 138:5
packages 182:7	paid 18:19 165:14,17	189:20 190:4,5 190:8 201:12	path 74:22,25 75:10 76:12	pending 18:5 176:24 278:10
packs 261:18	289:20	190:17,25	295:13 297:5	penetration 200:11
page 95:5,14	pair 264:8	191:2 192:1	pattern 211:6 216:18 255:21	pens 186:4
117:2,6,12,16	paper 37:3 148:8 196:1,13	participating 188:1,11	patterns 274:18	pension 111:20 111:21
118:15,21	196:16 201:4	283:23	pay 19:8,9,12,13 22:18 24:6,10	people 46:5 57:13 69:25
120:12,12,20	202:5 209:24	participation 70:19 164:5	30:20,21 44:21	70:1 103:6 113:21 114:11
120:20,23	210:1,1 214:5	190:10 200:6	64:10 67:6	161:22 162:1 179:17 187:22
121:11,24	214:7 215:18	particles 53:25	93:23 101:22	188:1,3,10,13 188:18 189:2
122:1,2,10,11	papers 195:22 209:5 211:16	particular 40:16 95:9 195:13	180:3,12,13	189:19,23 190:5,9,11,16
124:2,3,19	215:21 297:21	199:9 201:6	190:11,17	190:18,22 191:12,24
125:24 126:6	paragraph 120:12,20	particularly 34:12 51:11	216:4,5,5	192:2,20 198:24 217:23
128:21,25	156:25	282:18	paying 24:2,9 108:15,17	256:16 259:10 263:2,4 275:3
132:19 143:17	parameters 77:14 87:6	parties 18:12 20:3 22:20	188:3 290:4	people's 269:15
147:25 148:1,7	pardon 90:21	25:20 40:13	payment 23:23 50:3,17,22	
148:10,11,12	parking 51:4 80:25 81:15	43:13 74:5,25	pays 19:4 22:22 22:25 23:6	
148:13,15,16	part 24:10,19 26:12 30:1,10	75:12 85:17	PC 12:11 43:21	
148:17,17,19	38:13 51:16	102:15 127:23	peak 26:13 35:7	
148:22 149:2,2	52:14 58:6	127:25 129:20		
149:4 150:2	64:22 69:16			
154:4,6,19	77:18 80:16,17			
156:24 157:4	85:8 113:16			
157:14 158:2				
158:24 161:4				
162:16 172:11				
176:2,9 177:8				
196:22 197:3,5				
197:7,12,15,18				
198:4,18 201:6				
201:7 202:13				
202:14 205:1,6				

<p>per-- 251:2 perceive 175:18 percent 35:7 52:24 57:15 58:2 67:16,17 67:20 70:6,12 70:25 75:21 77:21 78:3 79:1,3 84:7 95:18,22,23 96:2,7,11 101:19 117:9 117:10 122:18 122:23 124:10 125:5,9,10 132:20,23,24 133:2,6 157:3 157:4,21 158:5 158:9,20 161:9 161:13,14,25 162:8 176:14 179:7,8,10 185:21,24 187:9,10,13,25 188:1 190:6,6 190:7,11,13,19 191:18,21,21 192:3,4,6,10 193:5 195:7,15 195:19 196:17 196:22 197:21 197:21 198:21 198:23 201:16 201:23,24 217:15 222:12 222:25 223:12 224:1 272:11 272:23,25 273:7,9 286:5 289:2,19 290:9 290:11,13 percentage 37:16 67:10,11 144:1,2 198:5</p>	<p>percentages 255:11,12 perfectly 17:13 227:18 performance 45:9 60:7 61:7 64:11 68:8 71:20 88:14 103:15,17,19 104:13,15 270:1,3,6 271:3 284:10 perils 73:19 period 18:21 63:5,6 65:15 66:14,25 113:2 115:3,8,16,18 199:10 222:21 223:23 224:4 241:4,17 244:24 272:23 273:6 periods 223:10 224:7 permanently 39:18 permission 27:6 133:11 135:13 permitting 47:24 person 105:22 160:23 189:15 229:14 252:22 personal 106:22 personally 175:17 pertain 196:16 perverse 71:11 Petroleum 17:7 phone 261:9 292:11 phrase 284:22 phrased 173:2 physically</p>	<p>161:19 188:6 pick 186:24 picked 183:10 Pickles 28:16 35:15 38:7,9 79:2 146:22 147:2,7,8 148:3 150:4,25 152:1 153:25 155:9 158:12 165:12 177:22 183:6 187:3 193:9,20 195:1 196:10 204:24 209:11 274:7 284:15 295:16 297:8,10 Pickles' 150:2 202:5 picture 186:1,2 186:6 194:15 pie 193:19 297:19 piece 29:17 37:3 116:22 148:8 pieces 78:18 147:9 187:17 213:20 pilot 54:22 135:2 PISA 249:23 250:9,25 251:1 251:12,21 PJ-04-10 32:11 place 44:2 66:16 70:1 113:1 144:23 180:16 200:1 215:7 262:24 280:23 placed 40:8 80:13 placements 80:19 places 30:18</p>	<p>43:24 120:13 120:25 plain 249:4 plan 32:16 33:9 42:10 44:11 56:18 103:23 103:23 138:20 139:10 140:20 141:7,16 251:11 267:23 285:15 planned 291:23 294:3 planning 263:11 plans 32:7 189:11 191:12 191:13 251:14 251:16 plant 25:1 103:21 245:3 plants 42:13 platform 50:14 plausible 37:9 play 47:14,19 71:7 please 16:25 17:1 47:6 48:9 56:2 59:17 74:1 92:1 116:2,10 121:24 124:19 129:17 135:2 147:5,17 153:2 154:3 203:5 204:12 223:10 236:2 257:19 287:18 294:13 pleased 48:11 pleasure 26:8 pledge 42:8 plenty 179:16 plug 100:20 277:13,16 plug-in 42:16</p>	<p>plugging 100:20 plus 65:16 66:12 71:6 123:23 PO 12:12 13:1,5 14:22 point 20:5 28:22 32:9 54:25 62:10 63:3 66:6,8 67:8 81:15 82:17 86:23 87:1 90:23 96:22 100:1 128:4,9 129:15,21 139:7,8 140:15 146:20 154:22 154:25 165:25 172:1 173:13 174:8 175:5 177:11 184:13 195:12 199:10 214:17 217:17 229:17 235:1 236:10 251:7 251:15 266:20 270:21 271:1 294:13 pointed 32:1 185:4 pointing 67:4 201:5 256:11 points 181:12 257:11 258:20 police 96:21 policies 69:11 policy 14:15 22:10 23:18 25:19 44:20 46:17,19 56:25 111:23 281:5 281:15 282:24 283:12 284:17 284:21 286:9 polite 130:1</p>
--	--	---	---	--

<p>pollution 53:24 poorly 69:15 71:13,22 173:2 population 58:9 63:21 157:19 158:3 274:10 port 76:25 81:15 81:22 82:2,17 82:20,21 83:13 portfolio 192:16 portion 32:6 202:19 213:17 239:18 247:11 250:19 298:19 ports 77:4,4 81:14 82:8 83:14 117:17 117:18,22,24 118:8 pos-- 62:10 pose 92:14 160:17 posed 62:12 85:21 108:7 150:19 288:4 posited 197:20 position 17:20 52:5 243:2 272:14 280:16 280:19 282:4 294:9 positioned 139:11 positions 280:12 280:24 294:11 positive 36:8 39:10,22 40:2 67:5 78:16,21 83:10 possible 29:4 43:2 74:14 100:19 103:17 236:18 251:12 265:21 276:16</p>	<p>possibly 138:9 236:8 potential 31:9 38:9,19 53:22 61:1 74:23 76:19 77:5 78:14 83:18 88:15,25 95:17 163:20 164:14 164:16 165:3 176:16,20 178:1 183:7,18 183:19 192:17 236:19 potentially 163:3 164:4 242:19 potentials 177:4 power 16:4 38:3 40:23 117:7 123:18,18 138:6 223:24 226:18 279:14 289:5 298:14 powered 38:18 powerful 29:3 PowerPoint 72:10 127:17 298:25 practical 31:17 31:20 32:4,16 33:14 34:11 142:24 practice 69:13 79:19 111:4 practices 83:7 pre-- 276:18 pre-Charge 269:10 pre-filed 17:4 48:1 92:4 116:16 147:14 204:17 Pre-MEEIA</p>	<p>112:5 precisely 223:4 224:15 precluded 188:10 preclusions 161:21 precursors 54:1 predict 36:13 84:13 248:11 predicted 40:20 64:1 219:11 predicts 162:20 prefer 90:25 186:6 preference 47:12 90:21 preferences 260:6 preliminary 17:6 18:6 premarked 17:3 17:4 147:10 premises 225:16 226:19 298:15 prepared 59:11 92:3 147:9 220:5,7,21 222:8 preparing 17:13 44:9 present 18:13 80:19 84:15 229:3 presentation 18:7 59:12 72:11,25 197:12,15,17 197:18 presented 127:17,22 216:22 Presiding 11:16 pressure 19:12</p>	<p>40:8 44:15 126:3 145:2,4 Presumably 248:4 presuming 22:14 254:6 pretty 198:20 199:14 239:7 275:2 279:25 280:1 preventing 278:12 prevents 19:10 19:11 106:1 180:20,24 previous 105:11 previously 149:6 149:9 293:15 price 44:21 49:1 159:6 214:18 268:25 prices 215:12,24 primarily 38:23 237:25 primary 38:14 75:17 203:8 principle 71:7 75:5,7 principles 51:17 51:23 print 194:15 prior 24:6 63:22 112:12 157:4 244:2 priorities 191:8 private 25:4 49:12 80:24 81:14 134:22 135:12 143:5,6 pro-- 30:2 46:3 126:4 proactive 42:23 44:4,8 probability</p>	<p>79:10 289:9 probably 16:23 24:11 82:11 101:16 102:8 104:19,19 121:4 129:21 139:16 180:3 194:14 195:12 199:7,15 200:24 220:6 238:19,19 242:8,14 245:22,24 248:12 259:2 263:19,21 problem 60:17 69:22 71:7 106:10 161:6 193:8 200:13 280:9 problematic 46:8 185:6,6 problems 46:10 160:7 procedural 236:7 proceed 130:9 268:6 286:16 proceeding 48:12 235:16 235:19 246:25 248:15 PROCEEDIN... 11:5 process 18:23 40:1 76:15 83:11 138:15 141:1,13 143:8 143:12 149:8 161:1 236:17 processing 50:18 produce 29:4 78:22 82:6 205:4</p>
--	---	---	--	--

produced 83:2	79:8,21 80:6	270:11,14,17	69:12	67:3 101:6
produces 208:23	80:10,12,16,22	270:22,24	project 55:2	122:19 135:5
product 42:15	80:23 81:11,13	271:2 275:13	102:5	246:23 279:6
78:24 258:25	81:18,19,24	279:24 281:8	projected 101:7	289:3
259:1	82:7 83:2,9,16	281:11,19,20	104:6 265:10	proposals 62:25
production	83:21 85:15,17	282:9,10,12,20	projection	265:18
42:16	87:5,10,22	282:23 284:19	110:12	propose 39:9
productivity	93:23,24 96:3	284:21 290:4	projections	146:7 265:17
284:15	102:16,21	program's 96:1	70:19 101:3,9	proposed 23:23
products 49:9	106:7,7 108:14	102:19 164:2	101:18 102:12	32:24 51:15,21
49:15	108:15 115:18	191:3	105:5 109:24	51:25 60:7
profit 241:4,16	117:8 121:22	programs 24:2	109:25 110:2	64:21 65:1
program 11:15	122:7 124:10	26:17,19 27:1	110:11 133:10	68:8 71:9
14:9 22:22,24	128:11,17	28:4,24 29:8	133:12,16,18	75:13 80:19
23:24 24:9	129:4 136:25	29:15 30:6,13	256:21 258:12	83:3 95:9
26:19 27:2	137:18 139:22	39:11 40:17	projects 223:22	136:25 137:1
28:6,15 30:16	144:20 145:7,7	41:3,10,17,18	256:25	145:24 152:7
34:2,6,7 37:21	145:16 146:6,7	41:21 44:16,17	promise 89:12	198:2 219:18
37:21 38:8,12	152:8,10	47:8,25 60:4	249:20	237:12 245:3
39:2,3,16,19	156:16,21	74:17,18,19	promised 67:24	proposing 43:15
40:13,15,20	160:14,15,24	75:8 76:25	194:20	108:12 178:14
41:12 43:16,21	160:25 161:14	77:8,9,12,15	promote 56:12	200:19 242:13
44:23 45:13,16	161:17,20,21	77:18 78:1	56:13	263:11 269:7
45:19 46:4,11	161:24 162:4	79:20 81:4,7	promoted 30:1	prorated 180:3
51:14,16,22	162:11,23,24	81:25 95:9,17	39:11	prospective
52:13,16 54:19	163:10,14,25	114:20 121:1	promotes 26:20	137:7
55:18 56:21	165:4 177:13	121:10 135:2	promotional	protect 74:24
57:25 59:22	178:10,14	137:21 279:11	69:13 79:19	prove 191:2
60:2,2,6,9,12	179:1 181:16	279:13 282:6,8	prong 84:9	provide 20:2
60:14 61:2,11	183:15 184:5	286:25	94:19	22:15 27:10
61:18,24 62:4	184:14 185:6	progress 273:16	propane 179:10	28:24 29:11,15
63:22,23 64:2	185:18 188:1,4	273:23 274:14	179:15 187:12	30:4 44:16
64:4,7,10,19	188:9,11	275:10	properly 76:17	48:21 53:2,4
64:20,23 66:5	190:10,17	progresses 290:8	properties 48:22	54:17 56:9
66:7,10,23	191:25 192:6	progression	128:1	74:20,22 79:6
67:10,22 68:1	192:19 196:25	154:22	prophecy 53:12	81:7,20 82:19
68:24 69:5,7	198:1,19	progressive	proposal 19:23	82:21 129:15
69:11,12,15,17	201:13 205:4	134:11	31:12 36:17	129:22 135:2
70:2,6,6,8,10	208:13,16	prohibit 88:23	37:12 45:8,10	146:6 198:22
70:12,15,19,25	216:14 219:17	161:22	59:20 60:10	206:10 221:3,6
71:10,14,18,19	225:1 236:9	prohibited 25:8	62:5,6,11,14	223:10,15
71:21 75:13	258:10 259:16	prohibiting	62:15,20,21	252:25 253:3
77:11,19 78:12	259:17 268:19	260:9,10	63:4,8,9,13	284:5
78:13,15 79:4	269:19,20	prohibition	65:24 66:2,23	provided 15:2,6

15:9 16:11 50:10 61:2 68:16 81:6 86:12 121:15 149:6,9 155:24 156:9 191:19 195:23 196:1 202:17 271:16 provider 48:16 provides 36:9 49:24 50:7,13 50:15 68:17 156:6 201:11 providing 57:4 127:6 138:15 provision 66:13 173:13 251:13 provisions 79:13 250:25 278:23 proxy 224:8 prudence 86:18 prudency 87:19 87:23 prudent 103:22 103:24 281:22 prudently 45:17 45:24 46:24 64:16 public 11:1 13:3 13:6 15:3,5 21:11 29:16 30:18 43:3 44:18 45:8 46:11 49:17 50:1 53:6 54:2 58:15 59:10,19 76:18 83:8,16 85:1,3,4,4 93:16 100:1 108:3 119:10 119:11,14 120:5 122:20 136:10 138:14 139:5 151:22	172:1,4 182:23 218:23 235:1 235:12 247:9 258:13 266:14 268:12 270:19 281:5,15 282:24,24 283:1,2,12 284:17,20 286:8 289:13 298:20 publication 253:10 publicize 237:11 publicly 49:12 pull 255:4 pulled 148:4 257:11 purchase 39:21 purchase 39:21 70:3 160:18 161:15 162:3 259:6,12 purchased 38:17 46:7 102:19 160:23 161:16 purchasing 103:2 162:13 191:7 256:17 purported 79:6 purpose 222:11 248:11 purposes 89:20 90:11 156:13 pursuant 113:13 238:13 pursue 45:20 push-backs 38:5 pushed 217:21 put 26:2 59:15 66:2 73:18 75:11 76:9 87:10 89:19 122:20 124:14	131:23 138:23 138:24 139:15 141:4,14 142:1 142:23 144:23 178:20 181:7 208:9 261:23 264:3,17 274:25 275:1 280:23 281:12 281:13 282:21 putting 66:21 181:15 241:22 260:8 puzzle 29:17 <hr/> Q <hr/> quadrant 188:10 189:19 189:23 192:12 qualification 161:1 quality 29:13 quantification 121:18 136:19 quarter 43:8 125:3,4,8 143:18 218:4 267:19 quarterly 96:12 quarters 53:17 question 23:21 24:16 26:10,13 26:25 27:14 35:2 58:24 62:12 84:6 85:20 86:1,15 87:2,25 88:12 89:5 94:1 96:16 104:14 105:24 106:12 108:6 113:19 113:20,23 114:16,17 120:24 129:1	131:20 132:12 155:3 156:24 157:25 176:24 177:24 187:24 190:3 192:8 195:10 199:1 200:23 203:7 223:3,15 227:11 241:11 244:15 254:25 255:16,18 257:17 264:10 265:3 266:17 266:22 267:8 270:19 277:6 280:25 286:9 286:18 questionable 78:15 questioned 273:13 questioning 109:23 285:25 questions 20:15 22:1,4 25:13 34:18 44:23 48:3,5 52:9 55:20,21 58:22 68:24 69:1 71:25 72:4,6 72:10 86:5,7 88:9 92:14 100:4,10,12,13 104:25 107:17 109:18,21 110:15,19 112:14,20 119:4,23 120:2 131:11,13,16 135:25 136:3,5 136:7,19 137:24 144:10 144:12 146:12 150:19 151:15	151:17 152:25 159:23 165:8 172:5,6 177:16 177:18,21 182:13,16 184:25 189:14 194:22 198:9 202:3 207:4 218:18,20 229:12 249:21 252:5 254:11 254:14 263:7,8 264:24,24 265:5 266:6 268:2,12,15 271:10 272:11 280:11 286:1,2 286:4,12 287:3 288:4 290:23 291:7 292:7,9 292:9 295:10 295:10,14,19 295:23,24,24 queuing 50:18 quibble 129:20 quick 17:9 93:21 quickly 159:18 255:5 quite 91:4 95:10 96:1 198:13 280:11 quote 43:22 <hr/> R <hr/> R 12:1 rabbit 49:22 rabid 49:22 radical 76:11 raise 116:2 raised 127:25 raises 137:10 ramp 178:20 181:21 range 83:5 106:9
---	---	--	---	--

137:12 139:7 192:4 198:15 257:4,19 269:2 270:23 ranged 205:8 ranked 133:6 rapid 49:23 rate 19:11 22:21 39:6,12,12,19 40:8 45:12 47:21 62:7,15 62:17,18,19,25 63:2,7,16 65:2 65:8,10,19,21 65:22 66:16 68:9 75:1 76:10 79:14 82:1 85:8,11 86:21 87:18,23 88:20 89:9 115:14 125:14 126:10,12,16 126:21,21 143:18,24 144:4,5,11 145:2,4 161:8 190:10 200:6 225:14 226:2,7 226:18 235:16 235:18,20 236:15,18 237:14,23 238:2 245:10 248:14,25 249:24 250:2,3 250:9,18 251:11,12,17 263:17,18 274:4,11,12 275:6,8,17,23 276:5,6,9,12 276:17,21,24 277:19 278:10 278:17 279:16	279:21 280:5 280:21 282:2 282:22 283:9 298:15 rate-base 131:23 248:14,22 rate-making 84:16,20,22 85:13 86:1 280:8 ratepayer 76:8 77:22 79:9,24 80:7,8 134:12 ratepayers 52:3 57:7 61:3,8 74:24 76:7,20 83:19 108:15 124:8 rates 19:15 29:3 29:6 39:8,14 40:3,5,7,9 54:20 62:17 77:5 85:11 87:19 89:14 124:21 125:2 126:4,11 145:5 145:6,8 219:6 219:10,19 236:16 237:10 237:12,13,21 237:24 238:2,3 242:18,19 248:11 257:19 259:19 263:13 265:25 273:3 273:20,25 274:1,2,15 277:20,25 280:2,5 281:9 281:10,13 282:3 283:9 289:4 ratio 190:13 191:21 192:6	192:16,19 201:11 265:10 rational 250:1 250:17 rattle 248:16 275:1 re-- 250:24 251:4 reach 74:12 reached 62:24 135:18 reaching 134:24 134:25 reacting 162:25 read 117:13 118:4,9 121:4 129:25 132:16 155:18 173:11 173:18 175:9 175:17 212:13 220:24 224:15 235:23 236:2 239:6,6 241:25 244:23 246:5 247:1,23 250:6 250:13 reading 95:11 95:20 161:10 161:11 174:9 176:17 184:4 235:22 237:17 239:8 246:7,8 250:5 ready 26:5 52:23 116:5 204:3 208:16 216:14 real 23:12 30:4 41:25 93:21 real-time 50:2 realigned 83:22 realistic 40:21 53:21 reality 42:22 realization 76:5	realized 76:8 257:20 really 62:3,23 67:16 70:21 112:8 117:22 133:21 135:16 135:17 137:2 137:14 183:14 183:25 185:19 187:14 188:16 189:15,16,21 190:25 193:6 198:12,13 199:6,8 215:8 235:7 238:18 240:15 255:4 258:17 259:11 261:9,10 267:16 270:10 271:7 280:25 283:11 realm 275:14 reap 114:14 reaping 108:18 reas-- 282:15 reason 24:19 40:17 54:4 102:20 126:16 126:20 127:11 240:6 281:5,15 reason-- 224:11 reasonable 25:21 41:1 82:1,14 102:9 223:2 224:7,11 239:4 reasonably 44:18 239:3 254:18,18 reasons 40:19 57:3,4 71:13 111:23 246:15 276:17,23 282:20 286:9	rebates 51:16 Rebuttal 36:10 36:24 56:23 81:24 130:13 149:8 195:5 211:9 213:5 266:25 267:2 287:23 288:5 288:16 297:25 298:3,21,23 299:4,11 REC'D 297:1 recall 127:10 137:24 144:11 146:10 165:19 208:4 238:5 258:18 266:22 268:14 271:13 271:14 272:11 274:6 275:6,23 275:25 receive 84:9 173:20 175:9 175:10,11,25 received 27:23 93:3 119:17 131:8 151:5 153:21 160:20 161:2 194:8 203:16 207:20 212:2 226:21 228:23 288:20 recess 91:7 203:22 267:20 recharge 31:8 recipients 163:20 recite 238:21 recognition 251:4 recognize 28:7 60:25 61:24 127:7,15 240:2 251:8 273:2
---	--	--	---	--

<p>recognized 138:24 282:11</p> <p>recognizes 19:7</p> <p>recognizing 43:6 44:9</p> <p>recollection 246:6 247:19</p> <p>recom-- 124:5</p> <p>recommend 75:19</p> <p>recommendati... 54:5 58:4 75:18</p> <p>recommendati... 60:4 85:19</p> <p>recommended 139:9 163:11 289:19</p> <p>recommending 83:10</p> <p>recommends 58:1,2,7 245:15</p> <p>record 14:6,13 15:14 16:15 91:6,9 92:1 147:6 153:20 175:6 193:11 196:21 202:9 203:21 204:3 207:12,19 212:15 228:21 236:2 286:15 287:19 288:12 288:19 294:7 294:13</p> <p>record's 201:22</p> <p>records 63:17</p> <p>recover 39:17,24 45:11 46:23 61:11 62:2 68:16,18 103:25 279:10 284:19</p>	<p>recovered 39:3,4 40:8 89:1 279:19</p> <p>recovery 41:16 45:9,16,24 64:13 67:10,11 68:9 75:15,21 83:24 84:22 87:16 88:15,16 89:4 271:8 279:6</p> <p>recross 135:24 264:24</p> <p>Recross-Exam... 266:16 295:25</p> <p>recruit 190:22</p> <p>red 33:1 34:4 80:15 198:17</p> <p>redirect 110:14 110:17 124:18 136:15,17 172:5 183:2,5 267:11,14,22 268:10 291:12 295:12,15,18 295:19</p> <p>redirected 158:16</p> <p>reduce 26:13 194:10 286:25</p> <p>reduced 300:9</p> <p>reduces 29:2</p> <p>reduction 113:11,14</p> <p>reductions 140:16 284:7</p> <p>redundant 80:8</p> <p>refer 165:20</p> <p>reference 206:3 223:11 225:3 254:5 272:16</p> <p>referenced 42:8 118:16 138:22 197:9 206:1</p>	<p>227:22 257:2</p> <p>references 43:7 133:20 205:12 258:12</p> <p>referencing 124:2,23 223:14</p> <p>referred 37:22</p> <p>referring 45:13 155:11 174:20 206:9</p> <p>refers 118:15 206:5,6 238:24</p> <p>refine 272:1</p> <p>refined 156:17</p> <p>reflect 15:14 156:17 161:24 211:18 241:3 241:15</p> <p>reflected 165:1</p> <p>reflecting 150:24</p> <p>reflects 35:13 157:6</p> <p>refresh 246:6</p> <p>refreshes 247:18</p> <p>refrigerated 69:20</p> <p>refrigeration 38:1 78:4</p> <p>refrigerator 78:1</p> <p>regard 22:7 46:16 60:8 67:3 68:8 293:8</p> <p>regarding 60:4 61:23 68:24 69:10 78:17 80:21,23 81:2 125:25 131:21 132:12 135:25 177:24 221:7 224:10 255:2</p>	<p>266:18</p> <p>regardless 64:3 74:4 81:5 102:22 108:23 160:19 161:16 162:3,11 218:1 283:24</p> <p>regards 80:22 289:2</p> <p>regional 176:5 216:6</p> <p>registered 52:24 255:12,22</p> <p>registrations 63:19</p> <p>regular 235:12 274:12</p> <p>regulated 47:18 113:6</p> <p>regulation 253:10</p> <p>regulatory 11:17 14:11 39:10,23 39:25 40:2 56:14 67:5 242:19</p> <p>reject 40:17 60:9 85:15,16</p> <p>rejected 69:8 80:10</p> <p>rejects 75:23</p> <p>Rel 85:3</p> <p>relate 204:23</p> <p>related 49:6 221:24 247:1 279:10 300:10</p> <p>relates 277:25</p> <p>relating 239:18 240:3 247:11</p> <p>relationship 139:19</p> <p>relationships 206:14</p> <p>relative 300:12</p>	<p>relatively 135:4 144:20</p> <p>relevant 28:8 52:17 85:9 112:11 156:16 242:12 273:3 283:3</p> <p>reliable 54:18 74:9</p> <p>relied 219:2 223:22</p> <p>rely 67:5 272:13</p> <p>remainder 293:12</p> <p>remaining 80:3 133:1 198:23 214:25 293:11</p> <p>remains 32:4</p> <p>remember 106:15 110:20 112:6 113:23 114:20 136:20 143:19,22 185:2,8 192:14 195:8,16 245:11,23 247:4 249:18 255:18 261:22 265:9 277:20 279:7,25 280:13 281:3</p> <p>remembering 247:3</p> <p>remove 31:23 63:25 102:17</p> <p>Renew 12:22,24 15:7,8 21:1 47:5,7,8,22 93:5 107:18 119:20 135:25 151:12 182:13 207:23 266:6 291:4 299:7</p> <p>renewable 29:20</p>
---	---	---	---	--

47:10,16,16 55:17 274:22 282:10 renewables 54:14 144:21 rent 180:12,13 reoccur 239:4 repeat 120:16 122:9 126:17 129:17 142:14 148:5,24 241:12 repeatedly 80:21 rephrase 104:14 106:12 replace 55:12 160:8 162:9 replaced 162:10 replacement 44:6 162:1 187:18 replacing 161:22 187:17 reply 249:15,20 report 43:19 78:3 85:19 113:9 246:4 250:24 261:21 261:23 297:23 reported 11:20 205:2 reporter 14:4 15:2,6,10 16:11 17:3 73:8,12 90:12 149:21 235:11 300:2 REPORTER'S 96:22 100:1 165:25 172:1 229:17 235:1 reporting 11:21 20:1 213:8 reports 96:13	112:21 represent 32:25 38:24 42:20 48:11 56:3 representation 240:5,11 representations 74:4 80:16 represented 37:14 154:19 276:14 representing 67:11 represents 20:11 32:15 33:2 36:19,22 125:4 request 18:1 20:9 27:17 75:5 84:4 89:19 126:21 131:23 133:11 220:16,22 221:17 228:14 228:18 243:24 247:11,16 271:12 272:10 277:1 298:13 298:17 requested 127:24 244:10 requesting 84:5 84:10 243:18 requests 18:24 84:19 94:8 220:4 require 76:14 163:21 263:23 required 19:12 19:14 77:16 82:10 163:25 217:1 238:1 requirement 55:2 95:15,19 218:3 263:14	278:3 279:1 requirements 47:12 requires 67:22 83:1 140:3 requiring 19:9 54:24 research 38:14 135:15 researching 126:18 reserves 215:19 residence 100:21 resident 43:25 residential 35:13 35:22 36:23 37:1 49:3,13 49:18 100:18 208:16 226:24 227:3 235:19 237:13,23 resolved 130:4 resource 29:14 54:16 resources 12:20 15:25 28:14 29:20,21,22 47:10,17 54:24 56:9 58:6 123:23 140:5 152:3,6 respect 164:23 respectfully 147:11 250:1 250:16 respectively 43:11 respond 17:15 18:3 202:21 252:19 responded 195:5 responds 46:12 response 62:12 108:6 109:23	110:4 198:9 203:11 220:24 221:4,6 222:15 222:16 223:17 298:17 responses 25:12 responsible 75:2 rest 149:21 215:1 217:21 218:6 267:23 restate 118:4 223:3 241:11 restrictions 259:21 result 34:22 39:13 41:5 78:16 81:11 142:12 205:2 213:7 214:4 275:9 resulted 126:1 resulting 242:20 250:3 results 35:16 37:15 40:20 78:21,22 121:14 205:8 205:13 237:14 resumed 100:2 172:2 235:2 retail 95:15 retailers 53:4 retention 57:9 retrofit 160:9 retrofits 140:12 return 39:6 45:21 84:23,23 91:5 113:17 203:19 294:15 returning 26:24 158:23 returns 40:1 Reubttal 298:1 revenue 19:2,8	19:25 23:17 63:18 82:2 95:15,19 222:12 revenues 18:19 23:8,8 39:13 40:3,6 76:21 76:22 81:3 83:19 144:16 reverse 135:1 143:8 review 153:10 225:1 244:2,5 244:6 294:2 reviewed 270:5 reviewing 237:14 revised 81:9 148:21 297:18 RFI 30:24 ri-- 75:14 179:17 riddled 78:13 rider 159:25 160:21 161:3,5 189:7,8 190:15 279:16,20 280:1 riders 70:3 185:19 ridership 76:19 77:20 78:2,14 79:10 83:18 159:22 161:8 175:21 185:1,5 185:11,18 187:23 190:19 191:22 192:10 192:18,25 193:7 198:11 201:3,5,9,14 201:15,24 ridiculously 71:4 right 16:13 18:2
---	---	--	---	--

21:25 25:14 26:1,13 46:2 46:21,22 59:8 59:12,16,17 61:20 68:22 73:22 86:24 87:13 91:15 94:2 95:5 100:6 104:20 105:17 106:2 107:12 116:2 119:19 120:17 121:21 126:7 129:9,12 131:12 132:16 134:23 135:8 135:10,13,15 141:4,18 145:14 151:11 153:2,19 161:4 172:20 175:4 180:19 181:19 181:19 183:15 184:1,21 185:13 188:17 189:8,23 190:23 191:14 194:6,21 196:25 197:5 197:23 198:2,7 199:2 201:14 203:10,17 206:7,17,22 207:11 209:18 210:12 220:9 221:17 225:12 229:1 235:9,24 237:4 240:12 242:16 245:8 246:5,13 258:7 258:11,14 262:8,21 269:14 278:8 279:5 289:11	291:14,20 292:23 293:18 RIM 121:14,16 161:6,6,7,13 164:10 205:2 ripe 77:19 risk 44:10 52:3 61:25 74:13 75:10,14,20,23 76:14 88:17,21 89:1,3 risking 67:9,16 risks 41:11 45:23 River 12:18 Rivers 16:1 Riverton 247:17 road 55:19 ROBERSTON 12:18 Robertson 15:24 16:1 21:6 52:11,12 93:15 107:23 119:25 136:5 151:17 182:18 218:20 266:11 291:1 295:4 Robin 76:13 86:3 298:5 robust 49:7 74:9 83:12 275:2 Rocky 117:7 279:14 ROE 96:9 113:6 role 47:14,19 57:21 139:25 room 32:14 96:19 178:20 183:8 188:15 189:12 193:19 208:1 212:13 229:13 293:17 293:19 294:1	rooms 180:14 roots 27:1 roughly 67:15 156:25 157:13 187:6,8,16,18 188:21 216:21 rounding 214:6 row 117:7,13,20 118:9 163:14 rule 17:24 59:3 84:12 86:16 88:3 294:12 ruled 17:25 25:1 rules 69:13 78:5 79:19 241:23 294:9 ruling 17:9,16 34:10 run 17:15 78:8 128:3,8 189:13 201:15 running 35:10 70:9 runs 261:17 Ruth 15:15 RYAN 11:18	164:13 saw 80:1,14 105:6 208:7 261:21 262:1 265:9 say-- 284:20 saying 110:25 130:1 141:18 157:10 181:25 270:11 says 18:18 23:6 55:10 117:21 118:9,22 128:20 142:2 155:10,21 158:20 188:5 190:24 213:7 213:12 215:10 222:24 SB 250:25 251:13 scale 132:24 scaleable 49:7 scared 261:10 scary 249:21 scenario 36:16 106:13 185:17 185:17 scenarios 36:10 36:12,14,23 37:2,7,9 40:14 185:11 213:8 257:25 276:21 schedule 32:11 157:15,15 163:7 176:9 236:7 scheduling 16:15,24 146:17 scheme 95:10 scope 269:18,20 screen 26:2 50:4 59:14,16	189:15 195:25 screening 161:1 screenshot 156:5 seat 62:8 second 19:16,18 20:1 35:11 37:20 58:10 61:15,24 84:9 95:2 96:18 117:20 127:15 128:21,21,22 128:24 159:9 187:2 197:5,7 219:23 225:20 238:8 260:19 secondly 259:13 section 173:16 237:10 247:13 252:8 253:23 sections 51:15 sector 42:4 52:23 57:13,14 134:22 143:5,6 secure 50:22 security 31:7 56:11,13 sedans 42:14 259:4 see 18:9 22:6 32:23 33:1 34:15 35:21 47:17 59:2 68:11,14 86:19 87:19 91:3 101:18 118:24 121:11 137:7 143:25 146:19 155:11,21 186:12,14,22 186:24 188:14 188:15 191:9 191:15 198:20 212:18 216:11 216:20 217:10
		S		
		S 12:1 s-- 238:20 278:4 safe 57:19 74:20 safety 284:14 sale 159:18 sales 29:6 124:25 125:1,2 125:5 132:20 132:21 133:7 133:13 256:25 sample 274:10 Sarah 36:9 86:2 297:25 298:7 satisfaction 191:3 saturation		

220:9 226:20 239:21 247:18 254:21 259:14 266:19 276:9 289:6 seeing 16:14 93:2 119:16 131:6 151:3 194:6 207:18 208:4 209:15 211:25 228:22 288:18 293:9 seeking 246:24 247:19 seen 88:19 102:7 127:12 162:14 198:12 220:6 239:6 249:17 252:15 SEER 179:4,4 self-fulfilling 53:12 sell 137:17 selling 48:19 134:13 256:16 259:22 Senate 113:13 send 34:13 senior 11:17 51:8 sense 106:15 263:22 281:25 sensitive 189:22 sent 261:7,7 sentence 118:17 173:16,18 222:14,16 242:2,3 separate 59:21 100:22 180:6 181:17 separately 100:23 172:15 172:19 173:3	serious 42:23 seriously 27:15 serve 75:3 103:7 103:10,13 218:13 286:20 served 155:20 156:18 service 11:1 13:6 22:14,16 30:4 31:5 33:3,6 34:1,14,15,22 38:10 49:2 55:5 57:19 74:20 75:6,16 76:1 79:15,15 79:16 85:2,4,4 105:19 156:8 156:15 157:20 158:4 176:13 195:14 196:23 225:15 226:18 245:3 298:15 services 48:17 48:20,21 49:7 49:10,15 50:3 50:7 54:6 75:6 198:23 serving 104:7 214:18 session 96:23 100:2 166:1 172:2,4 229:18 235:2,12 sessions 278:15 set 22:21 25:24 41:7 48:25 62:23 77:9,11 80:5 85:1 87:13,14 242:18 setting 45:18 87:16 240:15 248:11 settlement 32:7	34:19 53:6 138:7 seven 82:20 118:18,18 seven-year 63:5 shape 154:12,16 199:8 206:3,7 208:12 211:11 220:25 221:2 224:19 274:1,3 274:9,22 275:4 shapes 221:7,11 221:12 271:12 271:18,23 273:17 275:10 share 42:20 76:14 82:11 128:5 154:23 154:25 155:19 156:22 157:7,8 157:13 165:2,6 180:3 192:25 193:4 196:18 196:24 197:16 198:18 200:8 283:15 shared 38:25 217:14 shareholder 75:11 shares 162:14 sharing 75:11,14 75:20,23 76:25 83:13 88:18 89:11,11 Sheet 174:11 sheets 51:11 79:16 shielded 74:13 shift 274:4 shop 42:21 shopping 283:16 short 33:14 65:2 82:19 267:15	268:4 short-term 65:3 67:14 115:7,15 shortcuts 272:22 shortfall 123:4 124:8 shortly 195:23 show 36:25 154:21 189:11 222:1 252:6 256:16,23 282:2 showed 122:21 showing 90:2 297:14 shown 33:15 70:19 79:17 196:22 275:5 shows 69:23 105:3 127:23 132:19 154:17 157:3,18 158:5 sic 59:4 80:18 157:7 202:24 239:4 sick 292:19 side 54:24 113:12 132:6 144:1 284:13 Sierra 12:20 15:23,24,25 21:5 52:10,12 93:14 107:22 119:24 123:23 136:4 151:16 182:17 218:19 266:10 290:25 sign's 249:1 signal 34:13 59:12 signatories 19:19 signed 153:8 significant 28:2	31:23 38:20 47:19 71:6 83:5 176:15,20 177:12 198:22 200:11 201:9 239:1 249:5 278:22 282:7 significantly 34:10 36:8 44:19 200:1 239:2 258:24 272:19 286:22 Silvey 11:18 22:2 26:7 58:24 59:7 69:2 72:7 86:8 86:14 87:12,24 88:2,5 100:11 100:13 109:24 110:1 295:10 similar 32:10 35:17 78:12 109:8 132:3 202:17 similarly 189:19 simple 61:10 155:1,3 158:8 158:11 simply 30:25 37:15 43:2 64:12 69:15 76:15 82:12 84:5 85:7 87:12 156:7 simulated 275:4 simulation 273:17 274:25 single 50:24 53:11 104:4 137:19 279:21 280:8 single-family 49:18 single-issue
---	---	--	---	---

84:16	14:21	291:2,16	speculate 249:25	81:1,24 83:9
sir 134:15	smog 54:1	292:13	250:15	83:15 85:22
287:25 289:22	soft 187:1	sort 66:13	speed 218:1	86:2 94:3
sit 23:10	software 49:5	129:15,22	265:23	109:20 120:7
site 48:24 50:13	solar 29:13 75:8	154:7 185:16	speeds 265:22	127:6,8 128:4
50:15 178:19	sold 34:23 38:17	186:25 198:10	spend 67:18	128:9 129:15
178:19 188:6	101:13 103:16	198:14	71:2 139:22	129:21 131:20
sites 125:21,22	104:16 105:4	sought 27:4	140:25	136:13 145:15
143:10	133:6 255:12	sound 238:22	spending 41:12	146:6 165:10
situation 77:21	256:12	sounds 241:21	64:17,20 70:9	172:5 182:25
situations 88:20	sole 83:23	242:4,22	spent 63:1 72:1	208:21 219:25
six 32:7 82:20	solely 272:13	source 155:14	78:24 205:3	221:7 223:9
118:18 132:19	solicited 27:18	156:17 176:18	Spire 15:22,23	244:12,22
139:1 174:11	237:20	197:19,22,22	79:13,14	245:2,8,14
223:21 255:23	soliciting 237:15	202:13,16	Spirit 176:5	267:9 271:9
256:10	solution 25:21	sources 58:18	split 188:21	273:13 278:4
size 65:5 67:15	30:2 40:9	158:7 176:11	spoken 187:1	280:11,12,16
skeptical 61:21	77:11 78:13	196:18	sponsored 56:23	280:19,24
74:18	85:15 173:8	South 12:3	sponsoring 51:7	288:23 289:18
skepticism 74:21	284:13	Southern 208:15	spots 49:11,13	294:8 297:22
159:13 246:16	solutions 28:16	216:13 227:22	spread 29:5	297:23
246:18	30:6 37:21	273:15 274:5	114:9 218:6	Staff's 53:9
skin 67:3 75:11	51:9 60:2,9	274:15	283:7 285:8	75:17 76:14
76:9	69:6 71:21	space 29:19	spreading 54:20	78:25 81:5,23
skipped 93:11	77:19 144:23	81:15 179:20	spreadsheet	85:19 126:25
sleeping 38:4	200:13	180:11	147:19	216:20 217:2,4
slide 158:7	somebody 179:2	spaces 80:25	Springfield	242:24 244:3,5
slightly 147:21	somewhat 46:8	speak 72:2 282:8	123:20	245:4 271:12
148:20	109:14 121:8	speaking 69:14	spur 81:16,18	stakeholder
slipped 185:19	132:1 134:7	speaks 218:11	St 12:6,19 14:20	52:17 76:16
slogan 262:18	soon 145:22	specific 30:13	16:2 33:22	149:7
slower 277:15	sorry 31:1 89:16	33:1 59:2 89:5	80:4 106:17	stakeholders
slowing 291:21	91:13 93:11	89:6 114:19	116:13 162:21	237:16,20
small 55:18	100:4,7 107:18	154:20 224:9	176:5,12	278:20
70:20 79:16	118:3 122:1	246:24	204:14	stam-- 112:3
95:10 96:1	130:25 148:3	specifically	stable 193:2	stand 34:18
187:13 260:3	148:24 149:4	29:19 46:15	staff 13:6 14:24	46:14 91:10
smaller 155:9	149:10 151:8	60:5 90:13	15:1 20:3	146:23 287:12
smart 44:5	157:22,23,24	239:21 240:3	21:14,15,17	standard 84:8
100:17 223:21	162:5 174:8,19	245:11,23	22:1 36:9 55:1	94:15,22 95:4
279:20	206:19 214:17	247:6 290:16	73:23 74:2,3,5	111:11 243:12
smartphone	228:24 241:11	specifics 249:18	74:6,6,8,15,17	256:13
53:16	246:7,9 256:8	specify 154:18	75:19 76:2,13	standards 84:15
Smith 12:2	265:1 274:21	223:23	79:16 80:20	94:10 111:15

<p>112:3 standing 46:20 stands 55:16 62:4 stapled 228:3 start 18:10 53:8 60:11 63:22 64:16 68:2 107:18 116:24 117:2 120:10 212:19 267:21 273:23 started 27:12 32:19 135:4 213:4 293:21 starting 28:22 39:5 41:12 77:19 116:22 236:6 245:1 starts 223:18 247:21 state 11:2 24:4 24:12 44:12,20 52:2 56:18 57:7 74:4 85:3 92:1 95:8 105:17 116:10 122:6 129:2 132:6 134:24 137:12 138:20 139:7 140:3 142:13,22 143:1 147:5 161:7 172:11 176:12 181:13 204:11 225:20 235:14 245:13 246:14 258:7 283:23 287:18 300:5 stated 57:12 82:9 84:21 108:7 126:15 126:20 129:3</p>	<p>177:8 203:2 209:7 215:3 248:5 statement 56:6 82:16 89:25 95:25 126:22 129:23 132:8 162:15 175:8 210:16 224:13 243:3 249:22 250:11,12,15 294:9,11 295:2 295:3,3,4,4,5,5 statements 16:18 18:13 25:16 183:17 198:11 208:2 states 28:4 30:24 35:3 41:9,11 43:6,17 44:10 45:1,3,6 132:17,19 133:2,6 138:8 213:24 215:4 237:10 246:17 255:10 260:8 279:9 statewide 31:18 31:21 122:7 123:5,5 124:11 139:4 stating 75:24 88:24 128:16 176:4 station 48:20,25 49:2,22 50:5 50:10,15,23 58:3 60:22 75:2,3 82:3 90:3 106:2,23 181:7,11 297:14 stations 22:10 23:22 24:4,15</p>	<p>25:9 27:5 28:1 30:17,23 31:19 31:22 32:2,7 33:5,11,15,17 33:19 34:14 49:5,17 50:21 57:3 60:19 76:21 77:3 79:22 80:13,14 86:11 101:21 102:1,24 105:2 108:12 118:16 131:21,23 132:9 133:12 133:24 139:1 139:14,17 181:20,23 260:20 289:25 statistics 156:7 statute 59:3 86:16 statutory 47:12 62:18 86:23 88:2 stay 134:21 staying 284:20 stays 144:6 stems 109:6 step 55:19 291:19 stepped 291:3 stepping 26:24 Steve 82:9 106:19 133:20 Steven 204:8,13 204:16 207:15 207:17 295:20 297:11,13 stick 25:7 186:16 194:19 stimulate 56:15 stipulation 14:14 18:7,8 18:11,22 19:16</p>	<p>19:18,19,22 20:10 21:1,21 25:18 59:24 71:18 235:15 236:24 237:7 237:10 238:1 238:13,15 277:19,24 278:2 279:2 stop 38:2 67:1 69:19 77:25 236:13 stopped 132:11 stopping 146:20 stops 106:18 storage 30:7 263:24 store 17:8 180:16,16 storm 94:13,20 94:24 95:3,3 111:9 112:4 244:10,12 245:4,9,14,20 story 145:23 straight 277:13 Street 12:3,8,15 12:19 13:4 15:20 16:2 287:21 stress 62:3 stresses 215:8 strong 44:11 133:21 strongly 60:22 70:20 71:24 structures 238:2 studied 28:4 studies 35:17 60:21 105:22 237:15 273:19 study 28:14 35:14,16,16 38:9,13 71:8</p>	<p>164:20 206:8 206:10 208:14 208:16 217:4 222:20 223:13 223:19 224:2 225:2,4 227:17 262:1 272:20 273:14,15,16 273:25 274:23 276:4,8,11,15 276:21 sub-metered 180:3 sub-program 120:14 121:7,8 121:14,20 136:20 137:3 sub-programs 77:18 121:2 subject 64:20 68:5 112:3,4 222:21 223:24 265:18 subjective 129:21 submit 221:8 submits 250:1 250:17 submitted 221:9 subscriptions 50:14 subsequent 65:22 66:15 subset 164:1,6 subsidiary 32:5 139:23 subsidiess 80:24 subsidize 27:9 subsidized 23:22 subsidizing 19:11 60:18,22 subsidy 70:8 134:13 substantial</p>
--	--	---	--	--

134:12,13 283:5 substantially 35:24 119:6 207:6 217:22 265:14 273:1 subtract 63:20 success 41:17 successful 75:13 successfully 64:13 suffice 155:1 sufficient 24:11 28:1 124:6,17 142:12,21 178:21 252:14 suggest 60:22 216:23 suggested 59:20 60:17 67:2 70:15 103:15 162:23 suggesting 70:20 157:1 183:23 198:12 suggestion 76:14 184:2,3 suggestions 128:13 suggests 217:11 222:25 Suite 12:8,19,22 13:4 15:16,20 16:2 Sullivan 33:19 summarize 71:16 126:1 128:15 summarizes 51:15 summary 18:11 52:5 126:4 129:3 summer 150:8	150:14 225:23 226:3,4,8,24 251:25 282:9 superimposing 154:22 superior 19:6 67:22 supplemental 266:24 267:2 272:1 298:23 supplemented 121:12 supply 54:24 56:14 208:25 209:2 supplying 214:24 support 32:2 34:9 44:7 50:3 51:10,25 52:13 54:5 57:1,17 57:22 66:3 78:20 79:18 122:20 164:23 178:2,3,15,16 178:22 181:21 181:21 183:20 184:21 200:20 284:3 supported 84:4 supporting 30:11 supportive 31:14 173:19 284:3 supports 47:8,22 57:25 201:8 suppose 46:22 173:7 supposed 278:5 surcharge 279:15 sure 20:21,23 23:15,25 27:15	42:11 61:3 66:17 72:13 88:1 89:11 102:10 110:10 111:19 112:7 117:4 120:17 120:18 121:6 122:11 125:3 126:6 132:15 140:24 148:6 150:10 159:24 160:2 173:12 174:10 185:23 201:22 205:17 208:20 212:7 212:22 229:10 241:13 249:1 254:8 255:4,6 275:19 280:1 280:18 281:7 284:19 285:7 285:25 289:10 surprise 126:23 surprised 145:21 surrebuttal 36:11 37:1,8 43:7 46:13 56:24 92:6 95:6 116:16 117:25 118:14 119:5,10,11 121:25 123:24 124:20 125:24 127:5 143:20 147:11 150:11 150:12 151:9 154:1,4 155:14 158:23 162:17 164:10 172:11 176:3 177:9 183:18 195:5 195:19,22,24 196:14 202:5	204:17 205:16 205:24 207:5 207:16 209:4 235:25 243:13 244:9 246:23 271:20 272:2 272:16 287:23 288:5,17 297:3 297:6,10,13 298:5,7,8 299:5,8,12 surveillance 96:13 112:15 112:21 sustain 144:4 sustainability 57:16 SUVs 259:22 swear 91:17 204:5 Swearengen 12:11 16:9 switch 78:7 184:20 186:24 sworn 91:19,23 116:3,7 146:24 147:2 202:24 204:6,8 287:13 287:15 300:7 system 26:15 28:25 34:24 35:19 36:2,3 38:22 41:5 46:5 54:14,23 77:6 83:5 109:9 114:2,9 160:22 215:7,7 215:8 216:15 217:9 259:19 283:7 285:4,14 286:19 systems 24:21 144:21	T
				table 117:6,12 117:16,20 120:12,23 121:11 143:16 148:19,21 149:11,18 150:1,25 151:10 154:12 163:13 202:15 213:6,23 215:13 257:23 257:23 258:11 267:6 270:13 297:18 tailpipe 53:24 take 14:14 27:25 39:20 41:8 53:18 54:8 61:22 72:12 82:12,22 91:2 91:3 112:25 113:4 135:19 143:2 160:4 185:12 187:7 203:18 215:25 225:12 236:10 238:14 252:16 252:17 253:9 254:4 256:9 267:18 287:9 287:10 290:7 taken 90:24 91:7 113:1 130:3 146:3 155:19 197:4 203:22 267:20 280:12 300:8,12 takes 74:17 114:24 talk 24:1,18 28:17 59:1 138:13 186:19 208:21 257:22

277:2 284:9 talked 16:14 38:14 137:22 140:13 143:17 164:21 215:25 258:20 268:13 269:3 271:10 271:12 274:19 277:18 279:4 283:4,13 284:8 284:15 286:6 talking 18:17 68:2 105:10 106:16 109:24 111:8,12 134:10 183:9 183:19 199:15 205:7 255:25 256:2 279:6 talks 145:2 214:12 taller 37:2 tar-- 22:12 target 62:22,23 62:25 64:12 190:22 290:16 targeted 157:7 targeting 70:21 tariff 18:17 20:4 20:6,11 22:22 22:25 23:5,13 27:9 51:11 75:8 76:16,24 78:22,23 79:12 79:14,16 80:19 82:23 83:3,13 83:20 85:18,24 173:8,11 174:5 174:20 175:9 175:15 180:5,6 180:8 184:4,12 184:15 188:5 190:24 192:11 225:16 276:3	tariff's 23:10 tariffs 19:17 20:13,17,20 52:6 59:21 tarket 157:7 Tatro 12:5 14:19 14:19 18:14,15 20:18 22:12 23:3,5,25 24:17 25:24 26:3,6 45:5,10 45:15 46:18,20 47:1,4 89:16 89:18,25 90:4 90:7,8,14 91:10,12,15 115:25 116:5,6 116:9 117:1 119:2,8 122:1 122:3,21 130:7 131:5 136:16 136:17 138:22 152:22 204:10 206:25 207:11 221:22 222:5 229:16 241:6 243:4 248:24 252:13 253:3,7 254:2,6 267:12 267:16 268:8,9 268:10 286:3 286:16,17 291:7 292:13 292:16 295:2 295:15 Tatro's 210:16 258:19 Tatro116 295:13 Tatro204 295:21 tax 113:11,11,14 Taylor 11:21 300:4,18 team 38:9 technical 127:18	127:20 128:17 129:5,10,19 130:12,16 131:2 145:22 146:8 176:20 178:15 181:2 200:20 techniques 189:18 technologies 38:24 44:5,7,9 56:15 technology 73:20 74:7 78:8 178:17 199:21 200:6 tell 36:11 59:2 104:20 142:5 145:23 155:18 189:24 208:19 226:2 236:13 telling 211:12 temporal 199:8 ten 17:14 45:11 65:25 66:17,18 66:20 219:16 258:1 ten-minute 267:19 ten-year 65:25 66:8,14,25 tenant 53:11 81:16 tenants 172:12 180:2 tend 253:6 tender 92:23 119:12 150:25 207:12 288:12 term 65:2 67:6 159:25 199:3 terms 20:4 61:7 181:2 200:19 277:24 278:17	284:14 terrible 186:18 territories 34:15 territory 31:5 33:4,6 34:2,22 38:10 57:17 63:16 75:16 76:1 105:20 156:8,15 157:20 158:5 176:13 195:15 196:24 224:19 256:24 Tesla 137:14 test 21:24 94:7 161:7 205:2,7 205:13 273:25 testified 81:13 82:7 83:7 91:23 116:7 123:25 147:2 204:8 209:4 274:7 287:15 testifies 40:19 44:11 testify 90:17 252:24 testifying 36:12 51:9 243:4 252:22 testimonies 56:24 147:14 testimony 32:12 33:7 35:18 36:11 37:18 38:6 41:7 42:1 43:7 46:13 48:1,14 51:7 51:13 57:1,12 64:8 66:3 75:24 76:3,13 77:15 87:21 92:4,6,12,15 92:16 105:3,11	105:15 115:23 116:16,20,22 117:6,15 119:5 119:9 120:10 120:13 121:1 121:17,21 123:4 124:16 125:25 132:13 138:18 145:1 146:15 147:10 147:11,14,16 147:23 148:4,7 149:9 150:2,11 150:12 151:9,9 154:1,4,8,20 156:5,9,13,24 157:15 158:23 162:22 163:7 164:9 165:14 165:18 174:23 183:18 193:19 194:1 195:19 195:22,24 196:14 197:9 201:8 202:6,24 204:17,21,23 204:25 205:15 205:16,24 207:5,15,16 208:21,21 209:5,24 210:25 211:2,6 211:9,11,16 213:3,5,6,20 213:22 214:12 215:20 219:2 221:2,13 223:23 224:20 235:5 240:25 243:21,24 244:2,3,10,21 245:12 246:21 246:23 247:9 248:6 249:7
--	--	---	---	--

255:1,3,9	107:25 108:2,4	thereto 300:14	114:16,17	264:16,17
257:6,8,9	109:16 110:13	they'd 65:12	115:2,7 126:6	265:12,13,14
266:20 268:22	115:19,21,22	70:9 87:5	129:20 133:20	265:15,19
271:18,20,22	116:6 118:11	218:3	135:5 141:18	266:18 268:20
271:25 272:4,6	119:21 120:6	thing 67:9 89:10	143:17 155:2	269:10 271:10
272:15 279:13	122:3 124:6	111:6 140:15	164:3 165:21	271:21,24,25
280:3 284:16	130:5,10 131:4	250:19 292:11	173:17,23	272:2,3 273:1
284:24 285:3,3	131:10,15	things 61:16	175:4,22	274:19 276:2
286:14,14	135:21,22,23	69:19,25 70:3	179:24 183:7,8	276:11 277:2,4
287:6,23 288:2	136:1,9,12,14	81:4 95:10	183:10,23	277:10,15,16
288:5,16,17	136:16 146:12	101:18 102:14	185:10,11	277:23 278:13
290:1 291:15	146:13,14,16	107:4 111:12	186:11 187:4	280:18,25
294:10 297:3,5	146:25 151:13	113:10 139:9	187:22,23	281:18 282:4,7
297:6,8,10,11	151:19,21	181:18 187:6	192:9 193:3,10	282:11,15,18
297:13,25	153:23 154:3	188:3 189:18	194:17,23	283:3,11,24
298:1,3,5,7,8	157:17 159:21	224:23 235:20	195:3 196:5	284:16,23
298:21,23	161:4 165:7,9	239:11 242:14	197:19 198:9	286:18 292:21
299:4,5,8,11	176:21,24	250:23 259:8	198:10 199:5,5	293:4,5
299:12 300:6,7	177:15,17	266:1 268:23	199:14,18	thinking 27:13
testing 121:16	182:10,14,18	283:2 287:9	200:4,23	44:19
tests 161:6	182:22,24	291:21	201:16 203:17	thinks 67:21
164:10	183:1 186:20	think 19:6 20:10	210:6,9 212:7	69:7
text 50:6 155:21	193:9 202:1	20:19 21:19	212:7,17,23	third 43:13
156:1	203:10 204:7	23:16 24:2	217:6,18	52:14,15 54:12
th-- 106:6	206:24 218:14	26:7 32:19	218:11 221:14	62:6 76:12
thank 15:18	218:16,22	45:17,18,23	222:14 223:13	95:8 197:3
18:15 20:14	219:24,25	46:10,12,18,20	227:24 228:1	Thorpe 300:4,18
21:2,4,8,10,13	221:15 222:5	46:21,22 70:10	235:10 238:11	thought 103:5
21:25 25:11,14	223:7 236:21	71:4,13 73:22	238:21 239:22	105:6 110:3
25:17 46:25	238:15 245:7	86:19,20 87:1	240:24 242:4,5	146:4 185:13
47:2,4 48:4,6,7	245:19 252:4	87:17,22 88:19	242:8,9,13,23	209:10 240:9
52:8,9 55:20	254:13 263:5	88:21,22 89:7	243:21 247:21	thoughtful
55:22,24 58:21	264:22 266:2,4	90:4,20 94:11	249:8 250:6	27:16
58:25 59:7,8	266:7,9,11,13	94:12,15,20	251:4,5,7,20	three 19:23
69:3 71:23	267:7,10 268:9	96:10,15	251:25 252:18	33:19,20 35:17
72:3,5,9,16,18	287:4,7,11,14	100:18,21,22	254:22 256:18	37:2 51:14
73:16,17,21	287:22 288:14	101:15,15,17	256:18 257:1	59:21 61:16
86:2,6,8 88:5,9	289:11 290:21	101:21 102:10	258:15,17	80:2 129:11
88:10 89:15	290:24 291:5	102:10 104:3	259:5,8,15,18	134:11 151:3
90:14 91:6,20	291:10,13,17	105:13,21	260:1,3,4,5,6	173:21 227:4
91:22 92:21	292:16 294:8	106:9 108:22	261:11,21,23	three-quarter
93:6,8,13,15	294:15	108:23 110:1	262:4,10,19,20	43:8
104:22,24	theory 200:2,7,9	111:7 112:17	262:21 263:18	threshold 84:2
107:14,19,21	200:16,17	113:15,19	264:1,2,2,9,15	89:13

throw 40:14	time's 52:14	tools 50:19	104:15 219:14	trends 256:11
thrown 69:20	timeline 138:4	top 22:22 23:10	282:13	261:21
Thursday 16:23	timely 282:3	134:16 140:9	tracks 211:1	tried 111:7
tie 45:25 199:8	times 37:2 45:1	176:12	Tracy 11:21	trip 58:15
tied 41:16 286:1	216:21 225:20	topic 37:18	300:4,18	truck 38:1,2,3
ties 214:7	238:12 256:14	83:24 194:24	trade-offs	69:19 77:25
TIGER 11:21	283:13 284:24	272:6	265:23	78:1,3 141:14
till 91:4 146:18	285:13 286:22	topics 72:3	trailing 226:12	156:2,6 197:10
267:19	286:23	total 67:10 70:6	training 20:21	202:16
Tim 15:8 47:7	timing 20:16	70:13,25 82:18	178:16	truckers 78:7
time 18:3 24:25	113:15 252:2	83:12,22 84:6	transcript 11:5	trucking 69:20
28:7 30:4 35:1	278:2	117:12 133:7	89:21 212:13	trucks 38:2
37:16 39:5	TIMOTHY	176:14 214:23	transcript's	140:12 197:14
41:15 42:4	12:21	215:23	17:17	true 32:4 40:22
52:15 62:25	title 90:6 193:19	town 22:24	transcription	92:18 104:3
63:16 65:3,10	titled 223:19	30:18	147:18	109:8 152:21
66:3,19 69:2	to-- 22:17	track 63:18	transformation	176:19 207:8
72:1,7 85:12	today 16:6,21	100:15,18,23	29:19 42:4	248:10 269:23
107:3 115:3,8	22:5 26:10,16	100:24 101:13	52:22	270:9 272:18
120:14 130:4	28:3,18 38:19	102:6 209:12	transformations	288:8 293:5
130:19 137:20	41:3 56:20	219:11 242:19	29:18	truly 55:16
154:22 186:15	77:8 80:19	246:24 247:20	transit 58:15	83:15
191:13 199:9,9	90:17,24 92:15	281:5,16,20	transition 30:10	trust 32:1 33:12
199:21 203:5	106:19,21	trackable 102:1	transmission	78:11 80:5
223:10 225:14	114:23 137:14	tracked 39:4	213:16 214:14	122:15,17,25
226:14,18	150:20 165:15	112:11	215:2,14 216:6	137:23 138:2
227:23,24	165:18 182:1,6	tracker 84:11	transportation	139:21 140:1,2
228:17 235:19	198:6 199:19	94:15 111:1,3	42:5 52:23	140:16,25
236:10 237:10	202:25 204:24	111:13,20,24	58:5,19 123:11	142:2,16
237:11,13,20	239:7 283:14	111:24 112:6	travel 46:7 57:6	143:14 239:5,7
237:24 238:3	288:6 291:22	242:16,23,25	79:24 107:4	try 14:14 135:14
245:24,25	291:23	243:18,20,22	137:11 139:7	137:12 141:6,7
248:14 251:2,7	told 24:22	244:10,13	177:6	146:18 182:7
252:4 263:13	255:15,15	245:4,9,14,21	traveling 43:25	184:20 186:13
263:18 264:20	260:14 292:7	246:22 247:11	TRC 201:18	187:3 190:21
273:3,19,24,25	293:15	247:13,16,24	205:13	212:20 240:10
274:2,11,14	Tom 40:18	280:12 281:3	treasury 114:24	265:21 282:5
275:8,17,22	91:23 92:2	281:11 282:17	treated 65:16	294:4
277:20,25	295:7 297:3	284:18 286:7	103:21	trying 65:22
278:18,22,23	tomorrow 292:5	trackers 84:17	treatment 86:1	71:3 106:17
285:14,18	292:11 293:3	111:15,16,20	tremendous	145:23 146:2
286:20 287:2	293:24	112:9,12	54:2	156:13 177:20
290:6 294:2	tonight 254:20	246:16	trend 256:16	179:3 185:12
298:15	tool 274:25	tracking 84:11	trending 198:14	206:10 266:19

<p>269:8 tugs 38:5 turn 30:13 95:5 121:24 124:19 128:14 154:3 157:14 162:16 163:6 176:2,8 235:4 237:9 turning 80:20 83:8 159:21 246:21 turns 38:17 139:1 TV 73:19 tweak 103:17 tweaks 20:5 Twelve 178:4 twice 246:8 258:6 two 25:3 26:16 60:1,4 82:1 89:19,24 125:16 126:24 135:9 147:9 148:5 160:9,9 160:12 164:14 187:8 196:15 205:25 216:8 216:12 217:9 226:25 238:11 259:8,8 268:3 277:15 278:15 278:19 287:22 two-part 94:7 two-way 245:4 245:14 tying 46:7 89:5 type 30:9 31:2 45:19 78:24 89:4 174:15 265:6,6 279:21 280:8 types 29:12 41:21 78:19</p>	<p>108:11 137:21 typewriting 300:9 typical 199:13 239:2 277:8 typically 35:19 189:11 191:5 277:7</p> <hr/> <p style="text-align: center;">U</p> <hr/> <p>Uh-huh 132:18 132:25 142:17 142:19 146:9 178:9 180:18 236:22 263:6 266:3 290:22 ultimate 257:18 ultimately 29:1 38:22 83:21 87:8 163:10 184:9 un-- 76:11 unable 66:24 281:20 unanimous 59:24 235:14 uncertain 79:10 uncertainty 40:25 76:5,6 257:18 unclear 249:2 under- 242:20 underdeveloped 30:16 underlie 195:22 underlying 64:11 216:20 underpinning 74:9 underserved 290:2,6,17 understand 55:14,14 106:11,13</p>	<p>156:14 177:20 184:2 208:12 210:7 211:12 212:25 217:2 261:11 269:16 294:4 understanding 115:11 159:25 160:3 173:23 195:21 210:4 273:4 274:6 280:7 understands 20:22 understood 125:23 150:11 179:25 199:11 199:12 undertake 56:14 281:8 undertaken 236:18 undertaking 281:11 unfamiliar 290:18 unfamiliarity 159:9 unfortunately 22:4 unfounded 53:10 unfunded 83:21 unified 49:25 uniformly 20:23 union 11:13 14:7 49:24 unique 29:15 84:1 94:18 uniquely 26:17 139:11 unit 24:11 29:2 78:1 247:2,13 285:10</p>	<p>units 30:19 38:1 38:4 51:5 78:4 78:9 265:7 universe 157:8 universities 51:3 unl-- 252:1 unloading 38:2 unnecessary 74:13 unpredictable 112:2 unrealistic 217:7 218:8 unreasonable 217:5 unsure 208:18 untested 41:10 unusual 84:1 94:18 177:12 238:24 unusually 84:14 unworkable 76:10 update 164:13 221:4 updated 150:12 164:10 221:6 221:12 271:16 271:17,19 updates 164:16 upfront 23:23 upgrade 247:13 upper 83:5 upward 19:11 us-- 285:7 USA 253:15 usage 38:19 90:8 283:8,8,10 285:9 297:16 use 19:24 30:8 43:1 47:15 49:1,9,18 56:8 56:12 66:19 69:24 75:10</p>	<p>78:10 80:7,9 114:5,8,8 135:3 139:4 150:11 178:1 179:17 186:1,3 186:5 189:18 213:25 226:18 227:23,24 235:19 237:10 237:11,13,21 237:24 238:3 243:20 263:13 263:18 264:5 264:20 273:3 273:19,25,25 274:2,11,15 275:8,17,22 277:20,25 278:18,23 298:15 useable 81:16 usefulness 218:12 useless 37:11 users 38:15 137:5 uses 30:3 37:4 156:4 USOA 238:16 238:23 239:10 239:18 240:3,8 241:8,14 242:6 242:15 252:8 252:17 253:15 253:22 279:5 298:19 USOA's 241:2 usual 293:16 usually 216:16 Utah 117:7 279:14 utilities 21:18,20 31:16 41:21 44:4 47:18</p>
---	--	--	---	---

51:3 55:15	280:12	105:4,16 108:9	84:14 282:19	222:19 236:11
57:21 123:10	vast 36:2 179:9	108:24 109:4,6	Volkswagen	245:18 250:2
123:20,22,25	vegetation	114:13 133:7	32:5,6 122:17	250:17 251:23
134:12,21	111:25	134:14 137:6	Volt 42:16	256:20 276:17
135:1,9 139:10	vehicle 26:20	137:14,17	106:16,20	276:23 277:6
139:16 143:5	27:2,11,20	217:8,13	volume 11:9	285:7 292:1
143:15 290:12	29:12 30:15	255:11,12,12	79:15 96:23	wanted 18:4
utility 25:4	43:1 48:16	255:21,22	166:1 229:18	22:13 88:12
27:11 28:4	49:1,8 50:1,9	256:12,12,13	voluntary 123:8	107:13 125:22
34:9 36:21	50:16 51:18	256:15,17,19	VW 32:1 33:12	130:3 162:2,9
45:19,24 51:9	52:1,14 57:2	257:19 258:1	34:5,19 53:6	175:5 181:6
51:17 57:1,24	60:2,6,11 64:6	258:24 259:11	78:11 80:5	182:4 249:24
74:19 75:11	68:24 70:12	260:11 270:7	122:15,25	250:8 252:23
85:7 87:1 89:2	71:19 74:12,23	270:13,17	137:23 138:2,7	258:3 260:13
124:11 139:20	77:17 79:21	271:6,7 272:25	139:3,21,23	261:14,19
223:24 227:22	81:17 85:17,23	283:14,18,19	140:1,2,16,24	267:22 290:16
247:10 250:24	100:20 102:24	284:1,10	142:2 143:13	294:6,8
281:10	104:5 105:25	vehicular 79:14		wants 22:9
utility's 208:13	106:4 132:21	vendors 38:15	W	25:12 252:17
282:5	137:9 138:10	verge 52:22	W 12:8 15:14	264:5 292:24
utilization 29:1	140:11,22	verifiable 102:5	W-- 105:10	warehouse
50:20 79:9	141:5 208:22	verify 153:12	wait 62:19 88:11	160:5 179:20
82:1,14 284:22	209:1,2 211:8	246:2	291:16	180:11
289:4	213:18,24	Vernon 33:18	waiver 79:18	warranted 272:4
utilize 54:23	214:21 215:6	versed 72:1	waiving 293:18	Washington
137:5 251:1	216:1,3,9,9	version 119:10	Wal-Mart 191:6	132:17
utilized 224:1	217:9 218:5,13	247:9	walk 209:9	wasn't 23:13
289:9,20	219:7 223:19	versus 85:1,4	walked 164:8	24:5 112:1
Utilizing 80:7	225:15 226:19	226:3,8,10	walking 58:16	261:10,13
	235:21 256:25	227:7 255:11	walks 210:2	265:3
V	259:6 260:13	viability 36:17	wall 277:13,16	watch 151:25
V-- 34:19	260:23 264:18	view 19:3 46:3	want 18:13	Water 123:19
validity 272:6	269:15 279:18	47:13 74:18	25:17 34:6	way 26:14 27:14
value 81:6 83:6	283:15 298:15	viewing 32:14	41:20 61:16,19	36:15 46:3
87:9,11 190:8	vehicles 28:9	views 27:25	63:12 67:1,8	47:9 53:14
241:22 248:13	30:14 34:21	violated 277:24	87:3 89:24	54:4 59:16
values 257:10,24	35:5 42:9,21	vision 32:17	91:11 96:8	60:23 66:22
Vandiver 12:22	43:23,24 47:14	56:11 138:19	110:12 115:24	85:22 89:8
variable 248:6	51:12,14,22	138:23,24	140:25 159:24	94:11 101:18
248:10	52:24 53:23	141:8 142:23	183:6 184:20	110:25 114:10
varies 220:7	74:6 75:16,25	visit 48:22	186:5 189:3	130:1 134:4
variety 189:14	81:21 82:1	visually 274:16	208:8 209:14	136:23 139:4
various 78:18	102:18,22,25	voice 186:25	212:14,15	143:11 145:15
124:21 196:18	103:14 104:2	volatile 54:1	213:19 214:1	160:14 162:13

173:18 175:15 188:4 194:11 198:24 200:7 200:14 201:5 205:9 209:16 213:22 216:4,7 221:14 261:9,9 265:17 285:9 293:1 ways 19:23 26:14 we'll 17:21,21 17:23 18:11 19:24 91:5 107:17 146:19 149:21 165:24 172:17 186:12 194:11,15 208:23 219:16 220:9 252:2 254:7,21 263:4 268:6 270:10 we're 14:14 18:17 22:23 23:15 25:8,10 26:16 52:23 60:9 63:14 64:21 69:6 87:12 104:7,7 107:2,2 108:12 110:24 111:1 139:11 172:3 175:1 179:3 188:5,6 199:14 199:15 204:2,3 208:25 214:18 216:8 235:11 256:16 259:14 269:2,6 281:19 281:22 282:1 282:22 284:1,4 285:7,7 287:8 292:21,25 we've 17:12	32:12,13 40:9 44:3 59:21,25 60:21 62:1 65:1 66:12 76:3 105:1 135:14 138:23 142:23 162:14 187:8 190:4,7 190:10 191:19 216:22 258:22 258:22 272:16 278:19,21,24 283:3,3,13,25 284:7 weather 112:23 112:24 web 49:25 website 50:6,12 237:12 Wednesday 16:22 48:2 week 32:19 42:12 259:3 weight 203:1 274:24 weighted 115:4 115:9 welcome 118:13 Wells 35:17 Wendy 12:5 14:19 went 16:15 38:14 160:25 198:10 273:12 273:14 weren't 103:6 112:1,2,2,2 114:1 134:24 291:21 west 12:15 15:20 132:6 287:20 West's 79:14 Western 85:2,5 what-ifs 36:14	40:14 which-- 186:5,5 whichever 186:6 white 138:21 154:11 209:11 212:16,21 wi-- 292:5 wider 55:19 widespread 31:24 wife 260:13,16 260:16,22 263:3 wife's 261:12 WILLIAM 11:18 willing 67:18 76:4 87:9 willingness 282:5 Wills 35:18 36:5 37:17 44:11 46:12 82:9 83:7 101:16 106:19 133:20 204:8,13,16 205:17 207:16 207:17 208:1 210:23 212:4 219:1 252:14 252:21 254:15 263:8 267:24 268:11 280:10 287:5 295:20 297:11,13 Wills' 37:8 81:9 win 38:24 wind 29:14 40:23 249:12 window 65:25 66:8 251:18 252:3 winter 226:9,10 227:3	withdraw 20:8 87:4 witness 34:16 35:15 36:9 38:7 40:18 51:8 53:13 71:24 76:13 82:9 90:18 91:5,19 100:5 100:7 101:17 105:14 115:24 116:3 118:6,13 122:4 126:14 126:19 130:8 133:20 146:16 146:21,24 148:6 149:1,16 158:14,17,20 186:18 187:4 194:19 202:24 203:20 204:4,6 206:23 207:12 212:17,22 213:1 241:20 243:23 244:22 253:1 262:15 267:25 268:2 287:7,10,13 291:17 292:3,6 292:12,14,18 293:7 witnesses 16:18 17:1 32:21 77:14 86:2 106:20 293:10 293:11 300:7 wonder 193:4 wonderful 291:17 word 61:22 243:20 252:16 worded 175:15 words 74:15 113:21 118:24	205:25 224:17 work 22:9 26:13 28:5,5,17 31:14 35:9 87:14 89:8 145:15,16 186:10 195:21 196:1,13,15 200:17 201:4 202:5 209:5,24 209:25 210:1 211:16 214:5,7 215:18,21 216:10 292:24 297:21 worked 57:13 210:4 working 25:18 32:18 58:11,12 58:17 72:1 149:7 289:3 workplace 49:17 50:1 53:2 81:24,25 82:14 82:17,20,24 83:6 workplaces 30:17 49:12 51:2 284:15 works 35:15 38:8 61:15 63:11 73:2 138:2 216:8 274:8 workshops 237:22 238:4,5 world 269:2,10 worried 189:22 190:25 worst 185:16 190:2,18 worth 284:17 wou-- 82:8 wouldn't 34:2
---	--	--	--	--

64:4 102:4 139:2 144:3 181:14 184:16 191:3 219:14 243:8,11 251:9 wraps 68:1 write 212:8 write-up 225:3 written 16:11 284:24 285:3 wrong 61:21 148:4 wrote 249:6	214:2,4,9,22 215:3,23 216:2 238:11 251:22 251:25 257:10 257:10 260:12 260:14 285:18 years 19:24 24:20 25:3 42:9 45:11,21 105:2,8 111:5 125:16 144:24 154:21 164:14 193:2,6 198:13 199:20,23,25 219:16 258:2 285:22 years' 65:25 yesterday 164:21 York 43:11	1,600 57:13 1.0 161:8 205:8 205:9 1.1 82:6 83:11 1.4 149:2 1.63 148:1,10,15 149:3 205:2,4 1.81 148:1,11,16 149:3 205:2,5 1.87 132:24 1.9 149:2 10 58:2 91:4 117:21,21 118:9,24 121:10 123:15 132:13,19 148:22 149:18 149:22,24 150:24 151:2,5 151:10 156:24 236:2 255:2 289:2,19 290:9 290:11,13 297:17 10,000 255:23 256:13 10.5 117:13 100 14:2 75:21 261:4 295:10 297:23 100-mile 139:6 101 14:2 239:21 253:16,16,22 297:24 102 14:2 298:1 103 14:2 298:2 104 14:2 295:10 298:4 105 14:2 298:6 106 14:2 298:8 107 127:1,2,9 130:22,24 131:1,8 145:10 215:25 298:9	107.89 215:1,12 108 127:1,2 130:22 131:3,8 145:11 298:11 109 220:12,13 220:18 228:8 228:10,19,22 228:23 271:11 295:11 298:12 11 41:13 64:21 67:17 83:22 117:14 121:25 122:2,11 132:13 135:14 149:2 154:4,6 163:18 193:12 193:20 194:8 203:25 255:3 297:19 11-- 228:5 11-month 236:17 11,346 270:13 11.4 148:16 110 225:8,9 226:15,17,21 275:16 295:12 298:14 111 12:3 228:6 229:1 277:4 111-C 298:16 112 239:15,24 252:7,10 254:5 298:18 12 117:21,21 118:9 122:7 132:13 149:3,4 154:19 157:23 157:23 163:3 163:20 164:1,4 172:12,14 178:11 183:13 183:18,19 184:7,8,9,18	184:20 190:6,7 191:18 196:5,6 196:7,11,22 197:5,8 198:4 198:15,18 202:3,4 203:15 203:16 214:3,5 247:17 255:3 256:6 297:20 12-month 18:21 113:2 12.15 226:5 12:30 146:18 120 295:14 127131 298:10 298:11 12th 17:17 13 118:17 123:24 124:19 132:14 143:17 147:25 156:25 158:24 255:3 13.9 148:16 131 295:14 136 82:8,18 295:15 13th 127:18 14 118:17 125:24 126:6 159:21 176:9 297:3,23,25 298:1,3,5,7,8 298:21,23 299:8,11,12 14119 297:5,7 14151 297:8,10 142,503 148:2 148:12 14207 297:11,13 14288 299:4,5 147 295:16 149151 297:18 15 91:4 101:19 117:6 118:20
<hr/> X <hr/> X 154:16,21				
<hr/> Y <hr/> ye-- 144:2 yeah 100:11 105:7 107:15 120:16 128:25 131:17 134:19 135:6,8,11 138:3 144:15 149:12 162:5 177:19 181:24 208:20 210:6 225:18 245:7 248:8 249:5,12 253:11 254:9 254:18,19 255:8 256:7 258:8 261:20 262:9,15 265:8 271:14 284:23 year 18:19 66:17 66:18,20 113:16 115:6 140:24 141:3,7 144:3,3,6,7,9 152:9,10 157:12 165:1,3 213:13,13	<hr/> Z <hr/> zero 178:7,8	<hr/> 0 <hr/> 002 119:9 06 52:24	<hr/> 1 <hr/> 1 14:1 73:19 92:9,23 93:1,3 95:14,14,18,22 96:2,7 125:3 126:5 132:20 133:2 148:17 154:6 161:6,13 183:13 202:13 205:12 220:17 228:15,19 245:13 265:6 271:12 297:3 298:13 1,000 83:1 1,200 81:10 82:5 1,300 49:11	

122:18,23	1998 85:3	2000 105:5	239 298:19	199:23,25
159:22 193:6	1st 20:20 236:16	201 14:2 298:22	24 49:21 117:23	201:24 203:8
236:2	251:22	2014 245:12,20	117:23 118:10	257:16,17,23
150 265:15,20	<hr/> 2 <hr/>	246:22	24,000 270:16	30,615 148:13
152,536 148:2	2 11:9 14:1 49:4	2016 57:15	25 12:22 125:10	300 14:2 43:18
148:11	49:10,15,16	132:21 133:4,6	176:14 190:6	287:24 288:11
152153 299:1	67:16,17,20	138:6 158:9	25-mile 261:2	288:15,20
16 148:15,19	82:23 117:6,12	255:13,21,22	25,000 104:6	299:3
150:2 159:22	117:23 119:14	256:11	109:1	301 12:8,15 14:2
179:4	119:17 125:4	2017 57:13	254 295:23	15:16,20
165 295:17	148:18,19,21	125:4,8,19	26 295:2	287:20,24
166.1 174:11	149:11,18	155:20 214:13	265 213:25	288:12,16,20
167 166:2	150:2 161:6	219:2,12	266 295:25	299:5
295:18	198:4 202:14	257:21 268:13	27 120:11,18	308,000 133:7
168 295:18	205:12,18	2018 11:7 79:25	28 256:13	30th 17:9
17 35:20 117:12	214:17 216:3	143:18 155:20	287 296:2	31 57:15 120:12
148:2,11,16	216:20 217:12	195:14 196:25	288 296:3	120:20,21
161:4 179:4	245:13 265:6	203:8 294:18	289 296:3	217:15 257:24
197:15	272:10 297:4	2019 214:13	29 133:5	314.231.4181
17.93 215:15	297:18	236:9,19	<hr/> 3 <hr/>	12:20
171 166:2	2.0 212:6	202 73:5,6	3 73:5 81:19	319 12:19 16:2
177 295:19	2.05 209:23	203:23 298:24	95:14 96:24	32,663 148:13
17th 131:2	2.33 226:6	2020 236:16	119:14 131:2	33 32:8 118:20
18 84:6 95:8	2.6 214:16,17	2028 270:13	156:25 166:2	118:21,24
148:12 205:1	2.7 95:16 226:11	203 152:12	179:10 187:13	185:21,24
237:9 248:21	2:00 225:22	297:15 298:25	201:6,7 229:19	190:19 192:6
249:8 277:1	2:15 203:19	203-C 152:18	3-C 14:1 119:17	331,017 148:14
298:17	20 78:3 82:24	153:17,21	297:6	34 118:20,22,25
183 295:19	117:23,23	203-Confident...	3-P 14:1 119:17	256:4
19 95:8 148:13	118:9,10	299:1	3,185 214:18	34th 133:6
148:22 149:2,3	191:21 192:3,4	203194 297:19	3,185.8 214:9	35 205:24 235:5
149:4 162:16	192:10 193:2	203212 297:16	3,600 81:10	3524 256:9
172:11 176:2	205:6 222:12	207 295:21	3.39 148:17	353,153 148:13
177:8 197:12	222:25 223:12	22.74 215:13	149:4 205:13	36 117:16
1901 12:6 14:19	224:1 272:11	220 295:22	205:19	120:12,23
116:13 204:14	272:23,25	220228 298:13	3.47 148:17	121:9,11
1913 199:19	273:7 286:5	2230 13:1	149:4 205:12	360 13:5
195 214:23	20-- 73:4	225226 298:15	205:18	37 205:1 235:8
195.27 213:13	20-24 118:10,10	23 95:13 120:11	3.49 149:4	38 205:6
213:17	20,000 270:17	120:18	3.52 132:23	39 205:11,18
1950's 104:10	271:7	230 229:19	3.7 205:10	3C 119:10
196203 297:21	200 13:4 14:2	295:23	3.8 79:5	3P 119:11
1993 85:5	298:21	234 229:19	30 192:4 199:20	3rd 79:25
1994 198:20		234234 298:17		

4	154:8,12 206:2 206:6,9 294:18 297:9 5,000 105:16 5.46 256:10 5:00 35:20 216:16 50 49:21 70:25 132:17 179:7,8 187:9,10,25 188:1 190:7,12 191:20 193:5 195:7 198:21 198:23 255:10 265:13,20 50.4 157:4,6 195:7 196:17 50/50 157:13 188:21 500 83:4 50s 113:25 51 132:17 52 295:4 54 77:21 157:20 158:5,9,20 161:9,14,25 162:8 201:16 55 125:9 56 244:9 246:22 295:4 564 113:13 250:25 251:13 57,000 49:10 573.443.3141 12:4 573.522.3304 12:16 573.634.2266 12:9 573.635.7166 12:13 573.751.3524 13:2 573.751.4140	13:6 573.825.1796 12:23 59 295:5 596,774 148:23 149:1	6	13:2 15:21 287:21 65102-0360 13:5 65102-0456 12:12 65201 12:3 65202 12:23 65205 14:22 66 157:3 190:13 197:21 66.6 190:13 68.7 148:18 680 15:21	8 90:5 118:21 121:24 122:2 122:11 147:25 148:7,10,15,16 154:19 203:25 206:1,3,5,7 213:6,23 223:22 244:23 297:14 8:00 35:25 226:1 226:1 227:3 8:30 293:21 294:15,18 80 35:7 70:9 125:5 191:21 800 12:19 13:4 16:2 81:14,18 82:18 833 148:12 84 124:10 87 214:25 87.37 214:20 890 133:6 892 148:12
			7		
			7 14:1 41:13 118:21,22 126:5 148:1,11 148:12,13 204:18 207:12 207:16,20 239:19,22 240:3 242:1 248:18,22 252:8 253:23 277:17 297:12 7,500 64:9,12 65:11 66:7,24 101:6,25 102:15 270:16 271:6 7.1 239:21 7:00 225:22 226:24 70 80:4 188:25 201:23 73 295:5 74.9 148:18 75 101:5 117:10 190:11,12 218:6 7th 17:18 128:14		
			8		
5				9	
5 12:22 14:1 84:7 95:5,23 117:9 147:10 150:20,23 151:2,5,9		6 14:1 53:7 80:6 118:15,23 122:24 123:1,4 124:7 140:21 141:5 142:6,11 142:15 147:25 148:7,10 204:18 207:11 207:15,20 213:6,23 249:22 257:23 277:17 297:11 6-- 15:20 6.6 82:25 217:13 277:11 6.8 122:14 6.82 215:14 6.9 226:11 60 77:5 188:25 197:20,21 60-day 278:9 600 81:19 601 12:8 15:15 60s 200:10 62 191:20 63,000 117:9 630,488 148:22 149:1 63101 12:6 63102 12:19 16:3 63103 14:20 116:14 204:15 650 14:3 299:10 651 14:3 299:12 65102 12:9,16		9 70:12 90:6,11 148:17,18 203:25 205:25 206:21 208:6 210:14,24 211:17,22,24 212:2 216:11 217:10 227:23 244:23 297:16 9-- 14:22 9.53 96:11 91 295:8 918 14:22 93 295:8 297:3 939 11:21 300:4 94 295:9 946 82:6 97 96:24 295:9	

99 96:24
9th 12:3