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MISSOURI PUBLIC SERVICE COMMISSION

FILE NO. EO-2015-0055

SURREBUTTAL TESTIMONY

OF

DR. JAY ZARNIKAU

ON

BEHALF OF

**UNION ELECTRIC COMPANY
d/b/a Ameren Missouri**

March 9, 2018

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DR. JAY ZARNIKAU

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I. INTRODUCTION

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Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Jay Zarnikau. My business address is 1515 S. Capital of Texas Highway, Suite 110, Austin, Texas, 78746.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am the Senior Vice President of Frontier Energy. My consulting firm provides assistance to energy consumers, electric and gas utilities, and government agencies on topics related to energy economics and pricing, rate design, resource planning, energy efficiency program design and evaluation, and regulatory policy. My firm also implements energy efficiency programs for utilities and government agencies.

I am also a Visiting (adjunct) Professor at The University of Texas. I teach graduate-level courses in applied statistics and energy economics in the departments of Statistics and Economics, as well as the LBJ School of Public Affairs.

Q. PLEASE STATE BRIEFLY YOUR EDUCATIONAL BACKGROUND AND PROFESSIONAL QUALIFICATIONS.

A. I have a Ph.D. degree in Economics from the University of Texas. I completed undergraduate studies in Business Administration and Economics at the State University of New York and McGill University in Canada.

1 From 1983 through 1991, I was employed by the Public Utility Commission of Texas,
2 where I served as the Manager of Economic Analysis from 1985 through 1988; as the
3 Assistant Director of the Electric Division from 1987 to 1988; and as the Director of
4 Electric Utility Regulation from 1988 to 1991. From 1991 through 1993, I held a faculty-
5 level research position at The University of Texas College of Engineering Center for
6 Energy Studies. I served as a Vice President at Planergy, Inc. from 1992 to 1999. From
7 1999 to 2016, I was the President and a Principal of Frontier Associates LLC. In 2017,
8 my firm was acquired by a subsidiary of the Gas Technology Institute and in January
9 2018 was merged with four other consulting and energy efficiency firms located in
10 California and New York to create Frontier Energy.

11 My resume, which is attached to this surrebuttal testimony as Schedule JZ-1, describes
12 my educational background, academic activities, and work experience in greater detail.

13 **Q. WHAT EXPERIENCE DO YOU HAVE, WHICH IS SPECIFIC TO PREPAY**
14 **ELECTRICITY PROGRAMS?**

15 A. I have assisted the Pre-Pay Energy Working Group in evaluating the savings from these
16 types of behavioral programs. The Pre-Pay Energy Working Group is an organization
17 dedicated to sharing information among utilities, vendors, regulatory commission staff,
18 and consumer groups about these programs.

19 **Q. ON WHOSE BEHALF ARE YOU APPEARING IN THIS PROCEEDING?**

20 A. I am appearing on behalf of Union Electric Company, doing business as Ameren
21 Missouri (“Ameren Missouri”).

1 **Q. HAVE YOU PREVIOUSLY APPEARED BEFORE THIS COMMISSION?**

2 A. No. I have not previously appeared before the Missouri Public Service Commission
3 (“Commission”). However, I have appeared before regulatory commissions in a number
4 of other states as an expert witness on rate design, energy efficiency, resource planning,
5 and regulatory policy issues.

6 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?**

7 A. My surrebuttal testimony responds to statements and conclusions appearing in the
8 rebuttal testimonies of Dr. Geoff Marke, appearing on behalf of the Office of the Public
9 Counsel (“OPC”); Commission Staff (“Staff”) witnesses Mr. Brad Fortson and
10 Ms. Tammy Huber; and Mr. Martin Hyman, appearing on behalf of the Missouri
11 Department of Economic Development (“DE”).

12 **II. SUMMARY OF CONCLUSIONS**

13 **Q. PLEASE SUMMARIZE YOUR CONCLUSIONS.**

14 A. I conclude that:

- 15 • Prior studies of prepay programs offered by other utilities have consistently found that
16 such programs result in energy savings through conservation and energy efficiency
17 effects.
- 18 • I have reviewed data which suggests that disconnects may increase once a consumer
19 moves onto a prepay program. However, and perhaps of greater interest, there is
20 evidence that the duration of disconnects is far shorter for customers served under prepay
21 programs than customers served under traditional tariffs.
- 22 • Some customers report using intentional and voluntary disconnection as a means of
23 reducing their energy costs after enrolling in a prepay program. This should not be

1 mistaken for a “deprivation” situation, in which – using a definition offered by Staff – the
2 customer is deprived of the basic necessity of electricity to a point of potentially being
3 detrimental to that customer.

4 • I can find no evidence that the Flex Pay energy efficiency pilot program (“Flex Pay Pilot”
5 or “Pilot”) proposed by Ameren Missouri will lead to an increase in “deprivation”
6 relative to this utility’s present Commission-approved service offerings to its residential
7 customers.

8 **Q. PLEASE PROVIDE YOUR RECOMMENDATIONS.**

9 A. I recommend the following:

- 10 • The Flex Pay Pilot proposed by Ameren Missouri and described in the Direct Testimony
11 of Ameren Missouri witness Bill Davis should be approved by the Commission.
- 12 • It is appropriate to allow Ameren Missouri to include this program within its energy
13 efficiency program portfolio because as designed it is an energy efficiency program
14 expected to reduce the net consumption of electricity on the customers' side of the meter.

15 **III. PREPAY PROGRAMS ADVANCE ENERGY EFFICIENCY**

16 **Q. CAN PREPAY ELECTRICITY PROGRAMS RESULT IN A REDUCTION IN**
17 **ENERGY USE BY PARTICIPANTS IN SUCH PROGRAMS?**

18 A. Yes. In the various studies that I have reviewed:

- 19 • For Oklahoma Electric Cooperative, Integral Analytics in 2013 found an 11% reduction
20 of energy usage.

- 1 • For the Salt River Project (“SRP”) M-program, a 12.8% reduction in overall energy use
2 was estimated in a study sponsored by the Electric Power Research Institute (EPRI).¹ An
3 updated analysis yielded an estimate of 12%.²
- 4 • 5.5% and 14% was the average reduction in energy use found for two electric
5 cooperatives in the Pacific Northwest–Peninsula Light Company or “PenLight” and
6 Glacier Electric Cooperative, respectively.³ I obtained similar results with a refined
7 statistical model.
- 8 • 11% reduction in energy use was estimated for consumers enrolled in prepay for two
9 rural electric cooperatives in Kentucky.⁴
- 10 • Arizona Public Service Company has reported energy reductions for prepay customers of
11 7.5% or 7.6%.⁵
- 12 • Duke Energy Carolinas has reported a “preliminary” estimate of savings for their pilot
13 program in South Carolina of 8.58%.⁶
- 14 • For six utilities in the Tennessee Valley Authority (TVA) system, estimates are in the 6%
15 to 7% range.⁷
- 16 **Q. PLEASE DEFINE ENERGY EFFICIENCY AND ENERGY CONSERVATION.**
- 17 A. Dr. Marke’s testimony defines the terms as:

¹ EPRI Technical Update 1020260, October 2010.

² Qiu and Xing, Arizona State and SRP, 2015.

³ Integral Analytics for Northwest Energy Efficiency Alliance (NEEA) and Distributed Energy Financial Group (DEFG), January 2014.

⁴ William Martin; Masters Thesis at University of Kentucky, 2014.

⁵ Arizona Public Service Company, Demand Side Management Residential Prepaid Energy Conservation Pilot Program, End of Pilot Report, February 13, 2015.

⁶ Duke Energy Carolinas, LLC, Duke Energy Carolinas Prepaid Advantage Pilot Learnings Report, Docket No. 2015-136-E, Public Service Commission of South Carolina, August 15, 2017.

⁷ DNV GL, 2015.

1 **Energy efficiency** is using technology that requires less energy to perform
2 the same function. Using a compact fluorescent light bulb that requires
3 less energy instead of using an incandescent bulb to produce the same
4 amount of light is an example of energy efficiency.

5 **Energy conservation** is any behavior that results in the use of less energy.
6 Turning the lights off when leaving the room and recycling aluminum
7 cans are both ways of conserving energy.

8 **Q. DO BOTH OF THESE TERMS FALL WITHIN THE CONCEPT OF DEMAND-**
9 **SIDE MANAGEMENT?**

10 A. Under the Missouri Energy Efficiency Investment Act ("MEEIA"), demand-side
11 management program means "any program conducted by the utility to modify the net
12 consumption of electricity on the retail customer's side of the meter." Both energy
13 efficiency and energy conservation as I define them above clearly fall within that
14 definition.

15 **Q. HOW DOES PREPAY SERVICE ADVANCE ENERGY EFFICIENCY AND**
16 **ENERGY CONSERVATION?**

17 A. Consumers in a prepay program experience an increased awareness of the cost of using
18 energy-consuming equipment and appliances. This effect may be similar to the influence
19 of other types of behavioral energy efficiency programs. This greater awareness, coupled
20 with tips on how to reduce energy costs, results in both energy efficiency and energy
21 conservation. That is, prepay motivates consumers to invest in technologies that require
22 less energy to operate as well as encouraging conservation behaviors. This is apparent in
23 survey responses from prepay customers served by two utilities in the Pacific Northwest,⁸
24 as summarized below:

⁸ The two utilities are Peninsula Light Company in Washington and Glacier Electric Cooperative in Montana.

Surrebuttal Testimony of
Dr. Jay Zarnikau

We asked about specific actions that consumers may have taken since switching to prepay.* These included behavioral actions, efficiency investments and voluntary disconnection to reduce usage

- Q-5. Now I am going to read a list of actions that some people take after they switch to prepay service. Please indicate whether you have taken this action since switching to prepay service with a simple “yes” or “no.”

Rank	Action Type	Action	“Yes”
1	Behavior	Made sure the lights are off in unused rooms	97%
2	Behavior	Intentionally made an effort to use less electricity	92%
3	Behavior	Adjusted the thermostat a few degrees to use less electricity <i>when the residence was empty</i>	84%
4	Behavior	Adjusted the thermostat a few degrees to use less electricity when you or others <i>are in the residence</i>	80%
5	Investment	Replaced light bulbs with energy-efficient light bulbs	74%
6	Investment	Applied weather stripping to windows and doors or added insulation to the attic or around the water heater	52%
7	Behavior	Changed the time of day or how often you use your appliances	48%
8	Investment	Made a major investment in the home heating system, in new insulated windows or in new energy-efficient appliances	43%
9	Behavior	Lowered the temperature setting on the water heater to use less electricity	40%
10	Investment	Upgraded or replaced the thermostat	37%
11	Other	Allowed my electricity to be shut off as a way to use less electricity	36%

* Source: DEFG. (2014). *Prepay Customer Survey*. Report prepared for the Northwest Energy Efficiency Alliance. Final release: forthcoming.

1 The responses with an Action Type of “Investment” I would characterize as energy
2 efficiency actions, including replacing light bulbs with more energy-efficient bulbs and
3 weatherization actions. Thus, in contrast to the conclusion on pp. 4-5 of Mr. Hyman’s
4 Rebuttal Testimony that prepay programs cannot advance energy efficiency, there is
5 indeed evidence that consumers on prepay programs pursue energy efficiency
6 investments. The responses labeled “Behavior” tend to be conservation actions.
7 Similarly, participants in a prepay pilot implemented by Consumers Energy in Michigan
8 reported taking a variety of energy conservation measures since joining the program,
9 including turning off lights when no one is in a room, using energy-saving thermostat
10 settings, larger clothes-washing loads, and using energy-saving computer power settings.⁹
11 In the following section of my testimony, I will further discuss the “Other” category –
12 allowing electricity service to be shut off as a way to use less electricity.

⁹ Consumers Energy, Pay My Way Pilot Program Annual Report: Addendum, December 31, 2017; filed in Case No. U-18060 – In the Matter of the application of Consumers Energy Company for a partial waiver of the Consumer Standards and Billing Practices for Electric Residential Service and approval of a Prepaid Pilot Program.

1 **Q. HAVE OTHER UTILITIES SOUGHT TO INCLUDE PREPAY AS A MEANS OF**
2 **MEETING ENERGY EFFICIENCY TARGETS?**

3 A. As noted by Mr. Fortson, Arizona Public Service Company (“APS”) was permitted by
4 the Arizona Corporation Commission to count a prepay program as part of its demand-
5 side portfolio even though the Arizona Staff opposed including the program as part of
6 APS' energy efficiency programs. However, the program was at least temporarily
7 suspended at the end of 2016 due to an incompatibility between the IT systems used to
8 operate the prepay program and a new billing system implemented by APS.¹⁰

9 Additionally, Consumers Energy in Michigan includes its prepay pilot program, Pay My
10 Way, within its portfolio of energy efficiency programs.¹¹

11 A number of other utilities in the U.S. rely upon prepay programs to foster energy
12 efficiency, but do not require regulatory approval to include prepay within their energy
13 efficiency offerings. Such utilities include the cooperatives mentioned in Dr. Marke’s
14 testimony and on p. 5 of Mr. Fortson’s Rebuttal, and the numerous competitive retail
15 electric providers in the Electric Reliability Council of Texas (“ERCOT”) market which
16 offer prepay programs.¹²

17 **IV. THERE IS NO EVIDENCE THAT PREPAY LEADS TO GREATER**
18 **‘DEPRIVATION’ THAN POST-PAY**

19 **Q. AS NOTED ON P. 4 OF THE REBUTTAL TESTIMONY OF DR. MARKE AND**
20 **P. 5 OF MR. FORTSON’S REBUTTAL, A PROGRAM THAT LEADS TO**

¹⁰ Association of Energy Services Professionals (“AESP”) in January 2017 by Sharon Connolly of APS, where Ms. Connolly explained the suspension of the program and indicated that the utility has a “desire to have APS Prepay return in the future.”

¹¹ Consumers Energy, 2016 Energy Efficiency Annual Report, Case No. U-18331, May 31, 2017.

¹² Based on a review on the www.powertochoose.com website operated by the Public Utility Commission of Texas on February 28, 2018, I identified 13 prepay electricity offerings sponsored by eight retail electric providers available in Houston.

1 **DEPRIVATION OF SERVICE CANNOT QUALIFY AS A DEMAND-SIDE**
2 **PROGRAM PER THE COMMISSION’S MEEIA RULES. WHAT IS**
3 **DEPRIVATION?**

4 A. I believe that the definition from Staff witness Fortson is acceptable. In his definition:
5 “Deprivation of service, as used here, refers to a situation where a customer would be
6 deprived of the basic necessity of electricity to a point of potentially being detrimental to
7 that customer.”

8 **Q. DR. MARKE ARGUES THAT A PREPAY BILLING PROGRAM WOULD BE**
9 **AN EXAMPLE OF AN ENERGY DEPRIVATION PROGRAM BECAUSE THE**
10 **ENERGY SAVINGS ARE PRODUCED THROUGH RATIONING AND THE**
11 **FEAR OF, OR AS A RESULT OF, ACTUAL DISCONNECTION OF SERVICE.**
12 **DO YOU AGREE WITH THIS POSITION?**

13 A. No. I have seen no evidence that would support that statement. As noted in the previous
14 section, most of the prepay program participants served by two utilities in the Pacific
15 Northwest who responded to a questionnaire reported that they took various behavioral or
16 investment-related actions to reduce their energy costs. I’m not aware of any studies or
17 survey data linking energy savings to “rationing and the fear of, or as a result of, actual
18 disconnection of service.” And, I am not aware of any studies concluding that prepay led
19 to a situation where a consumer was “deprived of the basic necessity of electricity to a
20 point of potentially being detrimental to that customer.”

1 **Q. IS DISCONNECTION OF SERVICE A LARGE SOURCE OF THE SAVINGS**
2 **THAT ARE REALIZED FROM A PREPAY PROGRAM?**

3 A. Arizona Public Service Company separately identified the reduction in energy use
4 attributable to disconnections. That utility found that the overall savings from the
5 program would drop from 7.6% of usage to 7.5% of usage if you remove the reduction in
6 energy consumption that was associated with disconnections.¹³ Thus, I would view this
7 as a very small part of the overall savings.

8 **Q. DR. MARKE CITES THE CASE OF MARVIN SCHUR, A 93-YEAR-OLD MAN**
9 **WHO FROZE AFTER HIS SERVICE WAS DISCONNECTED. WAS**
10 **MR. SCHUR SERVED THROUGH A PREPAY PROGRAM?**

11 A. No. Based on my review of his electric utility's tariffs, Bay City Power and Light
12 (Michigan) does not offer a prepay program.

13 **Q. ARE YOU AWARE OF ANYONE FREEZING TO DEATH WHILE BEING**
14 **SERVED THROUGH A PREPAY PROGRAM?**

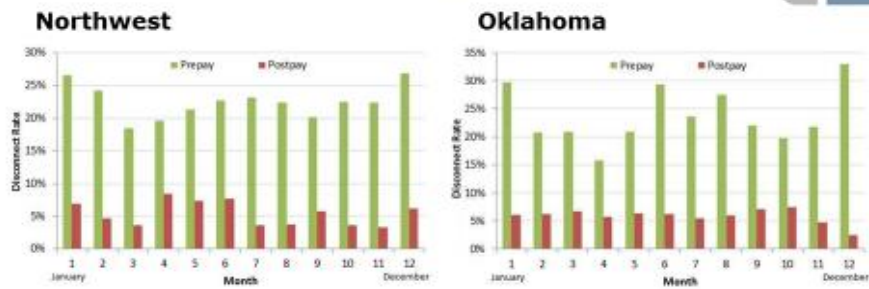
15 A. No. I have read no reports of this occurring, and in the Pre-Pay Energy Working Group
16 meetings and webinars that I have attended, I have heard of no such cases.

17 **Q. HAVE YOU REVIEWED DATA PERTAINING TO DISCONNECTION OF**
18 **SERVICE FOR CONSUMERS ON PREPAY PLANS?**

19 A. Yes. The following is a slide from a presentation I made to the Pre-Pay Energy Working
20 Group. This slide acknowledges that the number of disconnections typically rises with a
21 prepay program:

¹³ Arizona Public Service Company, Demand Side Management Residential Prepaid Energy Conservation Pilot Program, End of Pilot Report, February 13, 2015.

Disconnect Rates by Month



- Customers in both regions disconnect 3-14 times more often (depending upon the month) after switching to prepay.
- Customers in both regions seem to disconnect more often in the summer and winter after switching to prepay.

Northwest: The disconnect rate is the percentage of customers who disconnected one or more times during each month.

Oklahoma: The disconnect rate is the total number of reported disconnects divided by the total number of monthly reads.

1 Based on data provided to me by two utilities in the Pacific Northwest - Peninsula Light
2 Company in Washington (“PenLight”) and Glacier Electric Cooperative in Montana –
3 and by Oklahoma Electric Cooperative, I found that consumers on prepay programs
4 disconnected far more often after switching to prepay. However, the number of
5 disconnections alone does not tell the most relevant part of the story. The change in the
6 duration of disconnections is more instructive.

7 For Peninsula Light Company in Washington (“PenLight”), the average duration of a
8 disconnection for a customer on prepay was far less than the average time that a “post-
9 pay” customer was without service. I analyzed data for the time period from January
10 2011 to December 2013. The duration of a disconnect (when one occurred) averaged
11 1,038 minutes per month for customers served under the standard residential tariff and
12 209 minutes per month for prepay customers.

1 An analysis of Oklahoma Electric Cooperative's prepay program also supports the
2 contention that the duration of disconnections is short. An analysis of the disconnection
3 data for that utility by Distributed Energy Financial Group ("DEFG") found:¹⁴

- 4 • 91% of prepay customers that were disconnected in 2011 were reconnected the
5 same day. Of the remaining 9%, 5% were reconnected the next day.
- 6 • Of the 91% prepay customers reconnected the same day in 2011, 32% were
7 reconnected within one hour, and an additional 19% were reconnected within two
8 hours.

9 The relatively-short disconnections of an hour or two per month are unlikely to lead to a
10 deprivation situation where a consumer was "deprived of the basic necessity of electricity
11 to a point of potentially being detrimental to that customer."

12 **Q. ON PP. 3-4 OF HER REBUTTAL TESTIMONY, MS. HUBER EXPRESSES**
13 **CONCERN THAT DISCONNECTIONS WILL COINCIDE WITH PERIODS OF**
14 **THE HIGHEST SPACE HEATING AND AIR CONDITIONING NEEDS. IS THIS**
15 **CORRECT?**

16 A. The chart provided earlier suggests that disconnections might be more frequent in the
17 summer and winter months than in the spring and fall. Indeed, these tend to be months
18 associated with higher energy costs. However, the concern about disconnections during
19 extreme weather is unfounded. As is common with prepay energy programs, the
20 Company has proposed a moratorium on disconnections during extreme weather.

¹⁴ Cindy O'Dwyer, Remote Disconnection: A Fresh Look at Long-Standing Customer Protection Regulations, DEFG, February 2015.

1 **Q. DOES A DISCONNECTION NECESSARILY IMPLY THAT A CONSUMER IS**
2 **BEING DEPRIVED OF ELECTRICITY SERVICE? WILL DEPRIVATION OF**
3 **SERVICE MOST LIKELY BE AN UNAVOIDABLE CONSEQUENCE OF THIS**
4 **PILOT, AS ALLEGED BY MR. FORTSON ON P. 5 OF HIS REBUTTAL?**

5 A. My answer to both questions is no. Disconnection may simply be a part of a consumer's
6 rational strategy for reducing electricity costs. For example, the data presented above
7 shows a very small percentage of customers with what appear to be very long
8 disconnects. This is likely owing to a couple of factors. First, customers on prepay may
9 simply leave the system (e.g., a renter and the apartment is not re-rented for an extended
10 period of time), or others may purposely disconnect when the premises are not in use
11 (e.g., a seasonal cottage owner might want to disconnect for a few months while that
12 dwelling is unoccupied). If the consumer is making a conscious and voluntary choice to
13 disconnect in order to reduce energy costs – i.e., using a disconnect as a strategy to
14 reduce energy costs – it is unlikely that the consumer is being “deprived of the basic
15 necessity of electricity to a point of potentially being detrimental to that customer,” per
16 Mr. Fortson's definition of deprivation.

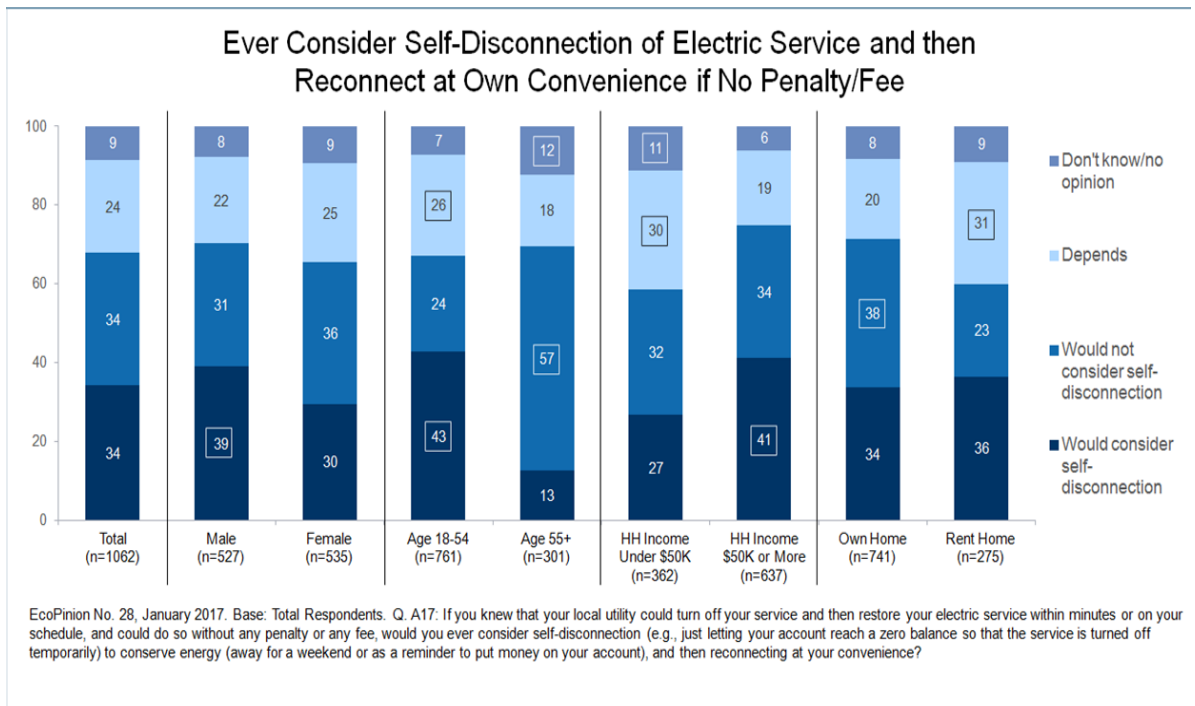
17 **Q. BUT, WOULDN'T EVEN A DISCONNECTION OF SHORT DURATION HAVE**
18 **THE POTENTIAL TO BE DETRIMENTAL?**

19 A. Yes. That is why prepay programs generally have features which make the restoration of
20 service fast and efficient. Alerts are provided to warn customers when the balance in
21 their account is getting low. There is often a moratorium on disconnections during
22 extreme weather. And, in the case of this proposed Pilot, low-income customers – those
23 who might be less financially-able to pay for a reconnection – will not be disconnected.

1 And, Ameren Missouri also proposes to limit the times in which a disconnection may
2 occur. Again, before one can conclude there is deprivation, again using Mr. Fortson's
3 definition, where there is detriment to the customer, one has to ask detrimental as
4 compared to what?

5 **Q. HAVE YOU REVIEWED DATA OR STUDIES THAT SUPPORT YOUR BELIEF**
6 **THAT SOME CONSUMERS MAY CONSIDER SELF-DISCONNECTION AS A**
7 **STRATEGY FOR REDUCING THEIR UTILITY BILL?**

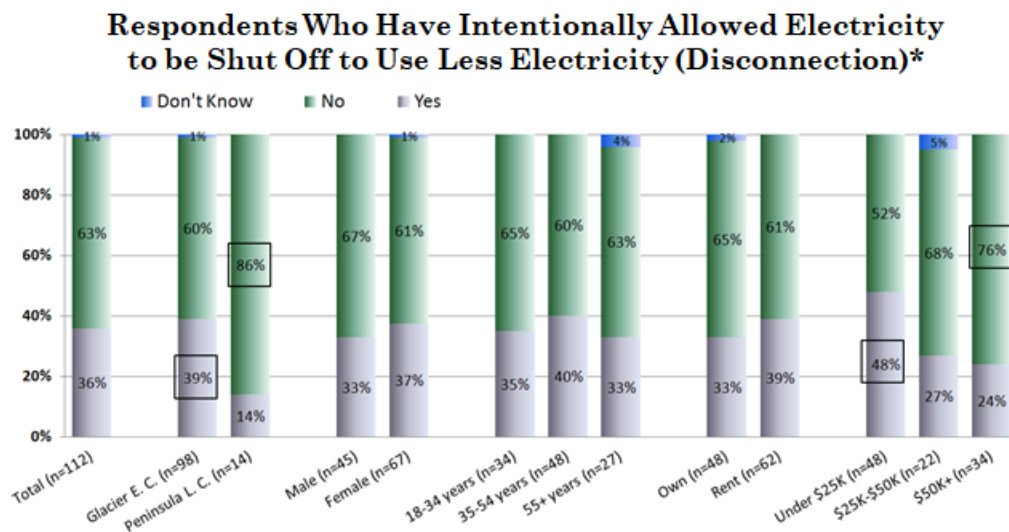
8 A. Yes. The attached graph is contained in EcoPinion Consumer Survey Report No. 28
9 “Prepay Energy: Past the Tipping Point and Scaling Up for Success” January 2017,
10 sponsored by the DEFG, a company which serves as staff to the Pre-Pay Energy Working
11 Group.



1 The findings from a national representative survey suggests to me that many consumers,
2 particularly younger and higher-income respondents, would consider intentionally and
3 voluntarily disconnecting electrical service as a viable cost savings strategy, particularly
4 if the disconnection and reconnection process involved little cost.

5 In a survey of actual prepay customers served by two utilities in the Northwest U.S., over
6 one-third report that they had intentionally allowed electricity to be shut off “as a way to
7 use less electricity.” The following graphic is from a presentation to which I contributed
8 in 2015:

CONSUMER SURVEY IN THE NORTHWEST: DISCONNECTION RESPONSE DETAIL



* Source: DEFG. (2014). *Prepay Customer Survey*. Report prepared for the Northwest Energy Efficiency Alliance. Final release: forthcoming.

Q-5. Now I am going to read a list of actions that some people take after they switch to prepay service. Please indicate whether you have taken this action since switching to prepay service with a simple “yes” or “no.” (The list of eleven items included: Allowed my electricity to be shut off as a way to use less electricity.)

1 **Q. IS THERE A POSSIBILITY THAT A PREPAY PROGRAM COULD LEAD TO A**
2 **CUSTOMER BEING DEPRIVED OF ELECTRICITY?**

3 A. If by "deprived" you mean go without electricity, there is always a possibility of such a
4 situation as there is for traditional payment service. But again, I do not believe that is
5 "deprivation of service" for the reasons given. The more relevant question is whether
6 deprivation is *more likely* under a prepay program than under today's common post-pay
7 system. The example of Mr. Schur's death in Dr. Marke's rebuttal testimony
8 demonstrates that deprivation may occur under post-pay, and with tragic consequences.
9 Yet, I've seen no evidence that deprivation is more likely to occur if a customer opts to
10 voluntarily switch to prepay service.

11 **Q. PLEASE COMMENT ON THE STATEMENT ON P. 6 OF MR. FORTSON'S**
12 **REBUTTAL WHERE HE OPINES "THE FLEX PAY PILOT PROGRAM MOST**
13 **LIKELY CANNOT BE CONSIDERED AN ENERGY EFFICIENCY PROGRAM**
14 **IN MEEIA."**

15 A. This conclusion appears to be based upon the erroneous assumption that all energy
16 savings from a prepay program come from deprivation, which he states shall be an
17 inevitable consequence of such a program. As noted above, I am not aware of any
18 evidence supporting this contention. In contrast, there is evidence of prepay customers
19 voluntarily disconnecting as part of a strategy to reduce their energy costs.

20 **V. THE VALUE OF A PREPAY PILOT PROGRAM**

21 **Q. WHAT IS THE PURPOSE OF AN ENERGY EFFICIENCY PILOT PROGRAM?**

22 A. I view a pilot program as an opportunity to test a new technology or means of delivering
23 energy efficiency or conservation services. A pilot might be used to determine whether

1 implementation of a full-scale, more-permanent program may be valuable, and to identify
2 any changes that should be made to the program's features before it is scaled-up.

3 **Q. IN YOUR OPINION, WOULD THE FLEX PAY PILOT SERVE AS A GOOD**
4 **PILOT PROGRAM?**

5 A. Yes. There are still a number of questions surrounding prepay programs. Operating the
6 Flex Pay program would assist the Commission in better understanding the value of this
7 type of behavioral program as an energy efficiency program.

8 **Q. DOES THIS CONCLUDE YOUR SURREBUTTAL TESTIMONY?**

9 A. Yes, it does.

**BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI**

In the Matter of Union Electric Company d/b/a)
Ameren Missouri's 2nd Filing to Implement) File No. EO-2015-0055
Regulatory Changes in Furtherance of Energy)
Efficiency as Allowed by MEEIA.)

AFFIDAVIT OF DR. JAY ZARNIKAU

STATE OF TEXAS)
) ss
COUNTY OF TRAVIS)

Dr. Jay Zarnikau, being first duly sworn on his oath, states:

1. My name is Dr. Jay Zarnikau. I work in the City of Austin, Texas, and I am employed by Frontier Energy as the Senior Vice President.
2. Attached hereto and made a part hereof for all purposes is my Surrebuttal Testimony on behalf of Union Electric Company d/b/a Ameren Missouri consisting of 17 pages and Schedule(s) JZ-1, all of which have been prepared in written form for introduction into evidence in the above-referenced docket.
3. I hereby swear and affirm that my answers contained in the attached testimony to the questions therein propounded are true and correct.



Dr. Jay Zarnikau

Subscribed and sworn to before me this 8th day of March, 2018.



Notary Public

My commission expires

8/5/2019

