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9 *Resource Advocates*

BEFORE THE ARIZONA CORPORATION COMMISSION

10 DOUG LITTLE, Chairman  
11 BOB STUMP  
12 BOB BURNS  
13 TOM FORESE  
14 ANDY TOBIN

15 IN THE MATTER OF THE APPLICATION  
16 OF TUCSON ELECTRIC POWER  
17 COMPANY FOR THE ESTABLISHMENT  
18 OF JUST AND REASONABLE RATES  
19 AND CHARGES DESIGNED TO REALIZE  
20 A REASONABLE RATE OF RETURN ON  
21 THE FAIR VALUE OF THE PROPERTIES  
22 OF TUCSON ELECTRIC POWER  
23 COMPANY DEVOTED TO ITS  
24 OPERATIONS THROUGHOUT THE  
25 STATE OF ARIZONA AND FOR RELATED  
APPROVALS.

Docket No. E-01933A-15-0239

Docket No. E-01933A-15-0322

**NOTICE OF FILING DIRECT  
TESTIMONY OF BRENDON  
BAATZ FOR SOUTHWEST  
ENERGY EFFICIENCY  
PROJECT AND WESTERN  
RESOURCE ADVOCATES**

Southwest Energy Efficiency Project ("SWEEP") and Western Resource Advocates

("WRA"), through their undersigned counsel, hereby provide notice that they have this day filed  
the attached direct testimony of Brendon Baatz.

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Arizona Corporation Commission

DOCKETED

JUN 24 2016

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1 DATED this 24<sup>th</sup> day of June, 2016.

2 ARIZONA CENTER FOR LAW IN  
3 THE PUBLIC INTEREST

4 By 

5 Timothy M. Hogan  
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8 *Attorneys for Southwest Energy Efficiency*  
9 *Project and Western Resource Advocates*

10 ORIGINAL and 13 COPIES of  
11 the foregoing filed this 24<sup>th</sup> day  
12 of June, 2016, with:

13 Docketing Supervisor  
14 Docket Control  
15 Arizona Corporation Commission  
16 1200 W. Washington  
17 Phoenix, AZ 85007

18 COPIES of the foregoing  
19 electronically mailed this  
20 24<sup>th</sup> day of June, 2016 to:

21 All Parties of Record

22   
23  
24  
25

**BEFORE THE ARIZONA CORPORATION COMMISSION**

COMMISSIONERS

DOUG LITTLE, CHAIRMAN  
BOB STUMP  
BOB BURNS  
TOM FORESE  
ANDY TOBIN

IN THE MATTER OF THE APPLICATION OF  
TUCSON ELECTRIC POWER COMPANY FOR  
THE ESTABLISHMENT OF JUST AND  
REASONABLE RATES AND CHARGES  
DESIGNED TO REALIZE A REASONABLE  
RATE OF RETURN ON THE FAIR VALUE OF  
THE PROPERTIES OF TUCSON ELECTRIC  
POWER COMPANY DEVOTED TO ITS  
OPERATIONS THROUGHOUT THE STATE OF  
ARIZONA, AND FOR RELATED APPROVALS.

Docket No. E-01933A-15-0239

Docket No. E-01933A-15-0322

Direct Testimony of

**Brendon Baatz**

on behalf of

**Southwest Energy Efficiency Project (SWEEP) and Western Resource Advocates (WRA)**

June 24, 2016

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<b>Exhibit</b>	<b>Description</b>
SWEEP/WRA 1	<i>Proposed basic service charge for residential and general service customer classes</i>

1 **I. INTRODUCTION**

2 **Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS AND CURRENT**  
3 **POSITION.**

4 A. My name is Brendon Baatz. My business address is 529 14<sup>th</sup> Street NW, Suite 600,  
5 Washington, D.C. 20045. My current position is Manager, Utilities Policy with the  
6 American Council for an Energy Efficient Economy (“ACEEE”). In my current position,  
7 I conduct research on electric and gas utility issues as they relate to energy efficiency. I  
8 also assist various parties in technical assistance in these matters as needed.

9 **Q. PLEASE SUMMARIZE YOUR PROFESSIONAL AND EDUCATIONAL**  
10 **BACKGROUND.**

11 A. I have been employed with ACEEE since the fall of 2014. Prior to my employment with  
12 ACEEE, I was employed with the Federal Energy Regulatory Commission (“FERC”).  
13 During my employment with FERC my primary responsibilities were to review and  
14 analyze electric utility cost of service studies in wholesale transmission and electric rate  
15 cases. I also worked on other litigated issues while at FERC including but not limited to  
16 transmission capacity reservation rights, municipal power contracts, and formula rate  
17 structure and protocols. Prior to my employment with FERC, I held positions with the  
18 Maryland Public Service Commission (“MDPSC”) as an energy analyst and the Indiana  
19 Office of Utility Consumer Counselor (“OUCC”) as a utility analyst. While working at  
20 the OUCC, I testified on a variety of utility issues including but not limited to rate design,  
21 renewable energy credit compensation, and utility petitions for construction.  
22 I hold a master of public affairs degree from Indiana University Bloomington and a  
23 bachelor of science in political science from Arizona State University. I have continued  
24 my education through attendance of various seminars and conferences. I have also

1 completed formal training in rate design, cost of service, depreciation, and other utility  
2 regulatory matters.

3 **Q. HAVE YOU EVER TESTIFIED BEFORE THIS COMMISSION?**

4 A. No, I have not. I previously testified before the Indiana Utility Regulatory Commission,  
5 the Pennsylvania Public Utilities Commission and submitted formal comments to the  
6 Maryland Public Service Commission on behalf of Commission staff.

7 **Q. ON WHOSE BEHALF ARE YOU TESTIFYING IN THIS PROCEEDING?**

8 A. I am testifying on behalf of the Southwest Energy Efficiency Partnership ("SWEEP") and  
9 Western Resources Advocates ("WRA").

10 **Q. PLEASE DESCRIBE THE ORGANIZATIONS ON WHOSE BEHALF YOU ARE**  
11 **TESTIFYING.**

12 A. SWEEP is a public interest organization dedicated to advancing energy efficiency as a  
13 means of promoting customer benefits, economic prosperity, and environmental  
14 protection in the six states of Arizona, Colorado, Nevada, New Mexico, Utah, and  
15 Wyoming. WRA is a nonprofit conservation organization working to protect and restore  
16 the natural environment of the Interior American West. WRA's Clean Energy Program  
17 works to develop and implement policies to reduce the environmental impacts of the  
18 electric power industry by promoting the expanded use of renewable energy, energy  
19 efficiency, and other clean energy resources in an economically sound manner.

20 **Q. HAVE YOU REVIEWED THE RELEVANT DOCUMENTS FILED BY TUCSON**  
21 **ELECTRIC POWER IN THIS CASE?**

22 A. Yes, I have reviewed Tucson Electric Power Company's ("TEP" or "Company") filing in  
23 this case. I have also reviewed relevant discovery responses.

24 **Q. WHAT IS THE PURPOSE OF YOUR RATE DESIGN TESTIMONY?**

1 A. The purpose of my testimony is to address rate design proposals by TEP in this  
2 proceeding. Specifically, I will be addressing the following:

- 3 1. Changes to TEP's current residential and general service rates including the TEP-  
4 proposed increased basic service charge ("BSC") and the elimination of the  
5 highest tiers of the inclining block;
- 6 2. Three TEP-proposed new rates for residential customers including residential  
7 demand, residential demand time-of-use ("TOU"), and the residential prepay rate  
8 offering.

9 **II. RECOMMENDATIONS**

10 **Q. PLEASE DESCRIBE YOUR RECOMMENDATIONS FOR THE COMMISSION**  
11 **IN THIS CASE.**

12 A. I have several key recommendations for the Commission that I will elaborate on in  
13 greater detail throughout my testimony. I recommend the following:

- 14 1. The Commission should deny TEP's request to increase the basic service charge for  
15 residential and general service customers. TEP's proposal is inappropriate for several  
16 reasons. First, it is based on the mistaken belief that all "fixed" costs should be  
17 assigned and recovered on an individual customer basis. In fact, only the costs  
18 directly related to serving the customer should be included as customer costs. My  
19 calculation of the direct, customer related costs for the residential and general service  
20 classes is less than half of the BSC proposed by TEP in this proceeding and below  
21 TEP's existing BSC. Second, regardless of what the Commission decides is properly  
22 a "customer related" cost, increasing the BSC should be rejected because such  
23 increases will disproportionately harm low income customers; are punitive to

1 apartment dwellers who have much lower than average costs; and reduce the  
2 customer's incentive to engage in energy efficiency and conservation. Finally,  
3 increasing the BSC, as a rate design policy, does not align with other state policies  
4 enacted to promote energy efficiency and conservation.

5 2. The Commission should reject the Company's proposed elimination of the two  
6 highest tiers in the residential customer rates. These tiers provide important price  
7 signals to customers that help to discourage wasteful use of electricity. Furthermore,  
8 my analysis shows that if these tiers are eliminated and the associated revenues are  
9 recovered in the BSC, customers will ultimately use more electricity over time due to  
10 the change in price signal from the elimination of the two highest tiers, leading to an  
11 inefficient use of resources and ultimately costing all ratepayers more in the long run.

12 3. The Commission should reject the voluntary demand charge rate as proposed in this  
13 case. The proposal from TEP in this proceeding has several flaws. I detail each of  
14 these flaws later in this testimony and offer some recommendations on how they may  
15 be corrected, if the Commission was interested in moving forward with a voluntary  
16 demand charge. TEP should also ensure that customers have the opportunity to access  
17 tools and information that will enable customers who choose the voluntary demand  
18 charge rate to respond to this change in rate structure.

19 4. The Commission should reject the prepay rate offering as proposed by TEP in this  
20 case. Prepay electric rates offer savings to electric utilities through reductions in  
21 uncollectible expense, arrearage carrying costs, customer service costs, and

1           disconnection/reconnection costs. These savings should be reflected in a discounted  
2           rate for these customers.

- 3           5. If the residential prepay rate is approved, the Commission should require TEP to offer  
4           lifeline eligible customers discounted prepay service to the same level of other lifeline  
5           rates. Prepay electric rates are predominately used by low income customers. If  
6           eligible for lifeline rates, these customers should be able to receive the lifeline  
7           discount while on the prepay rate.

8   **III. TEP'S PROPOSED CHANGES TO THE BASIC SERVICE CHARGE ARE NOT**  
9   **COST BASED OR IN THE PUBLIC INTEREST**

10 **Q. PLEASE DESCRIBE THE COMPANY'S PROPOSAL TO INCREASE THE BSC.**

- 11 A. TEP is proposing to increase its rates by \$109.5 million. The Company has proposed to  
12 raise the BSC for most customer classes to recover more than half of this proposed  
13 revenue increase. Table 1 details the proposed adjustments to the BSC for residential and  
14 small general service customers and the corresponding increase in terms of percentage.  
15 As the table shows, TEP is proposing large increases to the BSC for every rate offering in  
16 the residential and small commercial customer classes – with some increases as large as  
17 100%, or a proposed doubling of the current BSC.

1 Table 1. TEP Proposed Increases to BSCs for Selected Residential and General Service Rate  
2 Classes

Rate ID	Description	Current BSC	Proposed BSC	% Change in BSC
TE-R-01	Residential Service Single Phase	\$10.00	\$20.00	100%
TE-R-01	Residential Service Three Phase	\$15.00	\$25.00	67%
TE-201A	Special Residential Electric Service	\$10.00	\$20.00	100%
TE-201B	Special Residential Electric Service TOU	\$11.50	\$20.00	74%
TE-R80	Residential Time of Use	\$11.50	\$20.00	74%
TE-GS10	Small General Service Single Phase	\$15.50	\$30.00	94%
TE-GS10	Small General Service Three Phase	\$20.50	\$35.00	71%
TE-GS76	Small General Service Time of Use	\$17.50	\$30.00	71%
TE6-01	Res Standard Service (Lifeline Frozen)	\$6.90	\$12.00	74%
TE-R-01LL	Residential Lifeline Service	\$10.00	\$20.00	100%

3 **Q. DOES THIS TABLE SHOW ALL PROPOSED INCREASES TO THE BSC?**

4 A. No. In total, TEP has approximately 33 residential rates including 22 lifeline rates, 2  
5 proposed demand options, and a new prepay rate offering. There are approximately  
6 15,089 customers on the 22 lifeline rates. This table shows only two of these rates (TE6-  
7 01 and TE-R-01LL), which comprise the majority of the lifeline customers.  
8 TEP also has approximately 17 general service rates, including three newly proposed  
9 medium general service rate options. Table 1 includes only three small general service  
10 rates for illustrative purposes. These three rates comprise 92% of the general service  
11 customers.

12 **Q. WHAT PERCENTAGE OF THE COMPANY'S PROPOSED REVENUE**  
13 **INCREASE WILL BE COLLECTED THROUGH THE INCREASED BSC?**

14 A. Approximately 51% of the Company's proposed increase to revenues will be collected  
15 through the BSC. Table 2 shows this information by class. For the residential and general

1 service customers classes, the percentage of new revenues to be collected through fixed  
2 charges is substantial at 70% and 86% respectively.

3 Table 2. Proposed Revenue Changes to be Collected in BSC Increases

Customer Class	Proposed Total Revenue Dollar Increase	Revenue to be Collected from Changes in BSC	% of New Revenues to be Recovered in BSC
Residential	\$65,402,412	\$45,650,140	70%
General Service	\$8,019,784	\$6,914,540	86%
Large General Service	\$38,006,508	\$3,149,218	8%
Large Power Service	\$(3,140,495)	\$48,000	-2%
All Classes	\$109,534,118	\$55,761,899	51%

4 **Q. HOW DOES TEP JUSTIFY THE PROPOSED LARGE INCREASES TO THE**  
5 **BSC?**

6 A. TEP is relying on the results of its class cost of service study ("CCOSS"), including the  
7 use of a new method for determining the BSC, and its marginal cost study to support the  
8 large increases in the BSC. TEP witness Craig Jones uses the CCOSS to support a  
9 minimum system method based customer charge of \$15.67 for residential customers and  
10 \$45.55 for small commercial customers. Witness Jones also provides a long run marginal  
11 cost estimate of \$29.49 for residential and \$219.60 for small general service. Based on  
12 the results of these two methods, witness Jones proposes the BSC proposals presented in  
13 Table 2 above. Both analyses include several categories of costs that are not customer  
14 related but are actually related to a "minimum" distribution system. This method is  
15 commonly referred to as the minimum system method.

1 **Q. PLEASE DESCRIBE THE MINIMUM SYSTEM METHOD.**

2 A. The minimum system method is a controversial method used by some analysts to  
3 calculate a customer charge based on a completely hypothetical distribution system sized  
4 to serve no customers. The hypothetical system is based on one with little or no load  
5 carrying capabilities. Determining costs for such a system is a subjective exercise which  
6 requires many assumptions by the analyst preparing the study. This method assigns all of  
7 the costs associated with the theoretical minimum system to the customer classification.

8 **Q. DO YOU SUPPORT USING THE MINIMUM SYSTEM METHOD TO**  
9 **CLASSIFY COSTS?**

10 A. No, I do not. The minimum system method is based on a hypothetical system. There are  
11 no distribution systems in place that serve no customers. Professor James Bonbright was  
12 also critical of this method. He stated the following when describing the use of such a  
13 method:

14 *The annual costs of this phantom, minimum sized distributed system are treated*  
15 *as customer costs and are deducted from the annual costs of the existing system,*  
16 *only to balance being included among those demand-related costs.... Their*  
17 *inclusion among the customer costs is defended on the ground that, since they*  
18 *vary directly with the area of the distribution system (or else with the lengths of*  
19 *the distribution lines, depending on the type of distribution system), they therefore*  
20 *vary indirectly with the number of customers.*

21 *What this last-named cost imputation overlooks of course is the very weak*  
22 *correlation between the area (or the mileage) of a distribution system and the*  
23 *number of customers served by this system. For it makes no allowance for the*

1           *density factor (customers per linear mile or per square mile). Indeed, if the*  
2           *company's entire service area stays fixed, an increase in the number of customers*  
3           *does not necessarily betoken any increase whatever in the costs of a minimum-*  
4           *sized distribution system.<sup>1</sup>*

5   **Q. IS THERE A COMMON METHOD USED BY OTHER STATE REGULATORY**  
6   **COMMISSIONS TO DETERMINE THE CUSTOMER CHARGE?**

7   A. Yes, according to a study commissioned by NARUC, the basic service method (also  
8   known as the basic customer method) is a common method used in over 30 states.<sup>2</sup> This  
9   method aligns with the original recommendations of Professor Bonbright on which costs  
10   should be classified as customer related. These costs generally include those associated  
11   with meters, billing, and customer service. This is a long standing definition and method  
12   for determining the basic service charge.

13   **Q. IS THE PROPOSED COMPANY CLASSIFICATION OF COSTS CONSISTENT**  
14   **WITH PRIOR TEP RATE CASES?**

15   A. No, not at all. Over the past few rate cases, TEP has departed significantly from previous  
16   methods to classify costs. Table 3 shows the classification of costs for the residential  
17   customer class for the past three rate cases. The table shows both total dollars and  
18   percentage of total costs for each cost category (demand, energy, and customer). As the  
19   table illustrates, TEP has moved significant costs from energy to both demand and  
20   customer. In all three rate cases, the Company presented arguments as to why the  
21   approach was "cost based." In the 2007 rate case, the Company classified only 3% of

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<sup>1</sup> Bonbright, James C. 1961. *Principles of Public Utility Rates*. Columbia University Press. p. 347-349.

<sup>2</sup> Weston, Fredrick. 2000. "Charging for Distribution Utility Services: Issues in Rate Design." Regulatory Assistance Project. <http://pubs.naruc.org/pub/536F0210-2354-D714-51CF-037E9E00A724>.

1 total costs as "customer." For this current case (2015), 13% of the costs are classified as  
2 "customer."

3 Table 3. Cost Classification from Previous Three Rate cases for the Residential Class.

Year	Demand	Energy	Customer	Total
2015	\$360,428,823	\$129,577,915	\$72,451,500	\$562,458,238
2012	\$220,136,036	\$121,102,785	\$22,333,703	\$363,572,524
2007	\$1,735,722	\$307,122,896	\$8,141,045	\$316,999,663
2015	64%	23%	13%	100%
2012	61%	33%	6%	100%
2007	1%	97%	3%	100%

4 Costs are from Schedule G in cost of service studies presented in Docket Nos. E01933A-  
5 15-0322, E-01933A-12-0291, and E-01933A-07-0402.

6 **Q. DOES THE COMPANY'S COST OF SERVICE STUDY JUSTIFY THE**  
7 **PROPOSED INCREASE IN BSC?**

8 A. No, the Company's proposed BSCs for residential and general service customers are  
9 higher than what the cost of service study produces. In the cost of service study, the  
10 Company determined customer costs of \$15.67 per residential and 45.55 per general  
11 service customer.<sup>3</sup> This also includes \$8.38 per residential and \$34.41 per general service  
12 customer for customer delivery costs that should be rejected as customer costs by this  
13 Commission because they are not customer related costs (these are the minimum system  
14 costs and are not customer related). These costs should be reclassified as demand or  
15 energy related. According to TEP, the customer related costs that should be collected in a  
16 BSC amount to \$7.29 per residential customer and \$11.14 for general service customers.<sup>4</sup>

<sup>3</sup> See TEP Class Cost of Service Study, Schedule G-6-1.

<sup>4</sup> See Exhibit 1 for the SWEEP/WRA proposed BSC for residential and general service customers.

1 **Q. HAS TEP PREVIOUSLY CLASSIFIED THE “CUSTOMER DELIVERY” COSTS**  
2 **AS CUSTOMER RELATED IN PREVIOUS RATE CASES?**

3 A. No. The majority of the costs included as “customer delivery” are contained in FERC  
4 accounts 364-368. These costs include: poles, towers, and fixtures (364); overhead  
5 conductors and devices (365); underground conduit (366); underground conductors and  
6 devices (367); and line transformers (368). In the previous two rate cases, none of the  
7 costs associated with these accounts were classified as customer related. TEP is  
8 proposing a radical shift away from previously approved cost of service methods in an  
9 attempt to justify higher basic service charges. These changes are not cost based and  
10 should be rejected.

11 **Q. DO YOU SUPPORT THE USE OF A LONG RUN MARGINAL COST STUDY TO**  
12 **DETERMINE BASIC CUSTOMER CHARGES?**

13 A. No, I do not. There are several significant flaws with this approach. First, in economic  
14 terms, pricing based on long run marginal cost recognizes that almost all costs are  
15 variable in the long run. Using a long run marginal cost study to justify a higher fixed  
16 charge and lower volumetric rate violates this economic principle. If we were to use the  
17 principles associated with long run marginal cost pricing to design rates, the basic service  
18 charge should be near zero.  
19 Second, I do not support the use of estimated future costs of distribution system  
20 equipment to design rates. Today’s rates should be designed to collect today’s used and  
21 useful infrastructure investments while balancing several important policy objectives.  
22 Witness Jones admits that in the short run, “these costs would be zero because adding one

1 customer does not change most of these costs.”<sup>5</sup> Theoretically it makes little sense to  
2 design rates based on future, unknown costs related to serving a future, unknown quantity  
3 of customers. Finally, the costs of upgrades to the distribution system are not fixed and  
4 pricing can be used to keep future costs down.

5 **Q. DOES THE COMPANY’S PROPOSED CHANGE IN THE BASIC SERVICE**  
6 **CHARGE BETTER ALLIGN RATE DESIGN WITH COST CAUSATION?**

7 A. No, it does not. The proposed changes to the basic customer charge will over collect costs  
8 from some customers and under collect them from others. Every customer in the utility  
9 system imposes different costs to the system. For example, apartment dwellers cost less  
10 to serve than single family homes. Customers with overhead lines are cheaper to serve  
11 than those with underground lines. Customers in rural areas cost more to serve than urban  
12 customers. Customers in TEP’s service territory are no exception to these realities and  
13 none of these points are addressed in the Company’s current proposal.

14 **Q. DOES TEP’S PROPOSED MOVEMENT TOWARDS COLLECTING MORE**  
15 **REVENUE IN A FIXED CHARGE INSTEAD OF VOLUMETRIC RATES SEND**  
16 **CUSTOMERS APPROPRIATE PRICE SIGNALS REGARDING COST**  
17 **CAUSATION?**

18 A. No, the proposed rate design and testimony from TEP indicates the Company is moving  
19 towards rate design intended to collect all “fixed” costs in a fixed charge. This type of  
20 rate design is also known as straight fixed variable (“SFV”). SFV rate design does not  
21 send appropriate price signals to customers regarding cost causation because every  
22 customer is charged the amount for the fixed costs of the system, regardless of how much  
23 energy the customer uses or how much cost the customer is imposing on the system.  
24 There are also many adverse impacts to this type of rate design including: reduced

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<sup>5</sup> See Jones direct at 30, lines 16-18.

1 customer incentive to invest in energy efficiency and renewable energy and, as discussed  
2 in the sections that follow, a disproportionate impact on low-income households and  
3 apartment dwellers.<sup>6</sup>

4 **Q. DID TEP ALLUDE TO MOVEMENT TOWARD STRAIGHT FIXED VARIABLE**  
5 **RATE DESIGN IN TESTIMONY?**

6 A. Yes. Company witness Jones stated the following in his direct testimony:

7 *“While it is imperative to start addressing the issue of moving BSCs towards*  
8 *reflecting actual fixed costs incurred, the Company realizes the difference cannot*  
9 *be fully addressed in a single rate case. Therefore, TEP is proposing an increase*  
10 *in the monthly BSC that makes a step in the right direction, but does not*  
11 *necessarily fully address this issue.”<sup>7</sup>*

12 **Q. DO YOU AGREE WITH WITNESS JONES’ STATEMENT?**

13 A. No, I do not. Mr. Jones’ statement rests on the fallacy that “all fixed costs should be  
14 recovered in fixed charges.” Just because a cost is “fixed” does not make it a customer  
15 related cost. Nor does it require the recovery of the costs in a fixed charge. There is a big  
16 leap between “fixed costs” and “fixed charges” that has little precedent in the commercial  
17 world. Oil refineries, hotels, and supermarkets all have significant fixed costs, but they  
18 recover these in volumetric prices by selling gasoline, hotel rooms, and groceries.  
19 All fixed costs of a distribution system should not be recovered in a fixed customer  
20 charge. This is not the intent of a customer charge. The intent of a customer charge is to  
21 recover direct costs that vary based on the number of customers, not the fixed costs of the

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<sup>6</sup> See Revenue Regulation and Decoupling: A Guide to Theory and Application. June 2011. Regulatory Assistance Project. <http://www.raponline.org/document/download/id/902>

<sup>7</sup> See Jones direct at 43, lines 17-21.

1 system. Mr. Jones also fails to recognize the third potential classification of these costs,  
2 demand. Distribution systems are built to deliver energy; that is something that  
3 customers desire 24 hours a day, 365 days a year. Once the decision is made to build a  
4 system for this energy delivery function, distribution system related components are sized  
5 as a function of demand. Traditionally, in residential rate setting, costs that are a function  
6 of customer demand are collected in the usage charge. The only costs that vary with the  
7 number of customers are customer-specific costs like meters and billing. To collect the  
8 other distribution costs in a BSC is not only contrary to Commission precedent, but also  
9 violates traditional ratemaking principals by including costs in a customer charge which  
10 do not vary directly with the number of customers.

11 **Q. HOW DO TEP'S RESIDENTIAL RATE BASIC SERVICE CHARGES**  
12 **COMPARE TO OTHER INVESTOR OWNED UTILITIES IN ARIZONA?**

13 A. If the Commission were to approve the \$20 BSC proposed by TEP, TEP customers  
14 would have the highest residential BSC for an investor owned utility in the state of  
15 Arizona. APS' BSC is currently at about \$8.55 per month while UNS Electric's is \$10 a  
16 month.<sup>8</sup>

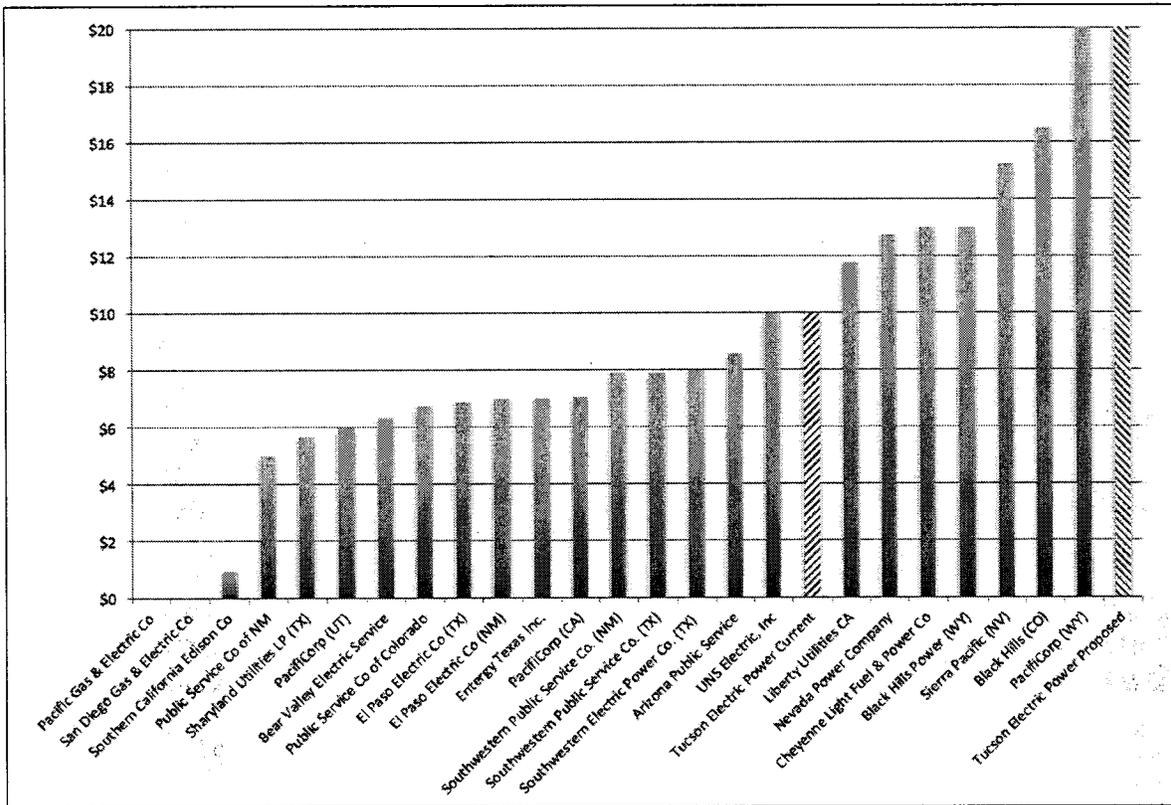
17 **Q. HOW DOES THE CHANGE IN RESIDENTIAL BSCS COMPARE WITH**  
18 **OTHER UTILITIES IN THE REGION OUTSIDE OF ARIZONA?**

19 A. If approved, the \$20 per month BSC will be the highest in the Southwest among investor  
20 owned utilities. Figure 1 shows the variation of residential BSCs for 26 investor owned  
21 utilities in the Southwest. The TEP proposed BSC is in red, with the current TEP BSC in  
22 green.

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<sup>8</sup> Both APS and UNS are proposing higher basic service charges in ongoing rate cases.

Figure 1. Utility Residential BSCs for IOUs in the Southwest



States include Arizona, New Mexico, Colorado, California, Nevada, and Texas. Data collected May 15, 2016.

1 Q. ARE THERE OTHER NEGATIVE EFFECTS OF COLLECTING A LARGE AMOUNT OF FIXED COSTS IN A FIXED CUSTOMER CHARGE?

3 A. Yes, such a policy has a disproportionate effect on low-income and low-use customers.

4 Q. PLEASE DESCRIBE THE IMPACT OF HIGHER BSCS ON LOW INCOME CUSTOMERS?

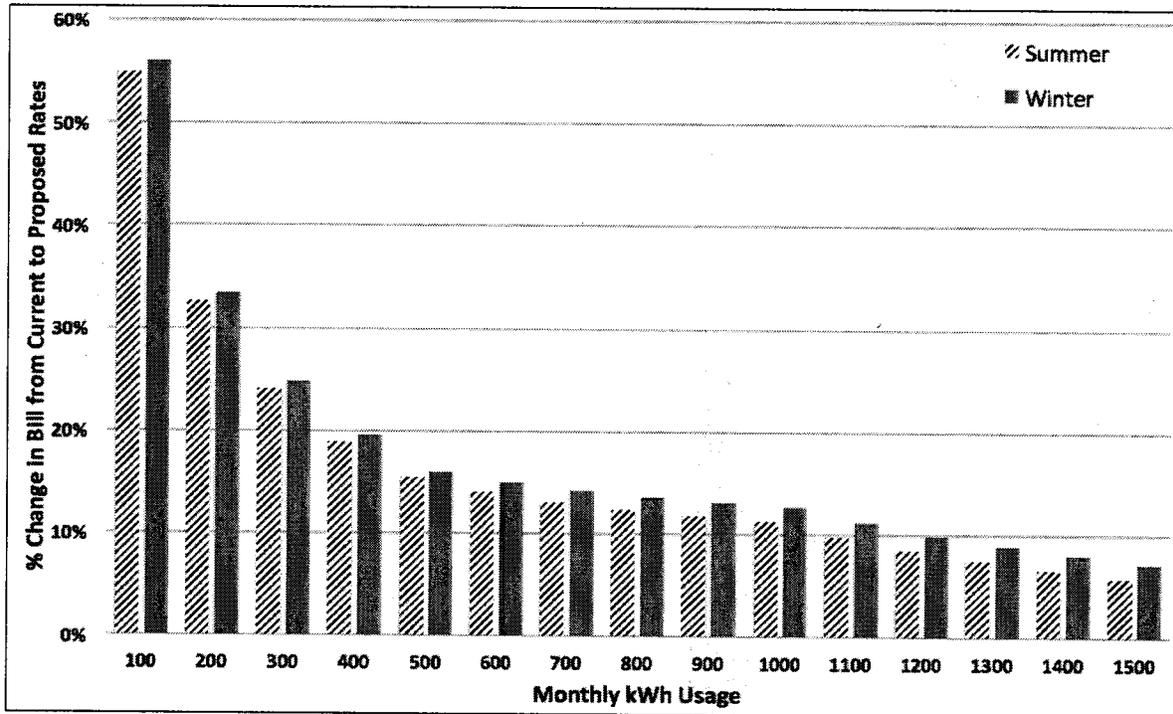
6 Low-use customers will see a greater proportional increase in bills than high-use  
 7 customers under increased BSCs (and as discussed next, low-income customers are often  
 8 low-use customers). For example, a customer using 400 kWh a month in the summer or  
 9 winter will experience about a 20% bill increase under the TEP proposed residential

1 rates. A different customer using 1500 kWh will only experience a 7% increase. The  
2 proportional difference in bill impacts based on customer usage is presented in Figure 2.  
3 This difference highlights equity issues inherent in increasing BSCs. The greater  
4 proportional increase for low-use customers is not equitable and will harm those  
5 customers most likely in need.

6 Not only is this an equity issue for low-income customers, but (as with all customers)  
7 increasing the fixed charge diminishes rewards for low-use/low-income customers  
8 investing in energy efficiency. And for low-use/low-income customers, these rewards are  
9 even less than they would be for the average customer because low-use customers will  
10 see higher rate increases and thus a higher hurdle to clear before they can get a return on  
11 investment in efficiency. It is already hard enough delivering meaningful, cost-effective  
12 efficiency to low-income customers; this increase makes it even harder.

13 In addition, many low-use customers are apartment residents. Providing distribution  
14 service to multi-family housing is much cheaper than for single-family homes, because  
15 there are economies of scale in meter reading, distribution circuits, transformers, and  
16 service drops. TEP's proposal does not recognize the lower cost of service for multi-  
17 family housing where many low-use and low-income consumers reside.

1 Figure 2. Bill Increase (%) for Residential Rate TE-R01 for TEP Proposed Changes



2 Q. HOW MANY OF TEP'S CUSTOMERS LIVE IN MULTIFAMILY HOUSING?

3 A. According to TEP, the Company does not know how many of its customers are currently  
 4 residing in multifamily housing or apartments. However, the United States Census  
 5 collects this data. According to the 2013 American Housing Survey, 21% of the residents  
 6 in the Tucson metro area live in housing containing more than 2 units. This estimate  
 7 includes only the metropolitan area of Tucson and likely excludes some TEP customers,  
 8 but demonstrates a substantial number of housing units in the TEP service territory are  
 9 multifamily units.

1 **Q. HOW LIKELY IS IT THAT LOW INCOME HOUSEHOLDS USE LESS**  
 2 **ENERGY THAN AVERAGE CUSTOMERS?**

3 A. Figure 3 shows an analysis prepared by the National Consumer Law Center that  
 4 examines the usage of low-income households. It shows that households with incomes  
 5 below 150% of the federal poverty level use between 9% and 30% less electricity than  
 6 the households above 150% of the federal poverty level. In 2009, Arizona low-income  
 7 households used 25.1% less electricity than Arizona households above 150% of the  
 8 federal poverty level.

9 Figure 3. Average 2009 Household Electricity Usage (KWH) by Status Above or Below 150%  
 10 of Poverty. Source: 2009 U.S. EIA Residential Energy Consumption Survey data.

Energy Information Administration, Residential Energy Consumption Survey Reportable Domain	Household income			Percentage Difference between average KWH low-income and non-low-income households
	Above 150% Poverty Level	At or Below 150% Poverty Level	All Households	
Connecticut, Maine, New Hampshire, Rhode Island, Vermont	8,453	5,920	7,940	-30.0%
Massachusetts	7,364	5,353	6,967	-27.3%
New York	7,039	5,431	6,578	-22.8%
New Jersey	9,155	6,760	8,902	-26.2%
Pennsylvania	10,733	8,992	10,402	-16.2%
Illinois	10,771	9,430	10,392	-12.5%
Indiana, Ohio	11,559	10,224	11,220	-11.6%
Michigan	9,206	7,508	8,695	-18.4%
Wisconsin	8,827	7,967	8,672	-9.8%
Iowa, Minnesota, North Dakota, South Dakota	11,288	8,198	10,719	-27.4%
Kansas, Nebraska	10,800	10,030	10,633	-7.1%
Missouri	13,775	13,602	13,740	-1.3%
Virginia	15,088	11,237	14,442	-25.5%
Delaware, District of Columbia, Maryland, West Virginia	14,437	12,711	14,100	-12.0%
Georgia	15,452	13,823	14,917	-10.5%
North Carolina, South Carolina	14,717	12,620	14,045	-14.2%
Florida	15,679	12,358	14,858	-21.2%
Alabama, Kentucky, Mississippi	16,307	12,915	15,236	-20.8%
Tennessee	15,766	13,512	15,132	-14.3%
Arkansas, Louisiana, Oklahoma	14,852	13,560	14,392	-8.7%
Texas	15,157	11,816	14,277	-22.0%
Colorado	7,745	5,752	7,439	-25.7%
Idaho, Montana, Utah, Wyoming	11,349	13,126	11,753	15.7%
Arizona	14,970	11,218	14,105	-25.1%
Nevada, New Mexico	10,580	9,643	10,369	-8.9%
California	7,256	5,732	6,888	-21.0%
Alaska, Hawaii, Oregon, Washington	12,841	11,726	12,570	-8.7%
Total	11,734	10,062	11,320	-14.2%

1 **Q. HOW LIKELY IS IT THAT THERE ARE LOW INCOME CUSTOMERS WHO**  
2 **ARE NOT ON THE TEP LIFELINE RATES?**

3 A. Very likely. Currently less than 7% of TEP's customers are subscribed to lifeline rates.  
4 However, 18.6% of families in Tucson and 13.2% of families in Pima County are  
5 considered to be living below the poverty line.<sup>9</sup> These data demonstrate the likelihood of  
6 a significant number of TEP residential customers who are in fact low income, but not on  
7 a low income lifeline rate.

8 **Q. PLEASE PROVIDE YOUR OVERALL CONCLUSIONS ABOUT TEP'S**  
9 **PROPOSED BSC INCREASES?**

10 A. TEP's proposed BSC increases should be rejected. First, they are not cost justified. At  
11 most, a customer charge calculated including only the basic customer costs results in a  
12 residential customer charge of \$7.62. Second, regardless of the method used to determine  
13 the BSC, the Commission must consider the policy implications of a high fixed  
14 component of a customer's bill and reject any increase at this time. A high BSC will  
15 discourage energy efficiency and conservation, a key policy goal of the Commission and  
16 will make it harder to successfully meet the cost-effective energy efficiency targets and  
17 requirements. Energy efficiency provides substantial benefits to all customers in a utility  
18 system and it is in the public interest to promote energy efficiency, not discourage these  
19 efforts through poor rate design. A high fixed charge also disproportionately impacts  
20 low-usage customers, who typically are low-income customers. These customers already  
21 struggle to pay their bills. Disproportionally increasing the total bill for these customers

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<sup>9</sup> American Community Survey economic data on City of Tucson and Pima County. United States Census Bureau. 2014. <https://www.census.gov/programs-surveys/acs/>.

1 because of increases to the customer charge does not adhere to cost causation principles  
2 and is not equitable.

3 **Q. ARE YOU PROPOSING SPECIFIC BASIC SERVICE CHARGE**  
4 **RECOMMENDATIONS FOR RESIDENTIAL AND GENERAL SERVICE**  
5 **CUSTOMERS?**

6 A. Yes. I propose the Commission approve a basic service charge of \$7.62 for all residential  
7 rates.<sup>10</sup> I also recommend a basic service charge of \$11.94 for all 17 general service rate  
8 options. These basic service charge recommendations are cost based, consistent with the  
9 basic service method, and present customers with the proper price signals regarding  
10 conservation and energy efficiency.

11 **Q. CAN YOU DESCRIBE YOUR APPROACH TO CALCULATING THE BSC?**

12 A. Exhibit 1 shows the calculation of the BSC for both the residential and general service  
13 classes. My BSC calculation includes only the direct costs which vary with the number of  
14 customers on the system. These costs include: meters, billing, the service drop, and  
15 customer installation expense. The calculation is based on the Company's proposed ROE.  
16 If the proposed ROE is reduced or the capital structure is adjusted, the BSC  
17 recommendations would also need to be adjusted. This approach is consistent with the  
18 basic customer method of collecting only customer-related costs in a customer charge.

19 **IV. ELIMINATION OF THE TWO HIGHEST TIERS OF THE INCLINING BLOCK**  
20 **RATE IS NOT IN THE PUBLIC INTEREST**

21 **Q. PLEASE DESCRIBE TEP'S PROPOSAL TO ELIMINATE THE TWO HIGHEST**  
22 **TIERS OF THE RESIDENTIAL INCLINING BLOCK STRUCTURE.**

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<sup>10</sup> We recognize that \$7.62 is higher than the BSC for some existing lifeline rates; and recommend that for those rates that the BSC remains unchanged.

1 A. Currently TEP has four tiers in the rate design for residential customers. TEP is  
 2 proposing to eliminate the two highest tiers of the inclining block rate for residential  
 3 customers, leaving only two tiers remaining. These changes can be seen in Table 4. The  
 4 elimination of these two highest tiers reduces the price signal to customers to conserve  
 5 electricity. As I demonstrate later in this testimony, this shift in price signal will cause an  
 6 increased level of total consumption in the TEP service territory. This increased level of  
 7 consumption will eventually require TEP to invest in costly infrastructure to serve  
 8 growing load, thereby increasing costs for all ratepayers in the TEP service territory. The  
 9 Commission should reject TEP's proposal to eliminate the valuable price signal  
 10 expressed through the tiered rate designs and the longstanding policy of promoting  
 11 conservation and energy efficiency.

12 Table 4. Proposed changes to residential inclining block rate structure Rate R-01 Summer

Tier (kWh)	Existing kWh rate	Proposed kWh rate	Change (\$)	Change (%)
0-500	0.0562	0.0591	0.0029	5%
501-1000	0.0672	0.0791	0.0119	18%
1001-3500	0.0798	0.0791	-0.0007	-1%
>3500	0.0882	0.0791	-0.0091	-10%

13 **Q. WHY IS IT IMPORTANT TO SEND A PRICE SIGNAL TO CUSTOMERS TO**  
 14 **PROMOTE CONSERVATION AND ENERGY EFFICIENCY?**

15 A. There are several reasons why this price signal is important to maintain. First, the  
 16 Commission has clearly articulated a strong public policy goal of increasing energy  
 17 efficiency. SWEEP witness Jeff Schlegel has testified to the value and importance of

1 energy efficiency in Arizona in his direct testimony.<sup>11</sup> TEP has offered successful energy  
2 efficiency programs that benefit customers for decades. Significantly altering the price  
3 signal for customers to conserve and engage in energy efficiency is antithetical to the  
4 state policy goals related to energy efficiency. Second, discouraging wasteful use of  
5 electricity is a primary principle of rate design. When outlining his eight criteria for a  
6 sound rate structure, Professor Bonbright included “optimum-use or consumer-rationing  
7 objective, under which the rates are designed to discourage the wasteful use of public  
8 utility services” as a primary function of utility rates.<sup>12</sup>

9 **Q. HAS TEP PREVIOUSLY ADDRESSED THE IMPORTANCE OF THE TIERED**  
10 **RATE STRUCTURE?**

11 A. Yes. The tiered rate structure was first approved in a settlement agreement in the 2007  
12 general rate case.<sup>13</sup> Signatories of this settlement agreement (including TEP) agreed that  
13 rate design can be used as an important energy conservation incentive and price signal. In  
14 direct testimony, Company witness Bentley Erdwurm highlighted the importance of this  
15 rate design stating, “like the Company’s TOU and DSM proposals, the inverted block  
16 structure is aimed at deferring capacity additions, reducing peak demand, and keeping  
17 costs low.”<sup>14</sup>

18 **Q. DID THE COMMISSION ALSO ADDRESS THE TIERED RATE STRUCTURE?**

19 A. Yes. In the 2008 order approving the 2007 rate case settlement agreement, the  
20 Commission stated, “The inclining block rate structure, TOU rates, and other rate design

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<sup>11</sup> See Schlegel direct filed June 3, 2016.

<sup>12</sup> See Bonbright, James C. 1961. *Principles of Public Utility Rates*. Columbia University Press. p. 292.

<sup>13</sup> See Docket No. E-01933A-07-0402. Opinion and Order. Decision No. 70628.

<sup>14</sup> See Erdwurm direct at 35, lines 17-19 in Docket No. E-01933A-07-0402.

1 changes as set forth in the 2008 Settlement Agreement will promote energy conservation  
2 and beneficial load shifting.”<sup>15</sup>

3 **Q. DO YOU BELIEVE THE RATIONALE FOR APPROVING THE TIERED**  
4 **RATES IN 2008 STILL APPLIES TODAY?**

5 A. Yes. It is still critically important to send customers price signals to conserve electricity  
6 and engage in energy efficiency. The far reaching benefits of energy efficiency and  
7 conservation are well understood in Arizona. The Commission should reject this  
8 proposed change and maintain the previously approved and widely supported inclining  
9 block rate structure, including all four tiers.

10 **V. TEP'S PROPOSED RATE DESIGN CHANGES WILL LEAD TO HIGHER**  
11 **ELECTRICITY CONSUMPTION**

12 **Q. IS THERE ANOTHER REASON WHY TEP'S PROPOSED RESIDENTIAL**  
13 **RATE DESIGN CHANGES SHOULD BE REJECTED?**

14 A. Yes, increasing the basic service charge while removing two tiers will have the effect of  
15 increasing consumption, compared with allocating the rate increases to the existing four  
16 tiers. As noted in the 2008 settlement agreement establishing the tiers, rate design can be  
17 a tool to encourage conservation. However, the opposite is also true. Rate design can also  
18 provide price signals to customers to increase overall energy usage, and increase total  
19 costs for all ratepayers.

20 **Q. WHAT IS PRICE RESPONSE ANALYSIS?**

21 A. Price response analysis assesses the impacts of the Company's rate design proposal on  
22 the amount of electricity customers will consume. I compare the Company's proposed

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<sup>15</sup> See Docket No. E-01933A-07-0402. Opinion and Order. Decision No. 70628 at 46, lines 22-23.

1 rate change against an alternative scenario and estimate how the impacts on residential  
2 customer electricity use would differ between those two scenarios.

3 **Q. WHY IS PRICE RESPONSE ANALYSIS IMPORTANT?**

4 A. In considering the Company's proposed rate change, it is useful to consider the impacts  
5 of the proposal on electricity consumption. This is important because alternative rate  
6 proposals will have different impacts on electricity prices and the amount of electricity  
7 consumed, which will in turn impact a number of issues, including: customers' electricity  
8 bills, how much more or less pollution will be generated as a result of choosing one  
9 option over another, and whether or not the Company's proposal contributes to or  
10 conflicts with other state policy objectives.

11 **Q. HOW WILL THE COMPANY'S PROPOSAL IMPACT ELECTRICITY**  
12 **CONSUMPTION?**

13 A. The Company proposes a large increase in BSCs in combination with an increase in per  
14 kWh (or volumetric) charges for the first two tiers while removing the last two tiers of the  
15 inclining block rate. Relative to a situation in which the revenue generated by the  
16 proposed fixed charges was collected instead through volumetric charges, the Company's  
17 proposal will result in increases in electricity consumption. This increase is due to the  
18 fact that shifting customer bills toward higher BSCs supresses volumetric prices, thereby  
19 increasing demand while requiring customers to pay higher bills regardless of how much  
20 electricity they use. As TEP witness Jones notes, "... as the fixed charges are increased,  
21 the volumetric charges are proportionately decreased for each rate class."<sup>16</sup> The end result

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<sup>16</sup> See Jones direct at 44, lines 13-14.

1 is that customers have less control over their overall electricity bills and have less of an  
2 incentive to use electricity efficiently.

3 **Q. HOW LARGE WILL THE IMPACT OF THE COMPANY'S PROPOSAL BE ON**  
4 **ELECTRICITY CONSUMPTION?**

5 A. I conducted several scenario analyses to estimate how large the impact of the Company  
6 proposal would be for the residential service class for the summer period. These results  
7 are summarized in Table 5 below:

8 Table 5. Short and Long Run Changes in Consumption for Rate TE-R-01 Summer

	Short Run			Long Run		
	Mean	Low	High	Mean	Low	High
MWh Increase	<b>75,104</b>	50,069	150,207	<b>225,311</b>	175,242	350,484
% Increase	<b>4.1%</b>	2.7%	8.1%	<b>12.2%</b>	9.5%	18.9%

9 Table 5 shows my estimated short-run and long-run impacts of the Company's proposal  
10 compared to a situation in which the proposed increase in basic service charge and  
11 elimination of two tiers were collected instead through the four existing tiered energy  
12 rates. I find that recovering more costs through increases to the BSC will lead to  
13 increased residential energy consumption of between 2.7% and 8.1% in the short run and  
14 between 9.5% and 18.9% over the long run.

15 **Q. HOW DID YOU CONDUCT THIS ANALYSIS?**

16 A. To understand the difference in overall usage, I compared two different scenarios for the  
17 Residential R-01 summer period. The first scenario is the Company proposed charges in  
18 rate design including a \$20 BSC and two tiers for energy rates. The second scenario  
19 assumed the \$109.5 million revenue increase would be collected in the existing four tiers  
20 instead of the BSC. I used the Company provided data on specific billing determinants

1 for the adjusted test year to calculated prices for each tier if the basic service charge were  
2 to remain unchanged and the proposed revenue increases were collected in the existing  
3 four tiers.<sup>17</sup>

4 I used data from the Electric Power Research Institute (“EPRI”) on the price  
5 responsiveness of residential electricity consumers to changes in volumetric electricity  
6 prices.<sup>18</sup> EPRI has low, high, and mean estimates of the price responsiveness of  
7 residential consumers to changes in retail electricity prices both in the near term and in  
8 the long run. I computed the estimated changes in residential electricity consumption by  
9 multiplying the calculated price increase by EPRI’s price response estimates.

10 EPRI’s price response estimates come from a review of several studies examining how  
11 electricity customers change their consumption in reaction to changes in prices. These  
12 studies used actual data on electricity prices and usage by residential customers. The  
13 EPRI paper reports a range of estimates of how sensitive consumers are to changes in  
14 prices from these studies. The short-run mean estimate of this sensitivity, known in  
15 economic terms is “elasticity,” was found to be 0.3, indicating that a 1% increase in  
16 volumetric electricity rates would result in a 0.3% decrease in consumption. In this  
17 context, the “short-run” is not precisely defined but can be taken to cover a range of up to  
18 5 years. In the long run, consumers have more opportunities to change their habits and  
19 behaviour as well as to respond to higher prices by investing in more energy-efficient  
20 appliances as the appliances age and need to be replaced. Reflecting this fact, long-run

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<sup>17</sup> Data from Schedule H-2.

<sup>18</sup> See Electric Power Research Institute. 2008. *Price Elasticity of Demand for Electricity: A Primer and Synthesis*. <http://www.epri.com/abstracts/Pages/ProductAbstract.aspx?ProductId=00000000001016264>

1 elasticities are typically higher than their short-run counterparts. In this case EPRI found  
2 a mean long-term elasticity of 0.9, indicating that a 1% increase in volumetric electricity  
3 rates would reduce consumption by 0.9%.

4 **Q. WHY DOES THE COMPANY'S PROPOSAL RESULT IN INCREASES IN**  
5 **ELECTRICITY CONSUMPTION?**

6 A. The Company's proposal results in more electricity consumption than would occur if the  
7 proposed increase in BSC and elimination of the two highest tiers were instead collected  
8 in the existing four tiered inclining block structure. This increase occurs because  
9 customers pay the basic service charge regardless of how much electricity they consume.  
10 This pricing model makes energy efficiency investments less cost-effective, leading to a  
11 decrease in energy efficiency. The price that individual customers pay for an additional  
12 kWh is lower than it otherwise would be, making it artificially inexpensive and driving  
13 demand higher than otherwise would be. The pricing model leads consumers to consume  
14 more than they otherwise would consume.

15 **Q. WHY IS THE INCREASE IN CONSUMPTION A CONCERN?**

16 A. In the long term, the increases in consumption will require the Company to make costlier  
17 investments in infrastructure to serve the increased demand, rather than to invest in cost-  
18 effective (and less costly) energy efficiency. This will increase costs for all TEP  
19 customers.

20 **VI. TEP'S PROPOSED DEMAND CHARGES ARE NOT COST BASED AND**  
21 **SHOULD BE MODIFIED WITH SWEEP/WRA RECOMMENDATIONS**

22 **Q. PLEASE DESCRIBE THE COMPANY'S PROPOSAL FOR A VOLUNTARY**  
23 **THREE PART RESIDENTIAL RATE.**

1 A. TEP is proposing to offer two new residential rates in this proceeding, Residential  
2 Demand and Residential Demand TOU. Both proposed rate offers consist of three parts:  
3 1) a BSC; 2) a demand charge; and 3) a volumetric energy charge. The residential  
4 Demand TOU rate differs from the residential demand rate only in the peak/off peak base  
5 fuel prices. The TOU rate collects a higher cost for base fuel in the summer.

6 **Q. DO YOU SUPPORT THE COMPANY'S PROPOSED DEMAND RATES?**

7 A. I do not. In general, SWEEP and WRA are not proponents of demand charges for  
8 residential customers -- voluntary or mandatory. But if the Commission decides to  
9 approve a voluntary demand charge for TEP, then I recommend the following  
10 improvements to the voluntary rate design proposed by TEP. I believe these rates as  
11 designed by TEP are not cost based and are inferior for several reasons. First, the  
12 Demand TOU energy rate will likely be ineffective as the peak to off peak ratio for this  
13 rate is very low. Low peak to off peak ratios do not produce strong results in terms of  
14 peak demand reduction. Second, the basic service charge for both rates is not cost based  
15 and should be adjusted to only collect customer related costs. I propose a BSC of \$7.62  
16 for both rates to reflect the principles and analysis I outlined earlier in testimony. Third,  
17 the demand charges should only collect peak related generation costs during peak hours  
18 in the summer. Noncoincident peak demand charges are not cost based for transmission,  
19 distribution, or generation. Finally, the rate should also bill demand as an average of the  
20 customers' demands during all designated peak hours for the given month.

21 **Q. WHY SHOULD THE DEMAND CHARGE BE BASED ON CLASS COINCIDENT**  
22 **PEAK INSTEAD OF NONCOINCIDENT PEAK?**

1 A. Basing the demand charge on noncoincident peak is not a cost based rate. Individual  
2 customer peaks often do not occur at the same time as the system peak or the distribution  
3 system peak. Therefore, charging customers based on individual noncoincident peak does  
4 not reflect the customer's contribution to utility costs. There are also few, if any,  
5 distribution system components sized for a customer's individual noncoincident peak. To  
6 bill a customer in this way is not cost based and does not send a customer proper price  
7 signals related to their contribution to system costs.

8 **Q. DO YOU RECOMMEND A DIFFERENT WAY OF BILLING A DEMAND**  
9 **CHARGE?**

10 A. Yes, I recommend TEP bill demand based on only the peak related generation costs and  
11 bill based on only the measured demand over an average of the customers load in peak  
12 hours. I also recommend TEP consider a seasonal element to differentiate between the  
13 summer and winter demand related costs imposed by customers on the system. A  
14 customer's impact on the system peak costs is higher in the summer and the proposed  
15 demand rates should reflect this reality.

16 **Q. DO YOU RECOMMEND ANY OTHER ALTERNATIVES FOR THE PROPOSED**  
17 **VOLUNTARY DEMAND CHARGE?**

18 A. Yes. I recommend that TEP increase emphasis on time of use rates instead of three part  
19 rates. Time of use rates are a superior rate design for reducing peak demands and are well  
20 known and understood by customers. A recent report by the Rocky Mountain Instiute  
21 noted that well designed time based rates (including time of use, critical peak pricing, or  
22 peak time rebates) "are effective at achieving their objective of providing a price signal to

1 customers about when to use energy.”<sup>19</sup> This same report noted several regions are  
2 transitioning to default TOU rates because of this effectiveness. TEP should also consider  
3 such a transition instead of moving more customers to a three part rate.

4 **VII. THE PREPAY RATE AS PROPOSED IS NOT IN THE PUBLIC INTEREST AND**  
5 **SHOULD BE REJECTED BY THE COMMISSION**

6 **Q. PLEASE DESCRIBE TEP’S PROPOSED RESIDENTIAL PREPAY ELECTRIC**  
7 **RATE.**

8 A. TEP is proposing a new residential prepay electric rate which would allow a customer to  
9 pay for electric service in advance of use. The rate has a BSC of approximately \$25.20  
10 per month collected in a daily charge of approximately \$0.84. This rate offering is also a  
11 two tiered rate with a higher volumetric usage rate for summer months for the first  
12 20kWh per day and approximately the same rate for any usage higher than 20kWh.  
13 Customers enrolling in the prepay rate would not be required to pay a deposit or other  
14 fees to guarantee payment. These customers would also not be required to pay  
15 disconnection or reconnection fees should service be interrupted in the event of  
16 nonpayment.

17 **Q. DO YOU SUPPORT THE PREPAY RATE AS PROPOSED BY TEP?**

18 A. In his direct testimony on behalf of SWEEP, filed on June 3, 2016, Jeff Schlegel noted  
19 several SWEEP concerns about prepay rates. Mr. Schlegel also addressed other issues  
20 related to prepay rates and prepay programs in his direct testimony.

21 If, despite SWEEP’s stated concerns and related testimony about prepay rates, the  
22 Commission decides to approve a prepay rate for TEP customers, I recommend the

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<sup>19</sup> See Rocky Mountain Institute “A Review of Alternative Rate Designs: Industry Experience with Time-Based and Demand Charge Rates for Mass-Market Customers.” May 2016.

1 Commission require several changes to this rate prior to offering it to customers. First,  
2 the BSC should be significantly lower. As I've shown earlier in my testimony, the basic  
3 customer costs for TEP support only a BSC of \$7.62 per month. Most of the reduction in  
4 the BSC should be recovered in the volumetric (per kWh) rates. However, this volumetric  
5 rate should be discounted and the discount should be recognized in the form of a lower  
6 energy rate.

7 **Q. WHY SHOULD THE PREPAY RATE BE OFFERED AT A DISCOUNT?**

8 A. This rate is targeted and most likely utilized by customers who struggle to pay a bill at  
9 the end of the month or who struggle to pay a deposit and the accumulation of other fees  
10 associated with disconnections and late payments. As noted by TEP witness Smith, "TEP  
11 expects a reduction in bad debts which will translate to a reduction in debt-related  
12 carrying costs, debt collection expense, and write-offs, each lessening the amount of costs  
13 to be recovered through rates charged to all customers."<sup>20</sup> There are other cost savings to  
14 the Company as well including: increased revenue recovery, avoided cost for paper  
15 billing, reduced theft, and reduced call center costs. These cost savings to the Company  
16 that this rate provides should be reflected in a lower rate to customers.

17 **Q. DO YOU HAVE ANY OTHER RECOMMENDATIONS FOR THE**  
18 **COMMISSION ON THE PREPAY PROPOSAL?**

19 A. Yes. I also recommend the Commission require TEP to provide a combination  
20 prepay/lifeline rate. The assumption with a prepay rate is most of the customers to enroll  
21 will be low income. These customers could potentially be forced to enroll in this rate  
22 because of financial difficulties paying a deposit. Low income customers forced onto a

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<sup>20</sup> See Smith direct at 8, lines 9-12.

1           prepay should be able to still receive the discounts associated with the other available  
2           lifeline rates, assuming they meet the requirements.

3   **VIII. CONCLUSION**

4   **Q.   PLEASE SUMMARIZE YOUR RECOMMENDATIONS TO THE COMMISSION**  
5   **IN THIS CASE.**

6   A.   I recommend the Commission do the following:

- 7           1. Deny TEP's request to increase the BSC for all residential and small general  
8           service customers and adopt the proposed BSC of \$7.62 per month for residential  
9           and \$11.94 for general service customers;
- 10          2. Deny TEP's request to eliminate the two highest tiers for the residential inclining  
11          block rate;
- 12          3. Deny the demand rate and demand TOU rate for residential customers as  
13          proposed. If this rate is to be offered on a voluntary basis, the ACC should  
14          consider the suggested changes to these rates outlined in this testimony.
- 15          4. Deny the proposed residential prepay rate. This rate offering reduces costs for  
16          TEP and these cost savings should be reflected in the rate. TEP should also offer a  
17          discounted prepay rate for customers who qualify for lifeline rates.

18   **Q.   DOES THIS COMPLETE YOUR DIRECT TESTIMONY?**

19   A.   Yes.

## Exhibit 1 – Calculation of Basic Service Charge for Residential and General Service Customers

<b>Basic Service Charge Calculation for Tucson Electric Power</b>			
<b>Expenses</b>	<b>Account</b>	<b>Residential</b>	<b>General Service</b>
Meters	597	\$96,508	\$30,806
	586	\$2,090,971	\$667,463
	Depreciation	\$1,449,920	\$491,786
Services	587	\$44,879	\$14,326
	Depreciation	\$1,540,626	\$173,387
Meter Reading	902	\$1,393,664	138,892
Billing	903	\$15,926,207	1,587,199
Subtotal Expenses		\$22,542,775	\$3,103,860
Net to Gross on Expenses		95.9586%	95.9586%
Total Expenses		\$23,492,199	\$3,234,584
<b>Rate Base</b>			
Meters			
Plant In Service	370	\$34,907,516	\$11,142,901
Less Accumulated Depreciation		\$3,040,746	\$970,643
Net Plant		\$37,948,262	\$12,113,544
Depreciation Expense		\$1,449,920	\$491,786
Services			
Plant In Service	369	\$102,014,129	\$12,199,237
Less Accumulated Depreciation		\$(39,786,204)	\$(4,757,786)
Net Plant		\$62,227,925	\$7,441,452
Depreciation Expense		\$1,540,626	\$173,387
Meters		\$37,948,262	\$12,113,544
Services		\$62,227,925	\$7,441,452
Total Rate Base		\$100,176,187	\$19,554,995
Grossed Up Return (10.35 ROE)	11.71%	\$11,735,002	\$2,290,743
<b>Total Customer-Related Revenue Requirement</b>		<b>\$35,227,201</b>	<b>\$5,525,327</b>
<b>Annual Bills</b>		<b>4,624,515</b>	<b>462,775</b>
<b>\$/Month</b>		<b>\$7.62</b>	<b>\$11.94</b>