**BEFORE THE WASHINGTON STATE**

**UTILITIES AND TRANSPORTATION COMMISSION**

|  |  |
| --- | --- |
| WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION,  Complainant, v. PACIFIC POWER & LIGHT COMPANY, d/b/a PACIFICORP,  Respondent.   | DOCKET UE-140762 and UE-140617 (*consolidated*)  |
| In the Matter of the Petition of PACIFIC POWER & LIGHT COMPANY, For an Order Approving Deferral of Costs Related to Colstrip Outage. | DOCKET UE-131384 (*consolidated*)  |
| In the Matter of the Petition of PACIFIC POWER & LIGHT COMPANY,For an Order Approving Deferral of Costs Related to Declining Hydro Generation.  | Docket UE-140094 (*consolidated*) |

**INITIAL BRIEF ON BEHALF OF**

**THE ALLIANCE FOR SOLAR CHOICE**

**January 22, 2015**

**Kathleen D. Kapla**

**8205 31st Ave., NE**

**Seattle, Washington 98115**

**(206) 419-3632**

**kkapla@kfwlaw.com**

**TABLE OF CONTENTS**

1. INTRODUCTION AND SUMMARY 1

2. PACIFICORP’S PROPOSED 81% INCREASE TO THE RESIDENTIAL CUSTOMER CHARGE IS NOT A REASONABLE APPROACH TO ADDRESSING FIXED COST RECOVERY ISSUES AND IS INCONSISTENT WITH THIS COMMISSION’S PAST PRACTICE 3

a. PacifiCorp and Staff Falsely Claim That Solar DG Customers are Partially Responsible for The Company’s Inability to Recover Fixed Costs Through Volumetric Charges 3

b. PacifiCorp’s Requested 81% Increase to the Residential Customer Charge Violates Basic Regulatory Ratemaking Principles and Contradicts This Commission’s Past Practice 5

 i. The Company’s Proposal Fails to Promote Conservation and Energy Efficient Technologies 6

 ii. The Company’s Proposal Violates the Principle of Gradualism 8

 iii. PacifiCorp’s Proposal Creates Unnecessary Rate Shock 9

 iv. PacifiCorp’s Proposed Increase to the Residential Basic Charge is Inconsistent with This Commission’s Practice 10

 c. Even if the Commission were to Agree that Traditional Ratemaking Should be Modified Such that Fixed Charges are Recovered in the Fixed Component of Rates, PacifiCorp has Failed to Justify its Proposal 12

3. BETTER SOLUTIONS EXIST: THE COMMISSION SHOULD ORDER PACIFICORP TO PROPOSE BETTER ALTERNATIVES TO FULLY RECOVER ITS FIXED COSTS 15

 a. Decoupling 15

 b. Power Cost Adjustment Mechanism (“PCAM”) 17

 c. Minimum Bill 17

 d. Forward Looking Test Years and Multiyear Rate Plans 18

4. The Commission Should Heed the AdviCe of Staff and INSTRUCT PacifiCorp that Demand Charges for DG Customers Are Not Appropriate ……………………………………………………………………….19

5. TASC SUPPORTS THE THREE-PART TIERED RATES SUGGESTED

 BY STAFF…………... 20

6. CONCLUSION...............................................................................................................21

**TABLE OF AUTHORITIES**

*Table of Commission Cases*

*In the Matter of the Washington Utilities and Transportation Commission’s Investigation into Energy Conservation Incentives*,

 Docket U-100522, Report and Policy Statement (November 4, 2010)

 (“Decoupling Policy Statement”) 16, 17

*In the Matter of the Washington Utilities and Transportation Commission’s Investigation into the Potential for Distributed Energy in Washington State*,

 Docket UE-110667, UTC Report on the Potential For Cost-Effective Distributed

 Generation in Areas Served by Investor-Owned Utilities in

 Washington State (October 7, 2011) 5

*WUTC v. Avista Corporation*,

 Dockets UE-090134, UG-090135 and UG-060518,

 Initial Filing Tariff Pages (January 23, 2009) 11

*WUTC v. Avista Corporation*,

 Dockets UE-090134, UG-090135 and UG-060518,

 Order 10 (December 22, 2009) 11

*WUTC v. Avista Corporation*,

 Dockets UG-100468, Order 7 (November 19, 2010) 11

*WUTC v. Avista Corporation*,

 Docket UE-110876, Initial Filing Tariff Pages (May 16, 2011) 11

*WUTC v. Avista Corporation*,

 Dockets UE-110876 and UE-120436, Order 9 (December 26, 2012) 11

*WUTC v. PacifiCorp d/b/a Pacific Power & Light Co.*,

 Docket UE-080220, Order 5 (October 8, 2008) 11

*WUTC v. PacifiCorp d/b/a Pacific Power & Light Co.*,

 Docket UE-090205, Initial Filing Tariff Pages (February 9, 2009) 11

*WUTC v. PacifiCorp d/b/a Pacific Power & Light Co.*,

 Docket UE-090205, Order 9 (December 16, 2009) 11

*WUTC v. PacifiCorp d/b/a Pacific Power & Light Co.*,

 Docket UE-100749, Order 6 (March 25, 2011) 10, 11

*WUTC v. PacifiCorp d/b/a Pacific Power & Light Co.*,

 Docket UE-111190, Order 7 (March 30, 2012) 8, 11

*WUTC v. PacifiCorp d/b/a Pacific Power & Light Co.*,

 Docket UE-130043, Order 5 (December 4, 2013) 9

*WUTC v. PacifiCorp d/b/a Pacific Power & Light Co.*,

 Docket UE-130043, Settlement Agreement (August 21, 2013) 11

*WUTC v. Puget Sound Energy, Inc.*,

 Dockets UE-090704 and UG-090705, Initial Filing Tariff Pages (April 2, 2010) 11

*WUTC v. Puget Sound Energy, Inc.*,

 Dockets UE-090704 and UG-090705, Order 11 (April 2, 2010) 11

*WUTC v. Puget Sound Energy, Inc.*,

 Docket UE-111048, Initial Filing Tariff Pages (June 13, 2011) 11

*WUTC v. Puget Sound Energy, Inc.*,

 Docket UE-111048, Order 8 (May 7, 2012) 11

*WUTC v. Puget Sound Energy, Inc.*,

 Docket UG-111049, Order 8 (May 7, 2012) 16

*WUTC v. Puget Sound Energy, Inc.*,

 Docket UE-130137, Initial Filing Tariff Pages (February 1, 2013) 11

*Statutes and Rules*

WAC 480-07-540 5

1. The Alliance for Solar Choice (“TASC”) respectfully submits this initial brief in the above docket pursuant to the Administrative Law Judge’s Prehearing Conference Order of June 10, 2014. TASC advocates for maintaining successful distributed solar energy policies throughout the United States. Founding members represent the majority of the nation’s rooftop solar market and include Demeter Power, SolarCity, Solar Universe, Sunrun, and Verengo. These companies are responsible for tens of thousands of residential, school, and commercial solar installations across the country and have brought thousands of jobs and many tens of millions of dollars of investment to America’s cities and towns.
2. **Introduction and Summary**
	1. In contravention of the energy policies of Washington State and the Washington State Utilities and Transportation Commission (the “Commission”), Pacific Power and Light Company (“PacifiCorp” or the “Company”) proposes to dramatically redesign its residential rates by raising the residential basic charge from $7.75 per month to $14.00 per month. While the Company correctly identifies that the electric utility landscape is changing and that change is likely to continue, such a transformation should be embraced by stakeholders as it is welcomed by many who would like more choices in how they purchase and use electricity and by those who support policies to reduce dependence on fossil fueled electricity. Unfortunately, PacifiCorp grossly exaggerates not only the impact of solar distributed generation (“DG”) on its system but also the impact of net metering on the Company’s ability to recover its fixed costs.
	2. Assuming the Commission agrees that the changing electricity markets have hampered PacifiCorp’s ability to recover its fixed costs, the key question the Commission must resolve is: *What is the best way to address PacifiCorp’s fixed cost recovery issues while also achieving the state’s energy policy objectives?* The Company’s proposals simply make no effort to align with the state’s energy policies, but instead seek to dramatically increase fixed charges without regard to the state’s policy of promoting reduced energy bills through conservation, efficiency, and DG choices.
	3. PacifiCorp witness, Ms. Joelle Steward, suggests that the Company’s proposal to dramatically raise the residential basic service charge by 81% is the only sensible solution to addressing fixed cost recovery. This view is not only incorrect; it is not a new argument. The Company has proposed increases in fixed charges in six of its last six rate cases, and the Commission has consistently rejected dramatic fixed charge increases for sound regulatory and policy reasons, as further explained below. Furthermore, the Commission has clearly encouraged alternative methods to address fixed cost recovery issues such as revenue decoupling, the use of a Power Cost Adjustment Mechanism (“PCAM”), and multi-year rate plans.
	4. It is the Commission’s responsibility to protect the public from the monopoly provider and to ensure that its rate regulation is consistent with state energy policy objectives of reducing consumption and promoting renewable energy resources. PacifiCorp has once again failed to demonstrate that a dramatic increase to the residential fixed charge is just or reasonable and has put forward no alternative proposals. As such, the Commission should reject the Company’s proposed 81% basic charge increase and encourage the Company to a file a separate application to address fixed cost recovery through a method that is consistent with state energy policies, responds to customer needs, and adheres to the fundamental principles of rate design.
	5. If the Commission nevertheless decides that an increase to the residential basic charge is justified in this proceeding, than it should only allow such a charge to be based on actual customer related costs, not to exceed $9.00 per month. The Commission should also heed the advice of Staff and instruct the Company not to propose demand charges for DG customers in its next rate case. Finally, the Commission should adopt Staff’s proposal to move to a three-tier rate design for residential customers.
3. **PacifiCorp’s Proposed 81% Increase to the Residential Customer Charge Is Not a Reasonable Approach to Addressing Fixed Cost Recovery Issues And Is Inconsistent With The Commission’s Past Practice**
	1. While the utility landscape may be entering a period of transformation, PacifiCorp is still the monopoly utility provider with an obligation to serve. Penetrations of DG within the Company’s service territory are very low while the Company continues to see electricity sales increase year over year.[[1]](#footnote-1) Because PacifiCorp’s monopoly electric utility business remains substantially the same as it has been for the past 100 years, the Commission should continue to adhere to fundamental regulatory principles when designing rates.
	2. Where the Commission can advance state energy polices such as conversation, and promotion of renewable and alternative resources through rate design, it should. PacifiCorp has put forward one proposal to address its perceived fixed cost recovery problem: dramatically increase residential fixed charges. Unfortunately PacifiCorp’s proposal is not consistent with traditional regulatory principles, is not consistent with prior direction from this Commission, and fails to advance Washington’s energy policies. As such the Commission should reject it.
	3. **PacifiCorp and Staff Falsely Claim That Solar DG Customers are Partially Responsible for The Company’s Inability to Recover Fixed Costs Through Volumetric Charges**
4. In direct testimony, Company witness Steward asserts that

If the energy component of rates continues to be used as a mechanism to recover a large share of fixed costs, as it is presently for the residential class, this will result in greater intra-class subsidies where smaller users, ***or net metering customers*** who receive a kWh credit against actual usage, fail to pay their fair share of fixed costs. As more customers install energy efficiency measures, ***net metering, and other types of distributed generation systems***, this ***will*** lead to additional subsidies within the residential class to pay the fixed costs of the distribution system, which places an unfair burden on other customers, including low income customers.[[2]](#footnote-2)

* 1. Staff’s witness, Mr. Jeremy Twitchell similarly states that “slowing load growth due to increased end-use efficiencies *and distributed generation*” have exposed underlying faults with volumetric rates.[[3]](#footnote-3) These bare assertions that net metered customers have been, or *will in the future be,* partially response for the Company’s inability to recover its fixed costs are speculative and unsupported by the evidence in the record.
	2. As of October 31, 2014, PacifiCorp had only 227 net-metered customers.[[4]](#footnote-4) This represents only about .02% of the Company’s customers.[[5]](#footnote-5) On cross-examination, Staff witness Mr. Twitchell acknowledged that this is not a significant number of customers to impact PacifiCorp’s ability to recover fixed costs.[[6]](#footnote-6)
	3. In rebuttal testimony, Ms. Steward attempted to paint a picture of a rapidly changing market by noting that in 2014 the Company saw sixty percent growth in its number of net-metered customers.[[7]](#footnote-7) However, Ms. Steward failed to acknowledge the very low overall number of net-metered customers and provided absolutely no evidence that such customers have substantially impacted the Company’s *present* ability to recover its fixed costs. It may be true that the Company has been unable to earn its authorized rate of return in the recent past, but the Company fails to demonstrate that net metering is the cause, or even a substantial factor in its failure.
	4. Focusing on the possibility for future impact, Ms. Steward mischaracterizes a 2011 Commission Report, entitled “UTC Report on the Potential for Cost-Effective Distributed Generation in Areas Served by Investor Owned Utilities” (“2011 Report”), and implies that the Commission has already found that DG results in a cost shift to non-generating customers and impacts the Company’s ability to recover fixed costs.[[8]](#footnote-8) However, the 2011 Report was drafted by UTC Staff and merely explains several general policy goals in crafting DG policies that were identified by stakeholders.[[9]](#footnote-9) The report does not represent a general Commission finding and it certainly does not represent any findings with regard to net metering’s impact on PacifiCorp’s specific ability to recover *its* fixed costs. Even if the Commission did make a general policy finding, it is still the Company’s burden to show in this rate case proceeding that *its* proposed basic charge is reasonable.[[10]](#footnote-10) Because PacifiCorp has failed to present evidence regarding net metering’s actual impacts on its system, it is not appropriate to cite DG as a source of the Company’s inability to recover fixed costs.
	5. **PacifiCorp’s Requested 81% Increase to the Residential Fixed Charge Violates Basic Regulatory Ratemaking Principles and Contradicts This Commission’s Past Practice**
	6. As noted by Public Counsel witness Glenn Watkins, one of Professor Bonbright’s fundamental goals of regulatory policy is that regulation should serve as a surrogate for competition to the greatest extent practicable.[[11]](#footnote-11) As such, the pricing policy for a regulated public utility should mirror competitive firms so that as many of the benefits stemming from competitive markets can accrue to ratepayers as possible.[[12]](#footnote-12)
	7. Because competitive firms do not have the advantage of having captive customers that are essentially forced to buy their product, they are not able to demand access fees, or “fixed charges” for providing service. Many competitive industries, such as the petroleum industry, have substantial fixed costs. Yet because they operate in a competitive environment gasoline companies are not able to charge customers a fixed charge to access their product.[[13]](#footnote-13) Rather, the competitive market forces these firms to be efficient by requiring that they produce only as much gasoline as they can sell.[[14]](#footnote-14) Most competitive market-based prices, even for very capital-intensive industries, are structured on volumetric charges that vary directly with usage.[[15]](#footnote-15) This is one reason why Commissions have traditionally favored energy charges over customer charges for regulated electric utilities.
1. **The Company’s Proposal Fails to Promote Conservation and Energy Efficient Technologies**
	1. It is axiomatic that volumetric electricity rates, rather than fixed charges, promote conservation and energy efficient technologies, including solar DG.[[16]](#footnote-16) It is also undisputed that the State of Washington has crafted an energy policy that promotes conservation and the proliferation of renewable energy development, including on-site solar DG. In his rebuttal testimony, Company witness Bryce Dalley provides a three-page synopsis of various Washington statutes and an April 2014 Executive Order, all of which promote conservation, renewables, and DG.[[17]](#footnote-17)
	2. Staff’s witness Mr. Twitchell, who ultimately supports increasing the basic charge, nonetheless unequivocally stated that increasing the basic charge “is in ***direct conflict*** with the second goal of creating price signals for customers that ***encourage investments in energy efficiency and distributed energy***.”[[18]](#footnote-18) Even the Company admits this fundamental point in the following testimony of Ms. Steward:

For an ***average customer*** using approximately 1,300 kWh per month, at the proposed rates nearly 90 percent of the bill is related to energy charges. ***For a small user half the size of an average user, a significant portion—approximately 75 percent[[19]](#footnote-19)—of the bill continues to be related to energy charges;*** and a high user twice the size of an average user will have 95 percent of the bill related to energy charges. Therefore, all residential customers—and ***high use customers in particular—will continue to have a price signal to conserve or pursue energy efficient technology***.[[20]](#footnote-20)

This statement reveals several important factors for the Commission’s consideration.

1. First, this is an admission by PacifiCorp that volumetric rates provide a price signal to conserve and pursue energy efficient technologies. Ms. Steward merely attempts to minimize the impact of the Company’s proposed shift by noting that 90 percent of the residential bill would still be energy related.
2. Second, the proposal by design punishes customers who have already invested their own dollars by reducing the percentage of their bill that they could have avoided under current rate structures. As explained by TASC witness, Mark Fulmer, “reduced variable charges and higher fixed charges reduce the payback a customer experiences when making energy efficiency or solar DG investments: the fewer dollars per kilowatt-hour saved, the lower the return on the investment.”[[21]](#footnote-21) As evidenced by Ms. Steward’s statement above, customers that are already low users, including those that have already reduced their usage by conserving or installing efficiency measures, will now be penalized with an overall 25% fixed rate charge that they can never avoid, reducing their ultimate savings.
3. Third, the statement evidences the advantages of the proposed scheme for the Company’s high-use customers. Ms. Steward acknowledges that the greater the portion of the bill that is volumetric - 95% for “high use customers in particular” - the more incentive a customer has to reduce usage. Current high-use customers who do not take advantage of the rate design will see no difference in bills, while low usage customers, who may have already invested in efficiency will see their returns diminished.
4. Because the Commission is tasked with carrying out state energy policy, it should refuse to adopt such a major increase to the basic charge in light of the fact that doing so runs contrary to Washington’s goals of promoting conservation and DG.
5. **The Company’s Proposal Violates the Principle of Gradualism**
6. Gradualism refers to the principle that drastic changes to rates or rate structures should not occur in one proceeding.[[22]](#footnote-22) The Commission has repeatedly pointed to this regulatory principle in addressing rate changes.[[23]](#footnote-23) For example in Docket UE-111190, the Commission stated, “when establishing an appropriate rate spread and rate design we consider not only the cost burden a customer class imposes on a utility but also the principles of rate stability and gradualism.”[[24]](#footnote-24) Similarly in Docket UE-130043, the Commission approved a settlement agreement that contained a moderate increase to the residential basic charge from $6.00 to $7.75. In approving this modest increase, the Commission stated that such an increase, “provides for recovery of additional fixed costs via the basic charge, but is significantly less than the increase to $10.00 requested by the Company, thus acknowledging the regulatory principle of gradualism . . .”[[25]](#footnote-25)
7. The Company’s proposed $6.25 increase to the residential basic charge is unprecedented on a number of fronts. First, customers in Washington have never experienced a fixed charge increase of this magnitude.[[26]](#footnote-26) Second, as demonstrated in Figure 1 of Mr. Fulmer’s direct testimony, when the Commission has authorized an increase to the residential basic charge in the past, it remained relatively flat for several years after the increase.[[27]](#footnote-27) Since PacifiCorp just raised the basic charge by $1.75 (+29%) in 2013, raising it again so quickly, especially by such a substantial amount, is unprecedented.[[28]](#footnote-28)
8. **PacifiCorp’s Proposal Creates Unnecessary Rate Shock**
9. The Commission has also been very cognizant of customer reactions to drastic rate increases or changes in rate design, often referred to as “rate shock.” In Docket UE-100749, PacifiCorp’s 2010 rate case, the Commission stated that while it considers the results of a valid COSS “we also consider principles of rate stability, gradualism, and the avoidance of rate shock.”[[29]](#footnote-29) In that decision the Commission found that “the composite effect of the revision to the Company’s peak credit method, the proposed rate spread, and the revisions to rate design . . . could well result in rate shock.”[[30]](#footnote-30) The Commission ultimately denied PacifiCorp’s proposal to increase the residential basic service charge because

. . . many customers will view any basic charge increase as an additional increase above and beyond the rates approved in this Order. Those customers will not take into account the offsetting decrease in energy charges that would accompany an increase in their basic charge. Given the significant increase in rates approved in this Order, ***we do not want to wish to [sic] add to the rate burden already imposed on customers, whether real or perceived***. Not recovering some of the “basic” costs through the basic charge does not mean those costs will not be recovered; rather, those costs will just be recovered through the variable charges.[[31]](#footnote-31)

1. The evidence in this proceeding proves that PacifiCorp’s customers continue to disfavor increases to the basic service charge and would prefer to pay for electricity through volumetric rates. The Company conducted its own customer survey following Docket UE-130043, and an overwhelming 65% of customers disagreed or strongly disagreed with the statement that they would “rather pay a higher basic charge and lower energy rates.”[[32]](#footnote-32) The Commission should continue to take customer preferences into account to avoid rate shock and deny PacifiCorp’s proposed 81% increase to the residential basic charge.
2. **PacifiCorp’s Proposed Increase to the Residential Basic Charge is Inconsistent with This Commission’s Practice**
3. PacifiCorp’s proposed 81% increase to the residential basic charge is also not consistent with this Commission’s past practice. As the table below demonstrates, the Commission has not approved such a dramatic increase to residential fixed charges in any recent rate cases for any Washington utility. The Commission also has rarely raised the residential basic charge in a utility’s rate case immediately following a fixed charge increase in a preceding case.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Utility Rate Case** | **Existing Basic Service Charge** | **Requested Residential Basic Service Charge** | **Result of Proceeding** | **Change (+/-)** |
| PacifiCorp UE-080220 (2008)[[33]](#footnote-33) | $5.25/mo | $7.00/mo | $6.00/mo | 14.3% |
| PacifiCorp UE-090205 (2010)[[34]](#footnote-34) | $6.00/mo | $7.00/mo | $6.00/mo | 0% |
| PacifiCorp UE-100749 (2011)[[35]](#footnote-35) | $6.00/mo | $9.00/mo | $6.00/mo | 0% |
| PacifiCorp UE-111190 (2012)[[36]](#footnote-36) | $6.00/mo | $6.25/mo | $5.00/mo | -16.7% |
| PacifiCorp UE-130043 (2013)[[37]](#footnote-37) | $6.00/mo | $10.00/mo | $7.75/mo | 29% |
| PacifiCorp UE-140094 (current docket) | $7.25/mo | $14.00/mo | TBD | 81% request |
|  |
| Avista UE-090134 (2010)[[38]](#footnote-38) | $5.75/mo | $6.00/mo | $6.00/mo | 4.4% |
| Avista UE-100467 (2010)[[39]](#footnote-39) | $6.00/mo | $10.00/mo | $6.00/mo | 0% |
| Avista UE-110876 (2012)[[40]](#footnote-40) | $6.00/mo | $9.00/mo | $8.00/mo | 33.4% |
|  |
| PSE UE-090704 (2010)[[41]](#footnote-41) | $7.00/mo | $7.59/mo | $7.25/mo | 3.6% |
| PSE UE-111048 (2012)[[42]](#footnote-42) | $7.25/mo | $7.86/mo | $7.49/mo | 3.3% |
| PSE UE-130137, UE-121697 (2013) [[43]](#footnote-43) | $7.49/mo | $7.88/mo | $7.88/mo | 5.1% |

* 1. The Commission should deny PacifiCorp’s proposed massive increase to the residential basic charge because it conflicts with regulatory objectives, state energy policy goals and this Commission’s past practice. If the Commission is concerned about PacifiCorp’s ability to recover its fixed costs, it should encourage the Company to propose alternative solutions. TASC provides some alternative suggestions in section 3, below.
	2. **Even if the Commission were to Agree that Traditional Ratemaking Should be Modified Such that Fixed Charges are Recovered in the Fixed Component of Rates, PacifiCorp has Failed To Justify its Proposal**
1. In this proceeding PacifiCorp suggests that the Commission should fundamentally change its approach to rate design and argues that “[f]ixed costs are appropriate costs to include in determining the level of the residential monthly customer charge.”[[44]](#footnote-44) In doing so the Company cites to the principle of cost causation.[[45]](#footnote-45) However, as explained above, the Commission has traditionally rejected similar arguments. Instead the Commission has favored rate designs that mimic competitive markets; promote conservation, efficiency, and renewable energy development; and that promote gradualism and avoid rate shock. Even if the Commission were to shift its fundamental approach to rate design and were to base its rate design decision exclusively on cost-causation principles, it should still reject PacifiCorp’s proposal because the Company has failed to prove that the costs it includes in the proposed customer charge are actually fixed costs.
2. PacifiCorp’s implicit claim that its proposed basic charge reflects only “fixed” costs that do not vary with usage is misleading and fails to acknowledges that many costs the Company seeks to recover in the basic charge are actually long-run marginal costs.[[46]](#footnote-46) The Company proposes to include in the residential basic charge all of the functionalized unbundled costs in the distribution category, which includes the entire radial system that connects the customer to the higher voltage transmission system.[[47]](#footnote-47) This includes poles and wires, line transformers, service drops, and meters.[[48]](#footnote-48)
3. But as explained by Mr. Fulmer, poles, wires, and distribution transformers are not directly proportional to the number of customers, nor are they “fixed.”[[49]](#footnote-49) In attempting to rebut this fact, Ms. Steward testified that these assets will not vary in the “*near term.*”[[50]](#footnote-50) This carefully chosen language does not dispute TASC’s and Public Counsel’s observations that certain distribution costs are, *long-run* marginal costs that do indeed vary over the long term as demand varies over time.[[51]](#footnote-51) Because residential customers do not have demand meters or pay demand charges, it is more appropriate to collect these energy distribution costs via energy charges rather than fixed customer charges.[[52]](#footnote-52)
4. Customer charges should reflect at most only those costs that are directly proportional to the number of customers,[[53]](#footnote-53) or as Mr. Watkins explains, “the costs that vary as a result of connecting a new customer and which are required in order to maintain a customer’s account.”[[54]](#footnote-54) These include, “and should generally be limited to, meters, service drops (i.e., the line from the pole to the premises), the costs of reading meters and billing, and general customer service (i.e., call center).”[[55]](#footnote-55) Even well-respected industry sources, such as the Regulatory Assistance Project, agree that “[t]raditionally, customer costs are those that are seen to vary with the number of customers on the system: service drops (the line from the distribution radial to the home or business), meters, and billing and collection.”[[56]](#footnote-56)
5. Similarly, as explained by Public Counsel witness, Mr. Watkins, this Commission has already provided guidance on this issue. In Docket UE-920433 involving Puget Sound Energy, the Commission clearly accepted the Basic Customer method, whereby only services drops and meters are customer related and where substantiations, poles, towers, fixtures, conduits and transformers are classified as demand related.[[57]](#footnote-57) In doing so, the Commission also explicitly rejected the Minimum System Approach that would have classified transformers as customer related costs.[[58]](#footnote-58)
6. Despite the Commission’s historical practice, Ms. Steward argues in her rebuttal testimony that PacifiCorp’s proposed increase to the residential basic charge is consistent with similar charges in the state.[[59]](#footnote-59) Yet Ms. Steward carelessly compares PacifiCorp’s requested charge to that of all utilities in the state, rather than just investor-owned utilities (“IOUs”) subject to the jurisdiction of the Commission.[[60]](#footnote-60) Because the Commission has jurisdiction only over PacifiCorp, Puget Sound Energy, and Avista, it can regulate only those utilities according to state and Commission policy. It has no jurisdiction over municipal and co-operative utilities, but must apply its policies consistently among the utilities it does regulate. And when compared with the other Washington IOUs”, PacifiCorp’s proposed basic service charge is more than double those of Puget Sound Energy and Avisita.[[61]](#footnote-61) When comparing PacifiCorp’s requested $14.00 basic charge to other similarly situated IOUs across the country it is also quite high.[[62]](#footnote-62)
7. TASC ultimately recommends that the Commission maintain the current residential basic charge of $7.75. However, *if* the Commission decides to depart from its traditional practice of valuing conservation and efficiency over purist interpretations of cost causation, it should accept the recommendations of the Public Interveners and TASC, and only include actual customer-related costs in the residential basic charge. TASC’s analysis demonstrates that a charge no greater than $9.20 is justified based on actual customer-related costs.[[63]](#footnote-63)
8. **Better Solutions Exist: The Commission Should Encourage PacifiCorp to Propose Better Alternatives to Fully Recover its Fixed Costs**
	1. PacifiCorp’s primary justification for increasing the residential customer charge is its perceived difficulty in recovering its fixed costs. The Company points to a changing utility landscape where conservation and efficiency are flourishing. But the Company’s reactionary proposal would discourage this transformation and is contrary to state policies. Fortunately, there are other rate design solutions that can ensure, or even guarantee, that PacifiCorp recovers its costs while still promoting conservation and renewable energy. If the Commission believes it is necessary to address fixed cost recovery issues, it should encourage the Company to file a new application requesting more appropriate relief, such as revenue decoupling, a properly constructed PCAM rider, a forward-looking test year or test years, or a minimum bill.
	2. **Decoupling**
9. In 2010, in its Decoupling Policy Statement, The Commission specifically found that,

Under existing rate structures, the utilities recover some portion of their fixed costs through a volumetric charge. If the magnitude of reductions in customer use lowers revenues below the level an efficiently and economically managed utility can be expected to manage, the reductions can lead to the utility not earning its authorized rate of return.[[64]](#footnote-64)

The Commission therefore affirmatively invited the IOUs it regulates to file decoupling proposals as part of a general rate case.[[65]](#footnote-65)

1. In 2011, the Commission expressed surprise when Puget Sound Energy (“PSE”) and Avista declined to offer decoupling proposals. The Commission noted that leading up to its 2010 Decoupling Policy Statement, the utilities it regulates “. . . have consistently argued that without decoupling, they face a financial “disincentive” to conservation, which they nevertheless are required by statute to implement to the extent it is cost-effective to do so.”[[66]](#footnote-66)
2. Staff also appears to favor decoupling over increased residential basic service charges. In his direct testimony, Mr. Twitchell explains that in some instances the Commission has sought to overcome a utility’s natural disincentive to pursue conservation by implementing decoupling mechanisms.[[67]](#footnote-67) Mr. Twitchell notes that PSE now has a decoupling mechanism and that if the Commission approves a settlement agreement, Avista will have one too.[[68]](#footnote-68) Mr. Twitchell’s preference for decoupling over fixed charges is evident in how he expresses support for the Company’s proposal. He states that “***Absent decoupling***, Staff believes it is appropriate” to increase residential fixed charges.[[69]](#footnote-69)
3. Company witness Dalley acknowledged at hearing that decoupling, just like the proposed increase to the residential basic charge, addresses fixed cost recovery issues directly.[[70]](#footnote-70) Because decoupling is a less discriminatory way of addressing fixed cost issues, the Commission should encourage PacifiCorp to examine a decoupling mechanism as an alternative approach.[[71]](#footnote-71)
	1. **Power Cost Adjustment Mechanism (“PCAM”)**
	2. A properly designed PCAM would protect a utility from unexpected and significant increases in power costs over a defined period.[[72]](#footnote-72) Such a mechanism would reduce revenue volatility and would help ensure that a utility recovers all of its significant power costs through a rate rider, thereby reducing the risk that it will under-recover its generation costs. Unfortunately, PacifiCorp has not proposed a PCAM in this proceeding that conforms to the Commission’s specifications.[[73]](#footnote-73)
	3. If the Commission wishes to address earnings volatility for PacifiCorp, it should encourage the Company to propose a PCAM that reflects prior Commission rulings and policy. This is another way that earnings volatility can be mitigated without impeding efficiency and conservation goals.
	4. **Minimum Bill**
	5. A minimum bill provision would allow the utility to set a minimum bill amount.[[74]](#footnote-74) The customer would pay this minimum amount even if their applicable usage times the applicable rate were less than the minimum.[[75]](#footnote-75) This allows the utility to collect a guaranteed amount of revenue from low usage customers, while still preserving primarily volumetric rates that encourage efficiency and conservation.[[76]](#footnote-76)
	6. Public Counsel witness, Mr. Watkins, explains that in Texas, where there is total retail electric competition for most of the state’s utility customers,[[77]](#footnote-77) 75% of providers waive any fixed fees when a minimum level of consumption is achieved.[[78]](#footnote-78) As Mr. Watkins explains, this example demonstrates that when prices for electric utility service are allowed to develop in a competitive market, the resulting rate structure is similar to that found for other competitive services – that is, rates are based on volumetric, not fixed, pricing.[[79]](#footnote-79)
	7. **Forward Looking Test Years and Multiyear Rate Plans**
4. Forward-looking test years can help a utility attain earnings stability by basing the utility’s revenue requirements on a future test period as opposed to a historical test year.[[80]](#footnote-80) This allows the utility to recover costs for known upcoming investments as well as expected changes to retail sales.[[81]](#footnote-81) Several forecast test years could also form the basis of a multiyear rate plan, similar to those instituted in other states.[[82]](#footnote-82) This is just one more example of how PacifiCorp could address its fixed cost recovery issues without fundamentally changing its residential rate design.
5. Under any of these alternate approaches, the Company can address its fixed cost recovery issues while also promoting conversation and renewable energy development. As such, TASC requests that the Commission deny PacifiCorp’s proposed increase to the residential basic charge and direct it to propose an alternative solution.
6. **The Commission Should Heed the Advice of Staff and Instruct PacifiCorp that Demand Charges for DG Customers Are Not Appropriate**
	1. Although PacifiCorp is not proposing any DG-specific charges in this proceeding, Ms. Steward explains that the Company is preparing a new load research study that will allow the Company and the Commission to “better determine and reflect the unique costs of providing service to net metering and distributed generation customers.”[[83]](#footnote-83) Despite the fact that this new load research study has not been completed, Ms. Steward nevertheless states her expectation that the Company will propose a three-part rate design with a demand component for DG customers.[[84]](#footnote-84)
	2. In response, Staff witness Mr. Twitchell, explains that “imposing a demand charge on DG customers would be inappropriate because it does not reflect the operations of Pacific Power’s WCA system, it would be unduly discriminatory, and Staff’s proposed rate spread would address many of the potential cost recovery issues associated with DG.”[[85]](#footnote-85) As such, Staff recommends that the Commission instruct PacifiCorp that a three-part rate design for DG customers is not acceptable and should not be included in its next rate case.[[86]](#footnote-86) In rebuttal, Ms. Steward states that she finds it “perplexing that Staff would pre-judge a rate proposal.”[[87]](#footnote-87) She further explains that the purpose of her direct testimony on the matter was to “inform the Commission that the Company is conducting load research to inform future rates.”[[88]](#footnote-88)
	3. In light of Ms. Steward’s rebuttal testimony, it appears that the Company, not Staff, is pre-judging this issue. Rather than wait for the results of its load study to propose rate design changes for DG customers, the Company assumes that it knows the results of its load research study and the best rate design changes to address those results. PacifiCorp’s foreshadowing that a demand rate is coming for DG renders its load research study a mere formality to justify discriminatory charges in its next rate case.
	4. Staff raises several valid concerns with a DG specific rate design that the Commission should carefully consider when the time comes. In light of PacifiCorp’s statements pre-judging the outcome of its load research study, the Commission should be very critical if the results of the study merely support the Company’s already stated preference for DG customers to pay a demand charge.
7. **TASC Supports The Three-Part Tiered Rates Suggested By Staff**
	1. Staff proposes to change the number of residential rate tiers from two to three and proposes to change the cutoffs between tiers.[[89]](#footnote-89) This proposal creates a clearer price signal for residential customers to be more efficient and adheres to cost-causation principles that appropriately assign a greater charge to high-use customers that impose higher costs on the system.[[90]](#footnote-90)
	2. TASC generally supports this proposal. However, given Mr. Fulmer’s recommendation that the residential basic charge should be no higher than $9 per month, TASC proposes slightly different rates.[[91]](#footnote-91) With this in mind, TASC recommends the following three-tier rate design for residential customers:[[92]](#footnote-92)

|  |  |  |
| --- | --- | --- |
|  | **Staff** | **TASC** |
| Basic Charge, $/month | 13.00 | 9.00 |
| 1st Block (0-800 kWh), ¢kWh | 6.472 | 6.674 |
| 2nd Block (801-1700 kWh), ¢kWh | 9.170 | 9.542 |
| 3rd Block (1701+ kWh), ¢kWh | 11.996 | 12.594 |

1. **Conclusion**
2. For all of the reasons stated herein, TASC makes the following requests:
3. TASC requests that that the Commission deny PacifiCorp’s request to increase the residential basic service charge.
4. TASC requests that the Commission find that PacifiCorp has failed to demonstrate that DG is a cause of its inability to recover fixed costs.
5. TASC recommends that the Commission encourage the Company to file a separate application to institute an alternative approach to fixed cost recovery issues such as revenue decoupling, a properly designed PCAM, a minimum bill approach, or use of a forward looking test year.
6. If the Commission nevertheless decides that an increase to the residential basic charge is justified in this proceeding, TASC requests that it only allow such a charge to be based on actual customer related costs, not to exceed $9.00 per month.
7. TASC requests that the Commission specifically instruct the Company not to propose demand charges for DG customers in its next rate case.
8. TASC requests that the Commission adopt Staff’s proposal to move to a three-tier rate design for residential customers.

DATED this 22nd day of January 2015.

/s/ KATHLEEN KAPLA

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Kathleen D. Kapla**

**8205 31st Ave., NE**

**Seattle, Washington 98115**

**(206) 419-3632**

**kkapla@kfwlaw.com**

1. Watkins, Exh. No. GAW-6T, 17: 5-9. [↑](#footnote-ref-1)
2. Steward, Exh. No. JRS-1T, 21: 4-11. (Emphasis added). [↑](#footnote-ref-2)
3. Twitchell, Exh. No. JBT-1T, 23: 1-5. (Emphasis added). [↑](#footnote-ref-3)
4. Twitchell, TR. 652: 4. [↑](#footnote-ref-4)
5. Twitchell, TR. 652: 5. [↑](#footnote-ref-5)
6. Twitchell, TR. 615: 9-17; 652: 5-8. [↑](#footnote-ref-6)
7. Steward, Exh. No. JRS-13T, 24: 5-7. [↑](#footnote-ref-7)
8. Steward, Exh. No. JRS-13T, 24: 14-20. [↑](#footnote-ref-8)
9. *In the Matter of the Washington Utilities and Transportation Commission’s Investigation into the Potential for Distributed Energy in Washington State*, Docket UE-110667, UTC Report on the Potential for Cost-Effective Distributed Generation in Areas Served by Investor-Owned Utilities in Washington State p.5 (October 7, 2011). [↑](#footnote-ref-9)
10. WAC 480-07-540 (“Public service companies bear the burden of proof in general rate proceedings that propose changes that would increase any rate, charge, rental, or toll . . .”) [↑](#footnote-ref-10)
11. Watkins, Exh. No. GAW-1T, 18: 5-8 (*citing*, James C. Bonbright, et al., *Principles of Public Utility Rates*, p. 141 (Second Edition, 1988)). [↑](#footnote-ref-11)
12. Watkins, Exh. No. GAW-1T, 18: 8-10. [↑](#footnote-ref-12)
13. Fulmer, Exh. No. MEF-1Tr, 8: 15-17. [↑](#footnote-ref-13)
14. Watkins, Exh. No. GAW-1T, 19: 6-12. [↑](#footnote-ref-14)
15. Watkins, Exh. No. GAW-1T, 21: 8-13. [↑](#footnote-ref-15)
16. Twitchell, Exh. No. JBT-1T, 25: 8-11; Fulmer, Exh. No. MEF-1Tr, 3: 1-2; Watkins, Exh. No. GAW-1T, 21: 23 – 22: 2. [↑](#footnote-ref-16)
17. Dalley, Exh. No. RBD-3T, 2: 16 – 5: 8. [↑](#footnote-ref-17)
18. Twitchell, Exh. No. JBT-1T, 25: 8-11. (Emphasis added). [↑](#footnote-ref-18)
19. Ms. Steward states that 77% of small users bills will be related to energy charges; Steward, Exh. No. JRS-13T, 31: 12-13. [↑](#footnote-ref-19)
20. Steward, Exh. No. JRS-1T, 21: 23 – 22: 6. (Emphasis added). [↑](#footnote-ref-20)
21. Fulmer, Exh. No. MEF-1Tr, 10: 17-20 [↑](#footnote-ref-21)
22. Fulmer, Exh. No. MEF-1Tr, 3: 14-15. [↑](#footnote-ref-22)
23. E.g., The Commission’s Final Order in Docket UE-130043 cites the principle of gradualism 3 separate times. [↑](#footnote-ref-23)
24. *WUTC v. PacifiCorp, d/b/a Pacific Power & Light Co.*, Docket UE-111190, Order 07 at ¶ 39 (March 30, 2012). [↑](#footnote-ref-24)
25. *WUTC v. PacifiCorp, d/b/a Pacific Power & Light Co.,* Docket UE-130043, Order 05 at ¶ 246 (December 4, 2013). [↑](#footnote-ref-25)
26. Fulmer, Exh. No. MEF-1Tr, 3: 21-22. [↑](#footnote-ref-26)
27. Fulmer, Exh. No. MEF-1Tr, 4. [↑](#footnote-ref-27)
28. Fulmer, Exh. No. MEF-1Tr, 4: 3-5. [↑](#footnote-ref-28)
29. *WUTC v. PacifiCorp, d/b/a Pacific Power & Light Co.*, Docket UE-100749, Order 06 ¶315 (March 25, 2011). [↑](#footnote-ref-29)
30. *WUTC v. PacifiCorp, d/b/a Pacific Power & Light Co.*, Docket UE-100749, Order 06 ¶316 (March 25, 2011). [↑](#footnote-ref-30)
31. *WUTC v. PacifiCorp, d/b/a Pacific Power & Light Co.*, Docket UE-100749, Order 06 ¶333 (March 25, 2011). [↑](#footnote-ref-31)
32. Eberdt, Exh. No. CME-9T, 11: 3-7. [↑](#footnote-ref-32)
33. *WUTC v. PacifiCorp, d/b/a Pacific Power & Light Co.*, Docket UE-080220, Order 05 at ¶16 (October 8, 2008). [↑](#footnote-ref-33)
34. *WUTC v. PacifiCorp, d/b/a Pacific Power & Light Co.*, Docket UE-090205, Order 09 at ¶19 (December 16, 2009); *WUTC v. PacifiCorp, d/b/a Pacific Power & Light Co.*, Docket UE-090205, Initial Filing Tariff Pages at p.2 (February 9, 2009). [↑](#footnote-ref-34)
35. *WUTC v. PacifiCorp, d/b/a Pacific Power & Light Co.*, Docket UE-100749 Order 06 at ¶330 (March 25, 2011); *WUTC v. PacifiCorp, d/b/a Pacific Power & Light Co.*, Docket UE-100749 Order 06 at ¶332 (March 25, 2011). [↑](#footnote-ref-35)
36. *WUTC v. PacifiCorp, d/b/a Pacific Power & Light Co.*, Docket UE-111190, Order 07 at ¶16 (March 30, 2012); *WUTC v. PacifiCorp, d/b/a Pacific Power & Light Co.*, Docket UE-111190, Order 07 at ¶39 (March 30, 2012). [↑](#footnote-ref-36)
37. *WUTC v. PacifiCorp, d/b/a Pacific Power & Light Co.* Docket UE-130043, Settlement Agreement at ¶11 (August 21, 2013). [↑](#footnote-ref-37)
38. *WUTC v. Avista Corporation*, Docket UE-090134, Order 10 at ¶30 (December 22, 2009); *WUTC v. Avista Corporation*, Docket UE-090134, Order 10 at ¶292 (December 22, 2009); *WUTC v. Avista Corporation*, Docket UE-090134, Initial Filing Tariff Pages at p. 1 (January 23, 2009). [↑](#footnote-ref-38)
39. *WUTC v. Avista Corporation*, Docket UG-100468, Order 07 at ¶32 (November 19, 2010). [↑](#footnote-ref-39)
40. *WUTC v. Avista Corporation*, Dockets UE-110876 and UE-120436, Order 09 at ¶44 (December 26, 2012); *WUTC v. Avista Corporation*, Docket UE-110876, Initial Filing Tariff Pages at p.1 (May 16, 2011) [↑](#footnote-ref-40)
41. *WUTC v. Puget Sound Energy, Inc*., Dockets UE-090704 and UG-090705, Order 11 at ¶309 (April 2, 2010); *WUTC v. Puget Sound Energy, Inc*., Docket UE-090704, Initial Filing Tariff Pages at p.2 (May 8, 2009). [↑](#footnote-ref-41)
42. *WUTC v. Puget Sound Energy, Inc*., Docket UE-111048, Order 08 at ¶339 (May 7, 2012); *WUTC v. Puget Sound Energy, Inc*., Docket UE-111048, Initial Filing Tariff Pages at p.2 (June 13, 2011). [↑](#footnote-ref-42)
43. *WUTC v. Puget Sound Energy, Inc*., Docket UE-130137, Initial Filing Tariff Pages at p.2 (February 1, 2013); *Puget Sound Energy, Inc.,* Customer Bill Insert at p.15 (May 2013). [↑](#footnote-ref-43)
44. Steward, Exh. No. JRS-1T, 19: 2-3. [↑](#footnote-ref-44)
45. Steward, Exh. No. JRS-13T: 8-10. [↑](#footnote-ref-45)
46. Steward, Exh. No. JRS-1T, 19: 2-3. [↑](#footnote-ref-46)
47. Steward, Exh. No. JRS-1T, 19: 5-6; 19: 10-11. [↑](#footnote-ref-47)
48. Steward, Exh. No. JRS-1T, 19: 11-14. [↑](#footnote-ref-48)
49. Fulmer, Exh. No. MEF-1Tr, 7: 3-4. [↑](#footnote-ref-49)
50. Steward, Exh. No. JRS-13T, 27: 6. (Emphasis added). [↑](#footnote-ref-50)
51. Fulmer, Exh. No. MEF-1Tr, 7: 4-6; Watkins, Exh. No. GAW-1T, 18: 14; Watkins, Exh. No. GAW-6T, 18: 15-16. [↑](#footnote-ref-51)
52. Fulmer, Exh. No. MEF-1Tr 7: 10-13. [↑](#footnote-ref-52)
53. Fulmer, Exh. No. MEF-1Tr, 6: 20-21. [↑](#footnote-ref-53)
54. Watkins, Exh. No. GAW-1T, 27: 5-7. [↑](#footnote-ref-54)
55. Fulmer, Exh. No. MEF-1Tr, 6: 22 – 7: 2. [↑](#footnote-ref-55)
56. Fulmer, Exh. No. MEF-1Tr, 9: 17 – 10: 1 (*citing*, Weston, Frederick, “Charging For Distribution Utility Services: Issues In Rate Design,” the Regulatory Assistance Project. December, 2000, p. 30). [↑](#footnote-ref-56)
57. Watkins, Exh. No. GAW-6T, 19: 4-24 (*citing, Washington Util. & Transp. Comm’n v. Puget Sound Power & Light. Co.,* Ninth Supplemental Order on Rate Design Issues, Docket UE-920433, p.11 (August 17, 1993). [↑](#footnote-ref-57)
58. Watkins, Exh. No. GAW-6T, 19: 4-24 (*citing, Washington Util. & Transp. Comm’n v. Puget Sound Power & Light. Co.,* Ninth Supplemental Order on Rate Design Issues, Docket UE-920433, p.11 (August 17, 1993). [↑](#footnote-ref-58)
59. Steward, Exh. No. JRS-13T, 25: 1-8. [↑](#footnote-ref-59)
60. Exh. No. JRS-20. [↑](#footnote-ref-60)
61. Steward, TR. 518: 9-16. [↑](#footnote-ref-61)
62. Fulmer, Exh. No. MEF-1Tr, 5: 3-4; Figure 2. [↑](#footnote-ref-62)
63. Fulmer, Exh. No. MEF-1Tr, 7: 22 –8: 2. [↑](#footnote-ref-63)
64. *WUTC,* Docket U-100522, Decoupling Policy Statement at ¶9 (November 4, 2010). [↑](#footnote-ref-64)
65. *WUTC,* Docket U-100522, Decoupling Policy Statement at ¶28 (November 4, 2010). [↑](#footnote-ref-65)
66. *WUTC v. Puget Sound Energy, Inc*., Docket UG-111049, Order 08 at ¶438 (May 7, 2012). [↑](#footnote-ref-66)
67. Twitchell, Exh. No. JBT-1T, 24: 5-11. [↑](#footnote-ref-67)
68. Twitchell, Exh. No. JBT-1T, 24: 5-11. [↑](#footnote-ref-68)
69. Twitchell, Exh. No. JBT-1T, 24: 12-15. (Emphasis added). [↑](#footnote-ref-69)
70. Dalley, TR. 402: 9-12. [↑](#footnote-ref-70)
71. *WUTC,* Docket U-100522, Decoupling Policy Statement at ¶28 (November 4, 2010). [↑](#footnote-ref-71)
72. Twitchell, Exh. No. JBT-1T, 7: 7-8. [↑](#footnote-ref-72)
73. *See,* Twitchell, Exh. No. JBT-1T, 7: 14-20. [↑](#footnote-ref-73)
74. Fulmer, Exh. No. MEF-1Tr, 14: 5-14. [↑](#footnote-ref-74)
75. Fulmer, Exh. No. MEF-1Tr, 14: 5-14. [↑](#footnote-ref-75)
76. Fulmer, Exh. No. MEF-1Tr, 14: 5-14. [↑](#footnote-ref-76)
77. Watkins, Exh. No. GAW-1T, 25: 1-2. [↑](#footnote-ref-77)
78. Watkins, Exh. No. GAW-1T, 26: 2-4. [↑](#footnote-ref-78)
79. Watkins, Exh. No. GAW-1T, 26: 5-9. [↑](#footnote-ref-79)
80. Fulmer, Exh. No. MEF-1Tr, 13: 9-10. [↑](#footnote-ref-80)
81. Fulmer, Exh. No. MEF-1Tr, 13: 10-11. [↑](#footnote-ref-81)
82. Dalley, TR. 400: 1-10. [↑](#footnote-ref-82)
83. Steward, Exh. No. JRS-1T, 25: 16-18. [↑](#footnote-ref-83)
84. Steward, Exh. No. JRS-1T, 26: 8-10. [↑](#footnote-ref-84)
85. Twitchell, Exh. No. JBT-1T, 38: 6-9. [↑](#footnote-ref-85)
86. Twitchell, Exh. No. JBT-1T, 38: 10-11. [↑](#footnote-ref-86)
87. Steward, Exh. No. JRS-13T, 47: 11. [↑](#footnote-ref-87)
88. Steward, Exh. No. JRS-13T, 47: 13-14. [↑](#footnote-ref-88)
89. Twitchell, Exh. No. JBT-1T, 27: 7-10. [↑](#footnote-ref-89)
90. Twitchell, Exh. No. JBT-1T, 27: 18-22. [↑](#footnote-ref-90)
91. Fulmer, Exh. No. MEF-6T, 4: 17-22. [↑](#footnote-ref-91)
92. Fulmer, Exh. No. MEF-6T, 5: 4-5, Table 1. [↑](#footnote-ref-92)