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I. INTRODUCTION AND SUMMARY

Q: Please state your name and business address.

A: My name is Mark E. Fulmer. I am a Principal and Co-owner at MRW & Associates, LLC ("MRW"). MRW is an energy consulting firm founded in 1986 that specializes in power and gas market assessments, regulatory matters, litigation support, expert witness testimony, contract review, and negotiations. My business address is 1814 Franklin Street, Suite 720, Oakland, California 94612.

Q: Please summarize your professional and educational background.

A: I have been an energy consultant with MRW since 1999. During that time, I have worked with non-utility retail energy service providers (both gas and electric), independent power producers, municipalities, end-use customers, trade organizations, and financial institutions on a variety of matters related to natural gas and electric industry regulation and policy, utility ratemaking, price forecasting, demand-side management and asset valuation. Previously, I worked at Daniel, Mann, Johnson, & Mendenhall, where I consulted to utilities and others on energy efficiency. Prior to that, I worked at Tellus Institute in Boston, Massachusetts, where I consulted to numerous state agencies and non-governmental organizations on integrated resource planning and natural gas and electric industry restructuring.

I hold a Master of Science in Engineering from Princeton University and a Bachelor of Science degree in Engineering from the University of California at Irvine.

Q: Have you previously provided expert witness testimony before state public utility commissions?

A: Yes. I have testified before state utility commissions in Arizona, California, Hawaii, New Mexico, Pennsylvania and Rhode Island. Please see Exhibit__(MEF-2) for my qualifications and a list of my testimonies.

Q: On whose behalf are you testifying?

A: I am testifying on behalf of The Alliance for Solar Choice ("TASC"). TASC is an organization of companies that comprise the majority of the nation's rooftop solar market. TASC advocates for maintaining successful distributed solar energy policies throughout the United States.

Q: What is TASC's interest in this proceeding?

A: TASC is committed to supporting retail net energy metering ("NEM"), which empowers customer choice by providing fair credit to homes, businesses, churches, schools, public agencies, and other neighborhood places when solar systems generate on-site energy. As such, TASC is interested in ensuring that PacifiCorp's residential rate design, reflected in Schedule 16, does not hamper customer choice.

Q: Please summarize your conclusions and recommendations.

A: PacifiCorp's proposed $14.00 per customer per month residential basic charge is unreasonable and should be rejected by the Washington Utilities and Transportation Commission ("Commission" or "UTC"). It violates the Commission's policy principle of

gradualism, cannot be justified on cost of service grounds, and does not provide the proper price signals for conservation, energy efficiency or solar distributed generation ("DG"). Based on PacifiCorp's cost of service study, I find that the largest cost-justified residential basic service charge to be $7.40 per customer per month.

II. PACIFICORP'S RESIDENTIAL BASIC CHARGE PROPOSAL IS BAD POLICY

Q: What is PacifiCorp proposing for a residential basic charge?

A: PacifiCorp proposes to increase its basic charge from $7.75 per customer per month to $14.00 per customer per month.

Q: Does this proposal comport with UTC policies and general guidelines for rate changes?

A: No. For example, in past decisions the Commission has repeatedly pointed to the regulatory principal of gradualism in addressing rate changes.[1] Gradualism in this context means not changing rates or rate structures radically in one proceeding. Clearly, increasing the basic charge to $14.00, as proposed here, violates this principal.

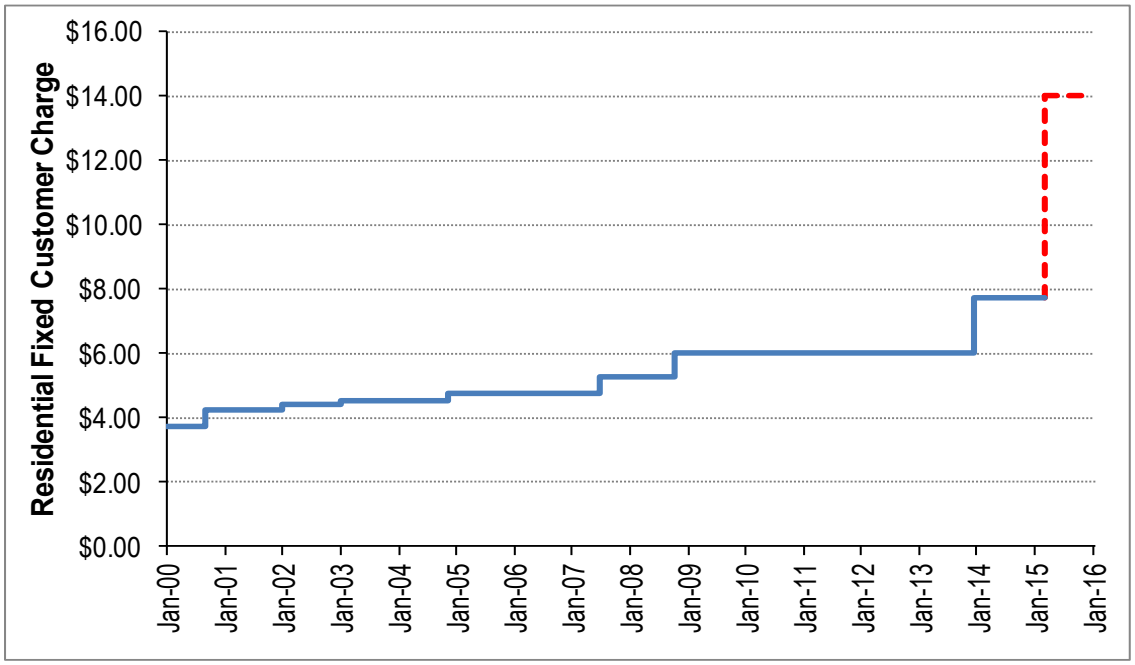
Q: How does this proposed increase in the residential basic charge compare to increases over the past 15 years?

A: This requested increase is unprecedented on a number of fronts. First, in both absolute (+$6.25) and percentage terms (+81%), PacifiCorp residential customers in Washington have never experienced a fixed charge increase of this magnitude. Second, as the figure

[1] E.g., The Commission's Final Order in Docket UE-130043 cites the principal of gradualism 3 separate times.

shows, following larger increases, such as from 2000 to 2001 or from 2007 to 2009, the fixed charge remained generally flat or escalated very modestly. But this request is coming in the year following the very large increase, +$1.75 (+29%), in 2014. Thus, PacifiCorp is requesting two unprecedented increases in customer charges in two successive years. Based on the past trends in customer charges, the value implemented in 2014 should remain in place for at least three or four years before another increase in granted. And even then, an 81% increase would clearly be excessive.

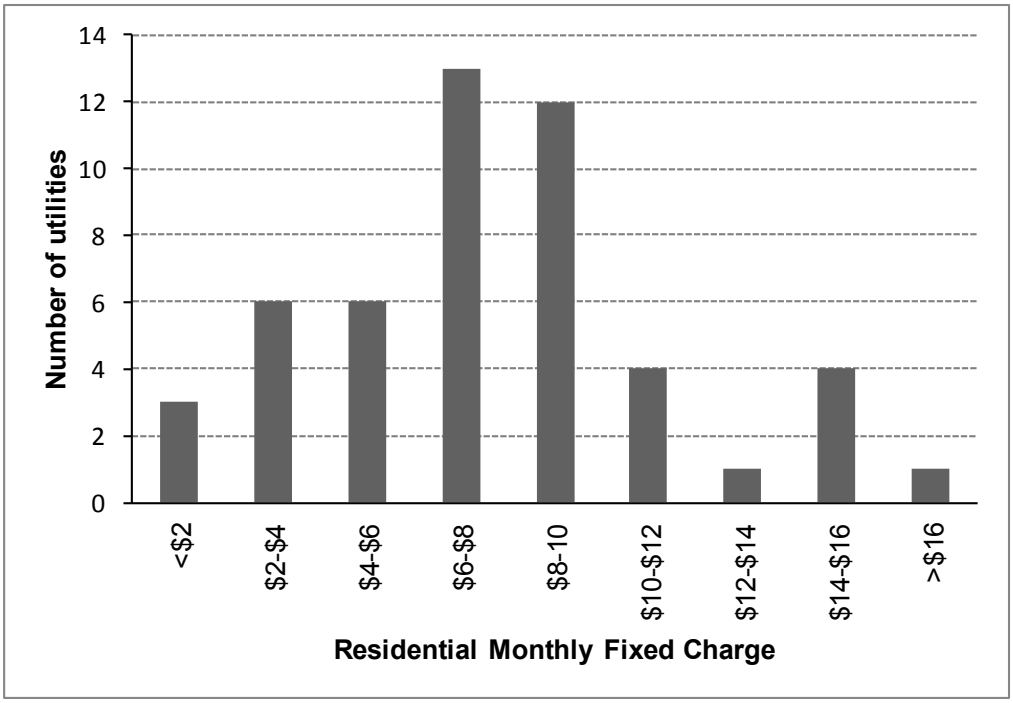
Figure 1: PacifiCorp Residential Basic Charge



Q: How does PacifiCorp current and proposed fixed charges compare to those at other utilities?

A: The current fixed charge, $7.75 per month, is fairly typical, while the proposed $14.00 per month is relatively high. This conclusion is based on data from a recent proceeding in California addressing residential rate design (including fixed charges), where Southern California Edison Company performed a survey of the 50 largest investor-owned utilities as to what their residential fixed charges were.[2] The result of that survey is duplicated in Figure 1, below. As the figure shows, at $7.75, the current PacifiCorp residential fixed charge is quite typical, and very near the average. The $14 charge would mean that from one to perhaps four of the fifty utilities in the survey would have greater fixed charges.

Figure 2: Residential Fixed Charges of the 50 Largest Investor-Owned Utilities in the U.S.



[2] California Public Utilities Commission Rulemaking 12-06-013 Exhibit SCE-5, Phase 1 Residential Rate Change Proposal of Southern California Edison Company, February 28, 2014. p. 30.

III. PACIFICORP'S PROPOSED FIXED CHARGE IS NOT JUSTIFIED IN ITS COST OF SERVICE STUDY

Q: Please summarize PacifiCorp's rationale for setting the residential customer charge at $14 per month.

A: PacifiCorp witness Steward testifies that "Distribution costs (along with retail and miscellaneous) are fixed costs associated with the local facilities necessary to connect and serve individual customers. Accordingly, these costs should be recovered through the monthly basic charges and load size charges (which are based on demand measurements)."[3] She goes on to note, "Fixed costs (i.e., costs that do not significantly vary with usage) are appropriate costs to include in determining the level of the residential monthly customer charge. Specifically, the Company proposes that, at a minimum, the basic charge should be determined by taking into consideration the functionalized unbundled costs in the Distribution category."[4]

Q: Is it appropriate to recover all "fixed" distribution costs in a customer charge?

A: No. As PacifiCorp witness Steward notes, using her rationale and methodology, a fixed charge of approximately $28 could be justified. Or, if she included all of the fixed transmission and generation costs, too, the customer charge could be as high as $75.[5]

The flaw in Ms. Steward's logic is the assumption that any so-called fixed cost can be justifiably collected in the customer charge. This is not true. In general, customer charges should reflect at most only those costs that are directly proportional to the number of customers. This includes, and should generally be limited to, meters, service

[3] JRS-1T, p. 17.
[4] JRS-1T, p. 19.
[5] JRS-1T, p. 19. $75 = $28 per month for fixed distribution costs plus $47 per month for fixed transmission and generation costs.

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). Poles, wires, and distribution transformers, while in general are sunk costs (once in place), they are not strictly speaking proportional to the number of customers nor fixed. Instead, they are sized to meet the peak demand on a circuit, and in the long run, represent a marginal cost, as they can change with reduced or increased demand on the circuit. As such, they are long-run marginal investments that are a function of peak demand, not the number of hookups. For non-residential customers with meters that can measure demand, these costs should be for the most part collected via demand (per-kW) or time-of-use differentiated volumetric (per-kwh) charges. charges. But, like with transmission costs and sunk generation costs, since residential meters cannot measure peak demand, as explained in more detail below, it is more appropriate to collect these costs via the energy charges rather than customer charges.

Q: What would the customer charge be if you limited it to collecting the costs associated with meters, drops, and retail services?

A: Exhibit No.__(JRS-8) shows Ms. Steward's residential customer charge calculation details, in which she specifically identifies the cost component (dollars per test year) and average cost per customer per month. She includes the costs for retail (meter reading, billing, collections and customer service), poles and conductors, meters, service lines (or service drops), and transformers. These total to $34,498,013, or $27.60 per customer-month. If one includes only the genuinely customer-related costs (retail, meters, and service lines), the total cost is only $9,140,174, or $7.40 per customer-month. (See

Exhibit__(MEF-5)) This represents the absolute maximum customer charge that could be justified by the Company's cost of service study.

Q: Ms. Steward notes 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."[6] Is this a valid reason to increase the customer charge?

A: No. While intra-class fairness is of course a concern in ratemaking, it is not the sole or overriding one. Increasing fixed costs to those who use little of a commodity is not necessarily fairer. First, as noted, much of Ms. Steward's "fixed costs" are, in the long run actually marginal, and thus a function of demand, for which energy is a better proxy than customer count. Second, regulated utilities are unusual in charging its customers what are effectively "access charges" to their customers. Non-regulated, capital intensive industries such as petrochemicals do not have that opportunity; they collect equally large fixed costs via commodity charges.

Q: Has these points been raised by intervenors in prior PacifiCorp rate cases?

A: Yes. Staff witness Mickelson raised analogous points in PacifiCorp's last GRC (UE-130043). There, Mr. Mickelson noted, "A monthly customer charge, also known as the 'basic charge,' covers costs such as the cost of meters, service drops, meter reading, and

[6] JRS-1T, p. 21.

billing.[fn] This is appropriate because these are customer-related costs that vary with the number of customers. They are not demand-related costs that vary with peak usage, nor are they energy related costs that vary with consumption."[7]

Furthermore, Mr. Mickelson noted that in a 2007 general rate case order for Puget Sound Energy, the Commission stated:

> [A]n increase in the customer charge ... will result in the Company recovering about one-fourth of its fixed costs allocated to residential customers via a fixed charge on each customer's bill. This is about eight to ten percent of an average customer's total bill, considering both fixed and variable costs. This seems to us the right balance point for the recovery of fixed costs via the customer charge.[8]

The maximum value I recommend, $7.40 is within this range, as it would represent approximately 27% of PacifiCorp's distribution fixed costs and 6% of the average Schedule 16 residential customer bill.

Q: Are there other industry sources that corroborate this interpretation of what is appropriate to collect in customer charges?

A: Yes. A white paper on distribution rate design prepared for National Association of Regulatory Utility Commissioners ("NARUC") by the Regulatory Assistance Project echoes many of my concerns.[9] In particular, the paper notes "there is a broad agreement in the literature that distribution investment is causally related to peak demand" and not the number of customers; and "[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

[7] CTM-1T, p. 29.
[8] *Ibid.*, page 32. Citing to Dockets UE-060266 and UG-060267, Order 08 at ¶139 (January 5, 2007).
[9] Weston, Frederick, "Charging For Distribution Utility Services: Issues In Rate Design," the Regulatory Assistance Project. December, 2000.

distribution radial to the home or business), meters, and billing and collection."[10]

IV. HIGHER FIXED CHARGES PROVIDE POOR PRICE SIGNALS FOR CONSERVATION AND DISTRIBUTED GENERATION

Q: PacifiCorp witness Steward asserts that the Company's proposed rate structure, including the 81% increase in customer charge, will not dampen conservation price signals. Do you agree?

A: No. Ms. Steward simply asserts that because nearly 90 percent of the residential customers' bills is related to energy charges that customers will continue to have a price signal to conserve or pursue energy efficiency.[11] While this statement is technically true—any variable costs provides some level incentive to conserve consumption of a good—it does not get to the heart of issue: does increasing the fixed charge (and thus resulting in the variable charge lower than it otherwise would be) provide the correct incentive for conservation and energy efficiency?

The answer to this question is clearly no. First, as I noted earlier, much of what PacifiCorp has characterized as a fixed costs is actually a long-run marginal cost, and as such should be taken into account when setting variable residential rates. Second, 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. This problem can ripple back to the utility, which is under Commission direction to achieve its energy efficiency goals. All things being equal, these efficiency goals will be harder—or more expensive—for the

[10] *Ibid*., pp. 28-29.
[11] JRS-1T, p. 22.

utility to achieve when fixed (unavoidable) charges are increased while variable (avoidable) charges are lessened.

I further note that an academic paper published in *Energy Policy* addresses this very issue.[12] In that paper, its authors (Pearce and Harris) estimate that:

> To eliminate the customer charge nationally while maintaining a fixed sum for electric companies for a given amount of electricity, an increase of 7.12% in the residential electrical rate was found to be necessary. If enacted, this increase in the electric rate would result in a 6.4% reduction in overall electricity consumption, conserving 73 billion kW-hrs, eliminating 44.3 million metric tons of carbon dioxide, and saving the entire U.S. residential sector over $8 billion per year." (abstract)

The gist of Pearce and Harris's argument is that fixed costs create an "efficiency penalty" by effectively charging lower use customers higher effective average rates than higher use ones, and that a reduction in use, from either conservation or energy efficiency investment, is proportionally valued less when a greater amount is collected through fixed (unavoidable) charges than through variable (avoidable) charges.

Q: Are there other policy reasons in Washington to maximize the incentives for renewable DG and energy efficiency?

A: Yes. I note that on April 29, 2014, Governor Inslee issued Executive Order 14-04, Washington Carbon Pollution Reduction and Clean Energy Action. This Executive Order outlines the impacts of climate change on Washington State and specifically directs actions the State should take to address them. The Executive Order includes the following:

[12] J. M. Pearce and Paul J. Harris, "Reducing greenhouse gas emissions by inducing energy conservation and distributed generation from elimination of electric utility customer charges," *Energy Policy*, **35**, pp. 6514-6525, 2007. Note also that Pearce and Harris make analogous observations about the marginality of distribution costs that I make in Section III of my testimony.

> I ask that the [Washington State University] Energy Program, in consultation with the Utilities and Transportation Commission, the Department of Commerce, and other state agencies as appropriate, convene and work with utilities, solar manufacturers, installers, and other stakeholders, to review current statutes, rules, policies, and incentives for solar energy in the state. I ask that this review address how to ensure effective state financial incentives, consistent with the benefits and costs of solar energy, and how to better target those incentives, and make them available to a broader range of organizations and individuals that can help advance and deploy solar energy in the state. (pp. 5-6)

The Executive Order contains similar language with respect to energy efficiency.[13] Rates that send appropriate price signals to consumers, as noted by Pearce and Harris (2007), "help advance and deploy solar energy" should, and I fully expect will, be part of the policies coming out of the Governor's order.

V. OTHER WAYS BESIDES FIXED CHARGES CAN SUPPORT STABILITY IN UTILITY REVENUES

Q: One of PacifiCorp's rationales for the increased fixed charge is for revenue stability—the ability to collect its fixed costs in light of customer usage that changes with weather, efficiency, and distributed generation.[14] It further notes that collecting more revenue through variable costs increases its incentive to sell more kWhs.[15] Are there other ways that these concerns can be addressed?

A: Yes, there are a number of ways that these concerns can be addressed that are less disruptive to customers and in closer harmony with other Commission objectives (such as the Energy Independence Act, as cited by witness Steward[16]). These include revenue decoupling, attrition adjustments, and forward-looking test years. Revenue decoupling is

[13] State of Washington Office of the Governor, Executive Order 14-04, p.6. April 29, 2014.
[14] JRS-1T, p. 20.
[15] *Ibid*.
[16] JRS-1T, p. 19.

the regulatory construct whereby a utility's revenue is "decoupled" from its sales. As such, it loses any incentive to sell additional kilowatt-hours as well as having a more stable revenue stream over time. I note that in 2010 the Commission conducted a generic proceeding on energy conservation incentives and decoupling, which resulted in a Policy Statement that expressed support for full decoupling and provided advisory guidance as to its preferences for future utility proposals.[17]

Attrition adjustments are changes in rates between rate cases to reflect changing forecast usage, due primarily, but not limited to, energy efficiency, and as such account for changes in sales between rate cases. Last, forward-looking test years can help provide revenue stability by explicitly incorporating known upcoming investments as well as projected changes to retail sales. I note that the jurisdiction with which I am most familiar, California, uses all three of these.

Q: On page 20 of her testimony, PacifiCorp witness Steward notes that with "fixed" costs collected via energy charges, net metering customers fail to pay their share of fixed costs. Is this observation accurate?

A: I don't believe that it is. First, as of December 31, 2013, there were only 141 net metering customers in PacifiCorp's Washington State service area.[18] While TASC would hope that this number will grow, it does not represent a threat to the Company's revenue stream. Second, as I have testified, much of Ms. Steward's so-called fixed costs are in the long run marginal and thus appropriate to collect from residential customers via

[17] *WUTC Investigation into Energy Conservation Incentives*, Docket U-100522, Report and Policy Statement on Regulatory Mechanisms, Including Decoupling, to Encourage Utilities to Meet or Exceed Their Conservation Targets. November 4, 2010.
[18] PacifiCorp response to WUTC Data Request 84.

energy charges. Third, one cannot simply assert that net energy metering customers are not paying their fair share without considering the positive contributions the NEM customers make, such as local grid support, reduced line losses, and reduced marginal energy procurement.

Second, if collecting certain costs from net energy metered customers is a genuine issue, a less distorting way of addressing this is through a minimum bill provision. That is, rather than set a fixed charge in rates, a utility may set a minimum bill amount. The minimum bill is an amount that a customer would pay even if his or her usage times the applicable rate was less. For example, if a rate were 10¢/kWh and the minimum bill was $12.00, a customer using 100 kWh per month would still pay the minimum bill amount ($12.00) rather than the calculated amount (10¢ x 100 = $10). A minimum bill provision allows the utility to collect a guaranteed amount of revenue from very low use customers, which can include customers with DG, to cover basic service (meter, drop and billing/collections).

Q: You note that utilities should consider the benefits that solar DG provides to the grid when considering rate designs. Isn't PacifiCorp proposing a study and rate design to do that?

A: While it is proposing a load research study in order to support a new rate schedule and rate design for DG customers,[19] which is to include the benefits DG can provide to the grid, I am concerned that it is being framed in the same way that the increased customer charge has been framed here: how can additional fixed costs be imposed on residential

[19] JRS-1T, pp. 25-26.

DG customers? My concern is based on what I see as the *prima facie* conclusion that a demand rate for on-peak usage, which the Company appears to *already* believe, even prior to the study, will provide more accurate price signals.[20] Thus, while I applaud the Company for more closely considering how rate structures impact residential DG (and vice versa), the Commission should very closely scrutinize and oversee any study the Company conducts, as I fear that the Company has an answer (collect more money from NEM customers) in search of a question.

Q: You have mentioned alternative rate and regulatory structures, such as minimum bills and revenue decoupling. Are you recommending that the Commission adopt any of these regulatory structures for PacifiCorp in this proceeding?

A: No. I raise them only to illustrate that if revenue stability and fixed cost collection were of the utmost concern to the Company, there are other regulatory frameworks that can address those concerns while also supporting Washington and the Commission's long-term goals of greater deployment of energy efficiency and distributed generation.

Q: Does this conclude your testimony?

A: Yes.

[20] JRS-1T, pages 26, lines 8-13: "…the Company expects to propose a three-part rate design with a demand rate component, similar to that already widely used for general service schedules. The adoption of a demand rate for on-peak usage will not only more accurately reflect the system requirements of these customers at the time of peak but also provide a more accurate price signal compared to current residential rates in which all demand-related costs are recovered through energy charges."