BEFORE THE PUBLIC SERVICE COMMISSION OF UTAH

In the Matter of the Application of Rocky Mountain Power for Authority To Increase its Retail Electric Utility Service Rates in Utah and for Approval of Its Proposed Electric Service Schedules and Electric Service Regulations.	**Docket No. 13-035-184**

DIRECT TESTIMONY OF NATHANAEL MIKSIS

ON BEHALF OF THE ALLIANCE FOR SOLAR CHOICE

COST OF SERVICE

MAY 22, 2014

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I. INTRODUCTION

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Nathanael Miksis and my business address is 436 14^{th} Street, Suite 1305, Oakland, California, 94612.

Q. PLEASE STATE YOUR CURRENT TITLE AND NAME YOUR EMPLOYER.

A. I am a Power System Expert and consultant with EQ Research, a division of the Oakland, California based law firm Keyes, Fox & Wiedman LLP. EQ Research offers research and consulting services on a variety of energy-related issues, with a particular focus on analyzing policies and regulation affecting renewable energy and energy efficiency.

Q. PLEASE BRIEFLY DESCRIBE YOUR EDUCATION AND EXPERIENCE.

A. I have both a Bachelor of Arts in Economics and a Master of Science in Industrial Engineering and Operations Research from the University of Massachusetts. A list of my previous work experience and publications is included in my curriculum vitae, attached as Exhibit A.

Q. ON WHOSE BEHALF ARE YOU TESTIFYING?

A. I am testifying on behalf of The Alliance for Solar Choice ("TASC"). TASC is an organization founded by companies that comprise the majority of the nation's rooftop solar market, including SolarCity, Sunrun, Sungevity, Verengo Solar, Demeter Power Group, and Solar Universe. 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 the nation's cities and towns. TASC was formed on the belief that consumers should have the choice to switch to onsite solar power for at least a portion of their energy supply. TASC is committed to defending successful policies that provide fair credit to utility customers when their rooftop solar systems export power to the local utility grid.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The primary purpose of my testimony is to demonstrate that Rocky Mountain Power (also referred to herein as "Company") has not provided the Commission a cost-justified basis to approve the proposed: (1) net metering facilities charge; (2) $3 per month increase to the residential monthly customer charge; and (3) $8 increase to the residential customer minimum bill. Additionally, I discuss the importance of adopting a sound methodology to quantify the costs and benefits of the net metering program and the principle of fairness in the allocation of cost-of-service to net metering customers.

Q. ARE YOU INTRODUCING ANY EXHIBITS IN SUPPORT OF YOUR TESTIMONY?

A. Yes, I have three exhibits. Exhibit A consists of my curriculum vitae and qualifications. Exhibit B is a list of relevant, previous studies that address methodological questions associated with evaluating the costs and benefits of renewable distributed generation ("DG") or state net metering programs. Exhibit C is a table of benefits associated with solar DG that discusses how those values should be calculated and which methodological assumptions are reasonable in light of the task. Exhibits B and C have been previously used by TASC in proceedings in other jurisdictions related to the costs and benefits of distributed solar.

Q. HOW IS YOUR TESTIMONY ORGANIZED?

A. My testimony consists of seven sections and covers the four elements of TASC's interests in this case. First, I address the Commission's implementation of Senate Bill 208. This topic is addressed in Sections II through IV, which respectively discuss: the relevance of this bill to this proceeding (Section II); the need for a standardized approach to calculating the costs and benefits of the net metering program (Section III); and the need to recognize and account for the load reduction characteristics of net metered systems (Section IV). Second, in Section V, I address the cost-justification of the net metering facilities charge proposal. Third, in Section VI, I address the cost-justification of the proposal to increase the residential monthly customer charge. Finally, in Section VII, I address the proposed increase to the residential minimum bill.

II. COMMISSION IMPLEMENTATION OF SENATE BILL 208

Q. WHAT IS SENATE BILL ("S.B.") 208?

A. On March 25, 2014, Governor Herbert signed Senate Bill ("S.B.") 208, which requires the Commission to conduct a process to understand the relative costs and benefits of the NEM program:

> **<u>Section 54-15-105.1.</u> Determination of costs and benefits – Determination of just and reasonable charge, credit or ratemaking structure.**
>
> The governing authority shall:
>
> (1) determine, after appropriate notice and opportunity for public comment, whether costs that the electrical corporation or other customers will incur from a net metering program will exceed the **<u>benefits of the net metering program</u>**, or whether the benefits of the net metering program will exceed the costs; and
>
> (2) determine a just and reasonable charge, credit, or ratemaking structure, including new or existing tariffs, **<u>in light of the costs and benefits</u>**.[1]

[1] New Utah Code Section 54-15-105.1 [emphasis added].

Q. WHY IS S.B. 208 RELEVANT TO THIS RATE CASE?

A. The Commission's April 16, 2014 public notice recognized the relevance of S.B. 208 to the net metering facilities charge at issue in this case. The public notice invited parties to address the costs and benefits of the net metering program in direct testimony on cost-of-service issues.

Q. IN TERMS OF THE RATEMAKING PROCESS, WHAT DOES S.B. 208 REQUIRE THE COMMISSION TO DO?

A. S.B. 208 requires the Commission to make a determination of the relative costs and benefits of the entire net metering program and the Commission has publicly noticed that it will do so in this proceeding. Upon making findings on the costs and benefits of the NEM program, S.B. 208 then requires the Commission to determine a "just and reasonable" charge, credit or rate structure.

Q. IF THE COMMISSION DETERMINES THAT BENEFITS OF THE NET METERING PROGRAM EXCEED THE COSTS, MAY IT CREATE AN ADDITIONAL CREDIT FOR NET METERING CUSTOMERS?

A. Yes, S.B. 208 contemplates that a credit may be justified, so long as it can be supported by a determination on the costs and benefits of the net metering program.

Q. IS TASC PROPOSING THAT THE COMMISSION PROVIDE AN ADDITIONAL CREDIT TO NET METERING CUSTOMERS?

A. Not at this time. Either a credit or a charge for net metering customers will need to pass the cost-benefit test mandated by S.B. 208. I reserve judgment on whether the record on the costs and benefits of the net metering program can be sufficiently developed in the time remaining in this proceeding to justify either a charge or credit.

Of course, my concern is grounded in the fact that the public notice of this issue did not occur until 36 days before the due date for direct testimony. This is a highly complex issue to adequately address in such an abbreviated timeframe. While I believe a General Rate Case ("GRC") is the proper venue for the Commission to consider this issue now and into the future, I take issue with the fact that the cost-benefit issue was not scoped into this proceeding from the start and that no Commission-approved methodology is currently in place.

Q. PRIOR TO THE APRIL 16, 2014 PUBLIC NOTICE, DID YOU CONSIDER THE COSTS AND BENEFITS OF THE NET METERING PROGRAM TO BE AN ISSUE IN THIS PROCEEDING?

A. No. Prior to the Commission's public notice on April 16, 2014, the only issue specifically related to net metering in this proceeding was the proposed net metering facilities charge. Significantly, this charge only applies to residential customers. S.B. 208 requires the Commission to make a broader determination on the costs and benefits of the entire net metering program, which includes all residential and non-residential net metering customers.

III. COMMISSION DETERMINATION ON THE COSTS AND BENEFITS OF THE NET METERING PROGRAM

Q. DOES THE COMMISSION HAVE AN APPROVED METHODOLOGY FOR CONSIDERING THE COSTS AND BENEFITS OF THE NET METERING PROGRAM?

A. No. I am not aware of any previous Commission determination on the costs and benefits of the net metering program, nor of any Commission-approved methodology for making such a specific cost-benefit determination.

Q. DO YOU HAVE A RECOMMENDATION FOR HOW THE COMMISSION SHOULD ADDRESS THE COSTS AND BENEFITS OF THE NET METERING PROGRAM?

A. For purposes of this proceeding, I recommend that the Commission focus on two important threshold issues that will be essential to any determination made in this proceeding. First, I recommend that the Commission only make a cost-benefit determination if it first finds that the record gives it a sufficient basis to develop a robust and defensible methodology to quantify the costs and benefits of net metering. Second, the Commission is obligated to make a factual determination that is supported by the record. I expect that the Commission will need to devote significant hearing time to these complex factual and methodological issues.

For the sake of future proceedings, I recommend that the Commission initiate a separate, collaborative stakeholder process to develop a transparent, standardized methodology to address these cost-benefit issues. To the extent that the costs and benefits of the net metering program will be a recurring policy question, it is important for the Commission to design and vet a sturdy methodological framework for that purpose. With a standardized approach to costs and benefits in place, future GRCs related to net metering can focus on the factual issues and allow the Commission to avoid undertaking the double burden of justifying both the methodology used and the quantification of net metering costs and benefits.

Q. WHAT METHODOLOGICAL APPROACH DO YOU RECOMMEND FOR DETERMINING THE COSTS AND BENEFITS OF THE NET METERING PROGRAM IN THIS PROCEEDING?

A. Any approach used in this proceeding should thoroughly consider the full range of costs and benefits of the net metering program. For purposes of this proceeding, the most important aspect of this investigation is that the Commission develop a sufficient record from parties on the full range of benefits and costs. Given the, more or less, *ad hoc* nature of making a determination in this proceeding (i.e., without an existing Commission-approved methodology in place), the Commission should focus on whether there is a sufficient record to make a reasoned determination on which benefits and costs should be included and which should be excluded. If the Commission does not have confidence in the sufficiency of the record, I would recommend that the Commission defer approving any new charge or credit for net metering customers until it can first develop a proper methodological framework.[2]

[2] Several other jurisdictions have taken such a deliberative path by deferring a judgment on net metering until a more comprehensive record on net metering could be established. *See, e.g.,* Louisiana Public Service Commission Docket R-31417, Document No. F14-13629 (March 12, 2014) (issuing an RFP for a net metering evaluation according to specified methodological assumptions); Idaho Public Utilities Commission Case No. IPC-E012-27, Order No. 32846 (July 3, 2013) (rejecting an application seeking isolated changes to a net metering program and stating a preference for considering changes in a “fully vetted” GRC).

Q. ARE RESOURCES AVAILABLE TO ASSIST THE COMMISSION IN DETERMINING THE REASONABLENESS OF INCLUDING CERTAIN CATEGORIES OF COSTS AND BENEFITS?

A. Yes. There is no need for the Commission to reinvent the wheel to make a cost-benefit determination for the purposes of this proceeding. Many similar studies of the cost and benefit of solar and net metering have already been undertaken in multiple other jurisdictions. From these proceedings, best practices are emerging on which categories of benefits should be included in any cost-benefit evaluation. TASC has compiled a list of studies and reports, attached to my testimony as Exhibit B, which employ various "best practice" methodological approaches to quantify the costs and benefits of net metering or distributed solar.

TASC's member companies have participated in stakeholder or regulatory proceedings focused on solar and DG valuation issues in Arizona, California, Colorado, Minnesota, Nevada, Oregon and Washington. Drawing from TASC's experience in these states, in Exhibit C, I have included a table of values that TASC previously developed for its participation in these similar cost-benefit proceeding. Exhibit C provides a list of values associated with distributed solar based on how most studies treat each individual component. For each, TASC provides a definition and indicates the best process or methodology to assign a monetary value to each stated cost or benefit. A robust distributed solar valuation methodology should calculate the value of the costs and benefits in Exhibit C.

In addition, the Interstate Renewable Energy Council and Rábago Energy, LLC recently published a "Regulator's Guidebook" that puts forward a framework for assessing the costs and benefits of distributed solar. This document provides a good starting point for identifying best practices and developing a standardized approach.[3] The methodological approaches in the "Regulator's Guidebook" build off all of the studies done to date.

Q. WHAT ARE THE BENEFITS ASSOCIATED WITH THE NET METERING PROGRAM?

A. To evaluate net metering, it is important to focus on the characteristics of the generating technologies that participate in the program. Net metering customers tend to utilize solar photovoltaics ("PV") as the generating technology of choice. The benefits of grid-connected, distributed solar PV have been thoroughly explored and fall into three general categories: (1) grid-related benefits; (2) general environmental benefits; and (3) societal benefits.

[3] Keyes, Jason B., Rábago, Karl R., Regulator's Guidebook: Calculating the Benefits and Costs of Distributed Solar Generation, Interstate Renewable Energy Council, Inc. and Rábago Energy, LLC, October 2013. Available at http://www.irecusa.org/wp-content/uploads/2013/10/IREC_Rabago_Regulators-Guidebook-to-Assessing-Benefits-and-Costs-of-DSG.pdf.

Q. WHAT ARE THE GRID-RELATED BENEFITS ASSOCIATED WITH DISTRIBUTED SOLAR GENERATION?

As illustrated in Exhibit C, "grid-related benefits" include avoided energy losses, avoided energy costs, avoided capacity costs for generation, avoided and deferred capacity costs for transmission & distribution, avoided renewables costs, fuel price hedge, and energy market impacts. A further discussion of these benefits, including a discussion of how each should be quantified is included as Exhibit C.

Q. SHOULD THE ENVIRONMENTAL VALUE OF SOLAR GENERATION BE INCLUDED AS A BENEFIT OF THE NET METERING PROGRAM?

A. Yes. Most net-metered systems use solar PV technology and the positive environmental attributes of solar generation distinguish it from other traditional, fossil-fired generation technologies. By producing electricity with zero associated air or water emissions, solar can allow a utility to avoid environmental-related costs. Accordingly, it is appropriate to reflect that value in any solar value methodology.

Q. WHAT ARE THE SOCIETAL VALUES OF DISTRIBUTED SOLAR?

A. When the distributed solar generation market grows, it improves energy security, stimulates economic development—including job creation and attraction of investment capital—and delivers the general public health and aesthetic benefits of cleaner air and increased air visibility. “Societal” value is a necessarily broad category and could account for all of the benefits that are enjoyed by the public at large, which includes the large customer base of Rocky Mountain Power.

Q. DID ROCKY MOUNTAIN POWER ADDRESS ANY OF THESE POTENTIAL BENEFITS OF THE NET METERING PROGRAM IN ITS DIRECT TESTIMONY?

A. No. Rocky Mountain Power’s testimony does not consider any of the potential benefit values associated with net-metered solar PV.

Q. WHAT ARE THE COSTS ASSOCIATED WITH THE NET METERING PROGRAM?

A. I suggest that the costs considered in a net metering evaluation should be those costs that are directly attributable to the net metering program. Typically, this would include the value of net metering credits, the utility’s cost of administration and incremental billing costs (i.e., those additional costs it takes to serve and prepare the bill of net metering customers, as compared to non-participating customers), interconnection costs, and solar integration cost, if any.

Q. DID ROCKY MOUNTAIN POWER QUANTIFY ANY OF THESE COSTS IN ITS DIRECT TESTIMONY?

A. No. Rocky Mountain Power did not quantify or even attempt to quantify any of the potential costs associated with the net metering program. Rather, the testimony of witness Steward discusses only an alleged cost shift associated with residential net metering as the primary justification for seeking the net metering facilities charge.

Rocky Mountain Power alleges that the credit given to net metering customers for exported energy is the basis for this cost shift. Witness Steward states that "[s]ince the full retail rate that the customer is able to offset recovers both variable energy costs along with a significant portion of fixed costs, the net metering customer is not contributing to fixed cost recovery through the usage that the customer's excess generation is credited against."[4] This suggests that Rocky Mountain Power views the value of exported generation as the cause of the cost shift and, thus, as the primary cost of the net metering program.

[4] Direct Testimony of Joelle R. Steward (Ex. JJJ), p. 23.

Rocky Mountain Power also alleges that net metering results in certain grid-related costs, such as distribution system upgrades and increased wear and tear on grid equipment.[5]

Q. ARE YOU AWARE OF ANY STUDIES OR PUBLISHED UTILITY ANALYSES DEMONSTRATING THAT SMALL, SOLAR NET METERED SYSTEMS OFTEN NECESSITATE DISTRIBUTION SYSTEM UPGRADES?

A. No. In fact, a recent study by Sandia National Laboratories examined the impacts of adding 2 MW solar PV systems to three of Rocky Mountain Power's distribution feeders. The study found no appreciable negative impact on the distribution grid and found that solar PV tends to reduce overall peak demand on distribution feeders.[6]

IV. NET METERING AS LOAD REDUCTION

[5] *Id.* at p. 24.

[6] Jimmy E. Quiroz and Christopher P. Cameron, *Technical Analysis of Prospective Photovoltaic Systems in Utah*, SAND2012-1366 (February 22, 2012), *available at* http://energy.sandia.gov/wp/wp-content/gallery/uploads/121366.pdf.

Q. DO YOU VIEW BEHIND THE METER CONSUMPTION OF RESIDENTIAL NET METERING CUSTOMERS AS EQUIVALENT TO LOAD REDUCTION FROM ENERGY EFFICIENCY?

A. Yes. It is important to note that, while net metering customers have the ability to export electricity that is not consumed instantaneously, the foundation of value for most net metering customers is the ability to serve load directly from the onsite generator and avoid retail purchases of electricity from the utility. For the portion of generation that is consumed directly onsite, a customer reduces load supplied by the grid. In this way, a net metering customer consuming onsite generation is functionally similar to a customer that reduces load by installing a more efficient appliance or air conditioning system. As a 2013 Crossborder Energy report explains, NEM customers exist in essentially three "states" or types of relationships to the utility's grid:

- **The "Retail Customer State."** The sun is down and there is no PV production. All electricity consumed flows into the property from the grid. The customer is a regular utility customer.
- **The "Energy Efficiency State."** The sun is up and there is some PV production, but not enough to serve all of a customer's instantaneous load. Here the customer is served both with power from the solar system as well as with power flowing in from the grid. In this state, the solar PV serves as a means to reduce the customer's load on the grid, in the same fashion as a more efficient air conditioner or other energy efficiency measure. None of the solar customer's output flows out to the utility grid. Collectively,

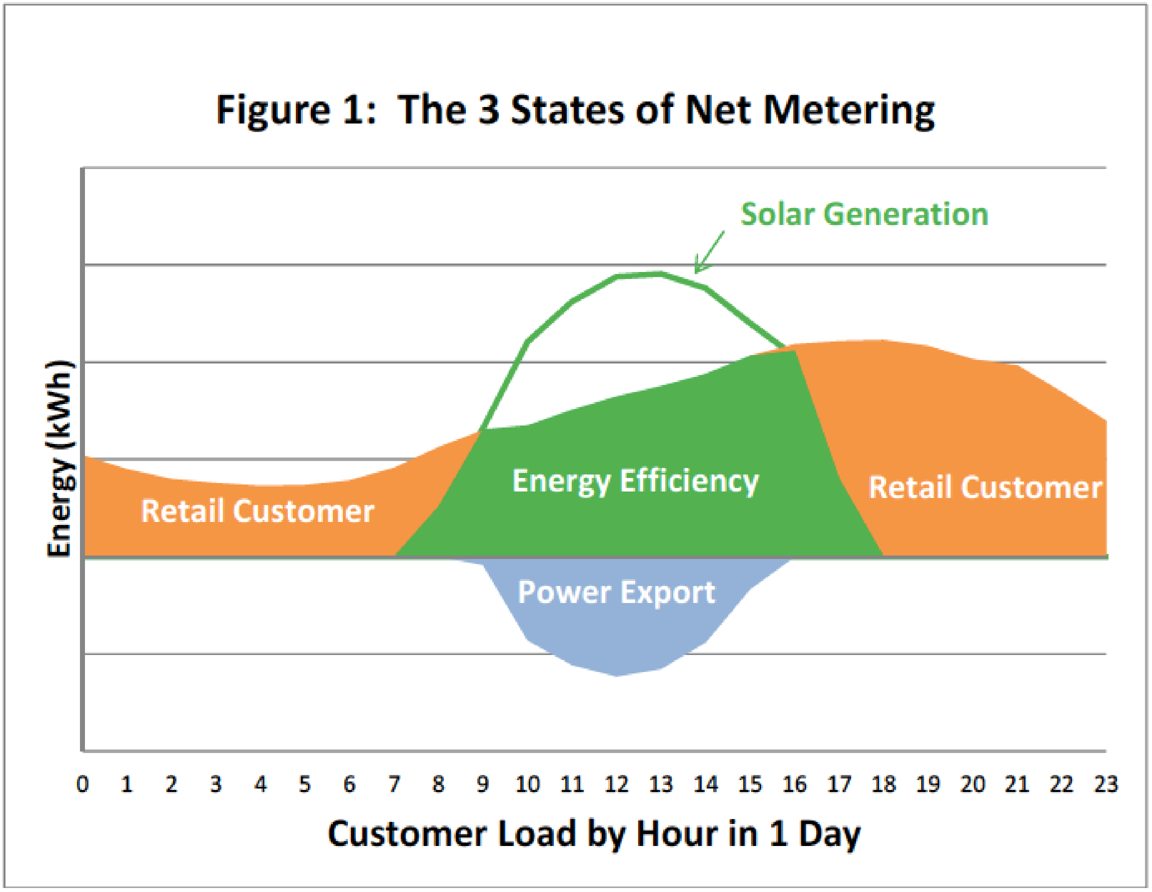
approximately 55% to 75% of the output of solar PV systems across California will be used onsite, without touching the utility's grid.[7]

- **The "Power Export State."** The sun is high overhead and PV production exceeds the customer's instantaneous use. In this state, the solar power flows into the property to serve the entire load, with the excess power flowing back out to the neighborhood distribution grid. As a matter of physics, this power will serve neighboring loads with 100% renewable energy, displacing power that the utility would otherwise generate at a more distant power plant and deliver to that local area over its transmission and distribution (T&D) system. It is critical to recognize that a NEM customer's generation only touches the grid in this third, "power export" state. As the inverse of the figure provided above, just 25% to 45% of the output of a California NEM customer's generation is exported to the grid in this third state.[8]

Figure 1: The Three "States of Net Metering Customers" (Crossborder)

[7] *Introduction to the Net Energy Metering Cost Effectiveness Evaluation* (2010 E3 Study) at p. 7 (March 2010). Available at http://www.cpuc.ca.gov/PUC/energy/DistGen/nem_eval.htm.

[8] Thomas Beach and Patrick McGuire, *Evaluating the Benefits and Costs of Net Energy Metering in California,* prepared for the Vote Solar Initiative (Crossborder 2013 Study) at p.9 (2013), *available at* http://www.votesolar.org/wp-content/uploads/2013/07/Crossborder-Energy-CA-Net-Metering-Cost-Benefit-Jan-2013-final.pdf.



Q. DOES ROCKY MOUNTAIN POWER DISPUTE THAT NET METERING RESULTS IN LOAD REDUCTION THAT CAN BENEFIT THE GRID?

A. Yes. Witness Steward states that "[u]nlike a traditional energy efficiency measure where the load and impact on the grid will predictably be reduced by the implementation of the efficiency measure, customers that install distributed generation have the same, or in many cases an increased impact, on the local distribution facilities."[9]

Q. DO YOU AGREE WITH THIS RATIONALE?

A. No, this rationale is flawed for several reasons. First, Witness Steward appears conflate the "energy efficiency state" with the "power export state" of net metering customers, as illustrated in Figure 1, above. Net metering customers in the "energy efficiency state" are indistinguishable from customers who are reducing purchases of kWh from the grid due to efficiency measures. Second, exported energy tends to be incidental and short lived and can be expected to reduce the loading on the local distribution grid by supplying energy to neighboring retail customers, without the utility even being aware that this has happened. For example, if a customer with a 5kW system is only using 4 kW, the other kilowatt leaves the home and serves the non-solar neighbor. The utility only sees a 5 kW reduction at that point in time, but is unaware of the precise mix of loads and energy. Moreover, the extra kilowatt would typically reduce the load on the distribution system at a time of higher utility costs in the middle of the day, which is arguably a benefit for all customers.

[9] Direct Testimony of Joelle Steward (Ex. JJJ), at pp. 23-24.

Rocky Mountain Power's claim that incidental exports cause it to undertake upgrades to the distribution system are unsubstantiated, making those claims essentially a utility urban legend. Moreover, Utah's interconnection rules require the interconnection customer, not the utility, to bear the cost responsibility for distribution system upgrades.[10]

Q. OVERALL, DOES ROCKY MOUNTAIN POWER PRESENT ANY EVIDENCE THAT IS RELEVANT TO A COST-BENEFIT EVALUATION OF THE NET METERING PROGRAM?

A. No. Rocky Mountain Power did not attempt to quantify any of the benefits or costs of the net metering program that would be relevant to the Commission's determination under S.B. 208.

V. NEM FACILITIES CHARGE

Q. PLEASE SUMMARIZE THE NEM FACILITIES CHARGE THAT RMP IS PROPOSING IN ITS APPLICATION.

A. Rocky Mountain Power is proposing to implement a new monthly facilities charge on residential customers taking service under Schedule 135, Net Metering Service, of $4.25 per customer per month. This net metering

[10] Rule 746-312.

facilities charge would be in addition to the existing monthly customer charge—which the Company is also seeking to increase—and would actually rise above $4.25 if the Company does not get its approved increase in the monthly fixed customer charge applicable to all Schedule 1, 2 and 3 customers. Witness Steward testifies "[s]ince this [cost-of-service-derived] calculation takes into account the Company's proposed increase in the residential customer charge, if the customer charge is less than the proposed $8.00 per month, then the proposed Net Metering Facilities Charge will increase in order to recover the fixed costs not in the customer charge."[11]

Q. HOW WOULD YOU DETERMINE WHETHER RESIDENTIAL NET METERING CUSTOMERS ARE PAYING THEIR FAIR SHARE OF THE COST ROCKY MOUNTAIN POWER INCURS TO PROVIDE THOSE CUSTOMERS SERVICE?

A. At the outset, it is necessary to appreciate that the principle of "fairness" is but one of many factors that must be considered using good rate design. Indeed, "fairness", itself, has several dimensions. To solely determine whether net metering customers actually contribute a "fair" share to the cost Rocky Mountain Power incurs to provide service, it is important to establish a

[11] Direct Testimony of Joelle Steward (Ex. JJJ) p. 25.

baseline. In this case, the baseline would be a determination of whether the residential customer class, as a whole, contributes its fair share.

In Witness Walje's testimony, the Company claims that Utah residential customers represent "over 25 percent of the kWh sold and over 35 percent of the revenues the Company receives annually in Utah."[12] A back of the envelope calculation implies that residential customers pay 140% of their share of Rocky Mountain Power's incurred costs to serve all customers, at least on a kWh sales basis.

Based on Witness Steward Exhibit KKK "Cost of Service Results", it is clear that even if we remove those functions that are most clearly residential-class related (retail and distribution), RMP still allocates 31.1% of generation and transmission costs to the residential class. This allocation implies that while residential customers account for only 25% of kWh sales, they are being allocated significantly more than 25% of total Company cost-of-service (31.1% / 25% = 124.5%).

[12] Direct Testimony of A. Richard Walje (RMP Ex. B), p. 11.

Under this type of analysis, net metering might move some customers toward a more "fair" result (i.e., a closer approximation of 100% of allocated cost-of-service). But it is important to note that this is only part of the picture.

At a deeper level, the issue that Rocky Mountain Power is raising is whether residential net metering customers—as if they somehow constitute a sub-class for ratemaking purposes—pay their fair share of the allocated cost-of-service for their class. It is far from settled that customers with on-site distributed generation taking service under the Net Metering Facilities Service have the same or greater impacts on the grid than other residential customers. One study relevant to the discussion of costs and benefits of Net Metering programs, specifically (and distributed generation, generally), concluded that distributed solar-PV generation provides net benefits to the grid through added substation capacity[13].

Until a full cost-benefit analysis is done for Rocky Mountain Power's system, it is not possible at this time to determine whether net metering customers are contributing less than, the same as, or perhaps more than a fair share of their

[13] Ellis, A., M. Ralph, G. Corey, D. Borneo. "Exploration of PV and Energy Storage for Substation Upgrade Deferral in SLC, Utah Second Progress Report for Rocky Mountain Power and Utah Clean Energy," October 2010.

cost to serve. I do not believe that the net metering facilities charge can be justified without making that determination.

Q. BASED ON ROCKY MOUNTAIN POWER'S APPLICATION AND TESTIMONY, CAN YOU CONCLUDE THAT NET METERING CUSTOMERS ARE NOT PAYING ENOUGH IN ELECTRICITY CHARGES TO COVER THEIR COST OF SERVICE?

A. No. There is simply not enough information to make this determination. I do not dispute that net metering customers might be expected to have lower energy sales on average than residential customers, overall. However, Rocky Mountain Power has not produced any evidence that net metering customers are not, on the whole, purchasing sufficient kWhs from the Company to cover the cost of serving them, as residential customers.

Moreover, even if the Commission were to look at net metering customers as a distinct group, it would need to consider whether the cost of providing service is more or less than other customers that are currently considered by the Company to be similarly situated (i.e., the stated cost of serving residential net metering customers is the cost of serving residential customers). The record presented by Rocky Mountain Power, however, is devoid of any relevant details to support such a proposition.

I appreciate that customers can sometimes have very different impacts on the grid, and so a determination on what constitutes a "fair" share might take into account such disparate use. Indeed, the Commission gave some consideration to this concept in Docket No. 09-035-23, referring to proper allocation of fixed costs of the distribution system relied upon to serve residential customers: "[local] distribution facilities are generally designed and built to meet local peak demands. Recovering these fixed costs equally from all customers ignores differences in peak use ."[14]

At this time, when no cost-benefit analysis has been performed and very little is known about the overall generation and consumption profiles of net metering customers, it is premature to single out net metering customers for distinct treatment as a special class. Other sub-classes of customers that the Company is not singling out for special charges also have atypical demand patterns and/or lower than average overall consumption, including but not limited to: customers under optional time-of-use rates who successfully shift demand from on-peak to off-peak periods, customers who have invested in energy efficiency upgrades, customers who work second or third shifts and have peak demand that is not coincident with system peak.

[14] Docket 09-035-23, "Report and Order on Rate Design," p. 30 (June 2, 2010).

Q. HOW DOES ROCKY MOUNTAIN POWER REACH ITS CONCLUSION THAT RESIDENTIAL NET METERING CUSTOMERS DO NOT COVER THEIR COST OF SERVICE?

A. In Witness Steward's testimony, the Company asserts that the "energy rates for [residential customers under Schedules 1, 2 and 3] recover a significant portion of fixed costs. As a result, when net metering customers are credited with the full retail rate, their contribution to fixed costs are reduced and therefore shifted to other customers."[15] The only conclusion that can be reached here, if we take this statement as fact, is that net metering customers pay less than what the Company has calculated to be their cost of service, under their proposed methodology, which is under dispute.

Q. EVEN IF ROCKY MOUNTAIN POWER HAD PROVIDED SPECIFIC EVIDENCE THAT NET METERING CUSTOMERS ARE NOT PAYING ENOUGH TO COVER THEIR FULL COST OF SERVICE, DOES S.B. 208 REQUIRE THE COMMISSION TO APPROVE THE PROPOSED NET METERING FACILITIES CHARGE?

A. No. Under S.B. 208, the Commission must undertake a cost-benefit analysis of the net metering program, which is a distinct from a pure cost of service analysis for an alleged sub-set of one rate class.

[15] Direct Testimony of Witness Joelle Steward (Ex. JJJ), p. 22.

Q. IS ROCKY MOUNTAIN POWER'S PROPOSED $4.25 PER MONTH NET METERING FACILITIES CHARGE SUPPORTED BY COST CAUSATION PRINCIPLES?

A. No. In order to justify the $4.25 per month per customer Net Metering facilities charge, the Company appears to be asking the Commission to overturn decades of precedent on what costs should properly be recovered through fixed charges. Because the Company is proposing that the NEM facilities charge be approved at a level above the $4.25 amount, in the case that they do not receive their full customer charge increase from $5.00 to $8.00, they are effectively requesting that the Commission agree that $12.25 is the proper fixed charge to be allocated to a subset of residential customers.

Putting aside the defect that the Company cannot show that residential net metering customers have characteristics that justify disparate treatment, the size of the net metering charge should fall under its own weight. The Commission has repeatedly rejected a change in the methodology originally established in Docket No. 82-057-15: "expenses that should be included in the customer charge calculation are those expenses which are caused by every customer each month. Costs that generally increase with the number of customers, but are not caused by each customer should be excluded from the customer charge and instead be included within the commodity portion of … rates."[16]

Additionally, pursuant to S.B. 208, the Commission is now initiating an exploration of the costs and benefits of net metering, which also implicates the value of on-site distributed generation to the utility and its ratepayers. The results may show that investments in distributed generation and other on-site equipment (including energy storage and "smart" home devices) result in future avoided costs. If that is the case, then cost causation principles would dictate that a credit is warranted rather than a charge. Setting a monthly charge on customers taking service under Schedule 135 that would effectively be $12.25 is contrary to this straightforward principle.

Q. FROM THE PERSPECTIVE OF ESTABLISHED RATEMAKING PRINCIPLES, ARE THERE OTHER PROBLEMS WITH THE PROPOSED NEM FACILITIES CHARGE?

A. Yes. At a high level, good rate-making should balance fairness with efficiency. Fairness dictates that a very high burden exists to justify disparate treatment of customers within rate classes (residential, commercial and

[16] Docket No. 82-057-15, "Report and Order on Rate Design and Cost Allocation," p. 27.

industrial). Any differential rate design for a distinct sub-class of customer (Schedule 135 customers taking service under Schedules 1, 2 or 3) must be just and reasonable. Utah Code Annotated § 54-3-1 dictates that “[t]he scope of definition "just and reasonable" may include, but shall not be limited to, the cost of providing service to each category of customer, economic impact of charges on each category of customer, and on the well-being of the state of Utah; methods of reducing wide periodic variations in demand of such products, commodities or services, and means of encouraging conservation of resources and energy.”

In order to establish a separate effective customer charge for NEM customers of $12.25 ($4.25 plus $8.00, or an amount sufficient to cover the difference between the Company’s proposed increased customer charge and the charge determined as a result of this proceeding), the Company would have to show and justify under cost of service principles that the cost to serve NEM customers is substantially different from that to serve other customers, including those having made energy efficiency investments, those who have invested in on-site generation and have not chosen to take service under Schedule 135 (if any), and others with atypical usage patterns for other reasons. Until this showing is made, I assert that the cost-to-serve justification cannot be made.

Q. ARE THERE OTHER FACTORS THAT MIGHT JUSTIFY DISPARATE TREATMENT OF RESIDENTIAL NET METERING CUSTOMERS?

A. Yes, there are several additional factors to consider. First, one factor that could justify disparate treatment that may be relevant is the "economic impact of charges on each category of customer". The crux of the Company's argument is that without fixed cost recovery through variable energy sales to NEM customers, the fixed costs incurred by the Company for their distribution system must be borne by other customers within the residential customer class. However, it has not been shown that NEM customers pay substantially less than other potentially distinguishable categories of customers who have, through any number of means other than net metering, also reduced their net consumption of grid-delivered electricity.

Another reading of "economic impact of charges on each category of customer" is that the net metering charge economically impacts net metering customers, who have, themselves, undertaken an investment in long-lived infrastructure with potential positive externalities that flow to the Company and other customers. In this way, a net metering charge could be seen as a duplicative charge to recover from net metering customers fixed costs incurred by the Company to serve them in addition to costs they themselves have incurred to provide a benefit to the grid and other customers. Technical (though partial) equivalence between distributed solar PV and upgrades to a substation has been made in a Sandia Labs Report ("a 20% penetration of PV [on a residential feeder line] with a nameplate capacity of 1.25 MW added a [substation] capacity value of 0.9 MW or 72%.").[17]

Second, another factor to keep in mind is the importance of the high-level principle of efficiency in ratemaking. On this point, good ratemaking must send price signals that incentivize efficient behavior, in both the short and long-terms. In order for a price signal to be effective, it has to be one that customers can incur or avoid based on a range of actions available to them.

In the case of fixed charge, such as the portfolio of charges proposed for net metering customers, the price signal in volumetric rates is dampened and effectively provides a disincentive to adopt on-site generation. Regardless of the Company’s stated intent in proposing such charges, there is an open question in the future of Utah’s power system as to whether distributed infrastructure—including distributed solar that is encouraged by net metering—is a less efficient investment than centralized plants. While the question remains unsettled, principles of market efficiency lend credence to

17 *See* Exploration of PV and Energy Storage for Substation Upgrade Deferral in SLC, Utah Second Progress Report for Rocky Mountain Power and Utah Clean Energy, *supra*, footnote 16.

the idea that many individual actors may be better at allocating resources efficiently than one or a few large ones.

VI. RESIDENTIAL CUSTOMER CHARGE

Q. PLEASE SUMMARIZE RMP'S PROPOSED INCREASE TO ITS RESIDENTIAL CUSTOMER CHARGE.

A. The Company proposes to increase its fixed charge to residential customers taking service under Schedules 1, 2 and 3 from $5.00 to $8.00 per customer per month. Overall, it proposes to increase residential rates by 5.1%, utilizing this 60% increase in the customer charge in combination with a 1.03% across the board increase in energy rates.

Q. PLEASE BRIEFLY SUMMARIZE THE HISTORY OF THE CUSTOMER CHARGE.

A. The Commission's view of the role of the fixed customer charge—as established in 1982 through Docket No. 82-057-15, implemented in Docket No. 84-035-01 and repeatedly affirmed by the Commission ever since (in Docket Nos. 90-035-06, 97-035-01, 06-035-21 and 09-035-23)—is to recover some of the fixed costs that are incurred to serve customers. Stated generally, these are costs that do not vary with energy usage. The Commission's standing policy position regarding customer charges is that it is appropriate to use that mechanism to recover those fixed costs that do not vary with a customer's usage, but that are attributable to each customer. For example, these costs would include utility assets such as meters and line drops, and expenses such as meter reading, billing, and collections. It has been the Commission's position, through these many proceedings, that fixed costs that vary with the number of customers, but that are not directly attributable to each customer, are appropriately recovered through volumetric energy sales.

The issue regarding which costs are proper to include in the fixed customer charge has been repeatedly litigated and the Commission has consistently adhered to this distinction.[18] The table and chart below show the history of the customer charge over time, along with the calculated costs to be recovered based on the 1984 approved methodology [19] and, thirdly, the Company's initial proposed charge in the respective proceeding:

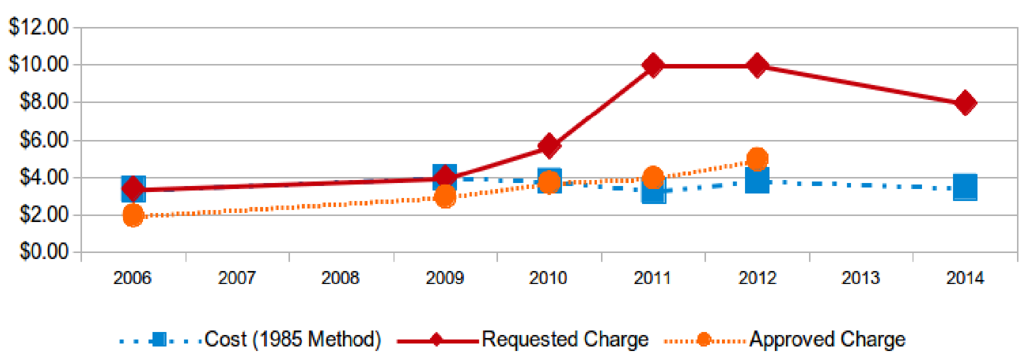
Table 1. Table of Customer Charge Cost-Calculations, Proposed Charges and Approved Charges

[18] There is a particularly useful discussion of this long-standing distinction in the "Background on the Customer Charge" section of the Report and Order on Rate Design in Docket No. 09-035-23 (June 2, 2010).

[19] Where calculations were not directly available in the record, estimates were made based on available data and attempted interpretation of COS data from years where the 1984 method estimate was and was not available. Company proposal was that used in initial testimony.

Docket No.	Date	Cost (1985 Method)[20]	Requested Charge	Approved Charge
84-035-01	7/1/85	--	--	$1.00
87-035-27	3/10/89	--	--	$0.98
Tariff 37	9/15/89	--	--	$0.94
89-035-10	2/15/90	--	--	$1.00
97-035-01	4/15/97	--	--	$0.98
06-035-21	12/1/06	$3.39	$3.40	$2.00
08-035-38	6/17/09	$4.03	$4.00	$3.00
09-035-23	6/2/10	$3.83	$5.70	$3.75
10-035-124	9/13/11	$3.32*	$10.00	$4.00
11-035-200	9/19/12	$3.85	$10.00	$5.00
13-035-184	9/1/14	$3.49*	$8.00	--

Figure 2.
Customer Charge Cost-Calculations, Proposed Charges and Approved Charges



20 Where the cost as calculated by the 1985 methodology was not available (marked with '*'), I made a best effort to derive it from available data in the respective proceeding. I expect the values shown for 10-035-124 and 13-035-184 are the lower bound of the true value. Given the generally flat trajectory of costs since 2006, I believe the cost relevant for the current proceeding is between $3.49 and $4.25.

As the chart and table show, after many years lagging the calculation of customer costs to be collected through the monthly charge (as the charge was gradually ratcheted upward), beginning in 2010, the charge first approximately equaled this cost. In recent GRCs, parties to the proceedings have begun to debate whether more costs should be reasonable collected through the monthly customer charge. While no consensus has emerged, the standing Commission approved methodology results in a cost that is now being fully collected through the charge.

Q. THE COMPANY'S COST-OF-SERVICE STUDY APPEARS TO SUPPORT A COST-BASED CUSTOMER CHARGE OF $6.96. PLEASE EXPLAIN THE DIFFERENCE WITH YOUR NUMBER FOR THE CURRENT PROCEEDING.

A. The $6.96 value is not clearly derived from the 1985 approved methodology, and is in fact significantly higher than the range calculated for recent rate cases. Because a 1985 methodology value is not available in the current proceeding, I undertook best effort to approximate that value using available data. The $3.49 per customer per month value was calculated from Witness Steward's Exhibit LLL, in which residential customer revenue requirements are shown for the categories "Distribution - Meter", "Distribution - Service" and "Retail Total". The $6.96 total includes all three categories, while my calculation omits "Retail Total." Because a clear calculation of the 1985 methodology is not available in the current proceeding, I base my calculation on the last available GRC (from Docket No. 11-035-200), which omits the majority of costs categorized under "Retail."

In Exhibit YYYYYY of Witness Griffith in Docket No. 11-035-200 (dated 2/12/12)—the last available proceeding in which a clear 1985 cost calculation is made—the category "All Other Retail Costs" is omitted from the cost total of $3.85. I suggest that an exact calculation of the cost using the approved methodology for the current proceeding would be somewhere in the range of $3.49 to $4.25.

Q. ARE YOU RECOMMENDING A CUSTOMER CHARGE OF $3.49 IN THE CURRENT PROCEEDING?

A. No, I am not. The purpose of calculating this number is simply to show that the last several GRCs have succeeded in gradually increasing the charge to a level that is now in alignment with the cost methodology approved and repeatedly reaffirmed by the Commission.

Q. PLEASE BRIEFLY SUMMARIZE THE COMPANY'S JUSTIFICATION FOR THEIR REQUESTED INCREASE?

A. The Company, through the testimony of Witness Steward, suggests that the appropriate costs to recover in a fixed residential customer charge are those that "do not vary with usage,"[21] including at a minimum those costs that are functionalized in their Cost-of-Service study under the categories of distribution and retail, but presumably also those under the categories of generation and transmission. Using this method, the Company suggests an appropriate monthly customer charge of $25 (including distribution and retail) or $56 (including all fixed costs attributable to residential customers). While the Company has calculated a "cost-based" residential customer revenue requirement of $6.96 in supporting Exhibit LLL, the Company's witnesses do not assert in testimony that this was calculated using the approved 1985 methodology, nor do they compare this with the cost calculated in the previous GRC (Docket No. 11-035-200) of $3.85 and explain the deviation now from two years ago.

The reasons given for increasing the customer charge beyond that calculated from the approved cost methodology include: (1) the need to reduce the company's dependence on weather-related energy sales for cost recovery;[22] (2) the need to reduce intra-class cross subsidies (from higher-consuming customers to lower-consuming ones)[23]; (3) the need to eliminate a conflict for

21 Direct Testimony of Witness Joelle Steward (Ex. JJJ), p. 13.

22 Direct Testimony of Witness Joelle Steward (Ex. JJJ), p. 14.

23 *Id.*, pp. 13-14.

the utility between encouraging conservation and recovering costs[24]; and (4) the need to send clearer price signals to customers.[25]"

Q. WHAT, IF ANY, COMMISSION PRECEDENT APPLIES TO THE RATIONALE GIVEN BY THE COMPANY IN DEFENDING THEIR PROPOSED INCREASE?

A. In its "Report and Order on Rate Design" in Docket No. 09-035-23, the Commission rejected both the revenue volatility and the intra-class cross subsidization justifications that the Company raised then (and raises again now) as reasons to change the approved customer cost methodology from that implemented in 1985. On revenue volatility, the Company argued that more costs should be recovered from fixed charges because a revenue structure weighted heavily toward variable energy sales resulted in highly volatile revenue streams. However, the Commission determined that "the expected variation in revenues, and resulting volatility in earnings, is a recognized business risk and is included in the determination of the allowed rate of return."[26]

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24 Direct Testimony of Witness Richard Walje (RMP Ex. B), p. 12.
25 Direct Testimony of Witness Joelle Steward (Ex. JJJ), p. 14.
26 Docket 09-035-23, "Report and Order on Rate Design," p. 31 (June 2, 2010).

On the topic of intra-class inequity, the Commission found that recovering fixed costs through fixed charges to all customers "ignored differences in peak use."[27] For both reasons, the Commission then declined to overturn the 25-year-old policy governing how customer costs should be calculated in determining a reasonable customer charge.

Q. DO YOU AGREE WITH THE OTHER JUSTIFICATIONS GIVEN BY THE COMPANY FOR CHANGING THE CUSTOMER COST CALCULATION METHODOLOGY?

A. No, I do not. I will address each in turn. First, in Witness Walje's testimony, the Company asserts that "[When] coupled with the third tier of pricing, [the low fixed monthly charge] results in a disincentive for the Company to even more aggressively pursue energy efficiency based sales reductions."[28] This argument, while factually correct, ignores the fact that the Company's sales are, symmetrically, also its customer's energy costs. Accordingly, the incentive to conserve is enhanced by high variable energy rates for those actors most able to use energy efficiently, the consumer.

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[27] *Id.*, p. 30.

[28] Direct Testimony of A. Richard Walje (RMP Ex. B), p. 12.

Second, the company argues that low fixed charges send unclear price signals to customers, implicitly appealing to the “cost-based-pricing” principle of rate design. However, Commission precedent and long-accepted ratemaking principles support maintaining the current allocation between fixed and variable charges. The Commission has previously acknowledged that there is an intertemporal aspect to ratemaking, and that costs which are fixed in the short-run become variable in the long-run. In Docket No. 06-035-21, the Commission found that “achieving intra-class equity and proper price signals includes more than collecting revenues based on a “snap shot” embedded cost-of-service study but also recognizes the dynamic process that starts once rates are set.”[29]

In order to send proper price signals to customers, it should be acknowledged that customer behavior, including individual and system coincident peak energy usage, impacts utility planning decisions. In this way, customer behavior in the short-term affects all utility costs in the long-term, and in the long-term, all costs are variable. Recovering these infrastructure investment costs through fixed monthly charges entirely eliminates the effectiveness of the price signal, because the only response customers can have to these charges is to cease being a utility customer.

[29] Docket No. 06-035-21, “Report and Order,” p. 31 (December 21, 2006).

There are many options available to policy-makers to bring customer charges in line with costs (time-of-use pricing, dynamic pricing, etc.) but until such frameworks are in place and effectively implemented, the options for recovering fixed costs remain either variable energy prices or fixed charges. And only variable energy prices are signals to which customers can respond.

Q. DO YOU HAVE A POSITION ON RMP'S PROPOSED CUSTOMER CHARGE INCREASE?

A. Yes, I oppose the increase. The reasons given by the Company in support of the change in policy have been previously raised and previously rejected by the Commission. The Company fails to muster any compelling new argument in its application or testimony that could provide the Commission a compelling justification to overturn its nearly 30-year-old policy on the proper methodology for calculating customer costs to be recovered through the customer charge. The only new evidence provided that the facts on the ground have changed is the Company's assertion that actual energy sales have fallen below those that were projected, and therefore the company is at risk of under-recovery of their costs (fixed and variable). My conclusion is that policies enacted to encourage conservation by consumers have been successful, and more efficient energy use is a sign of success and not failure.

Indeed, if a rate increase is necessary for the company to recover prudently-incurred costs, I believe a fair compromise would be to distribute the increase evenly between fixed and variable rates by the overall percentage the company is requesting. Rather than increasing fixed charges by 60% and variable charges by 1.03%, an across the board increase of 5.1% (or whatever increase is approved by the Commission) may be justified. However, because the current fixed charge of $5.00 per customer per month very well may already exceed the costs approved for recovery according to the 1985 methodology, limiting any residential rate increase solely to variable rates may actually be the proper solution.

VII. RESIDENTIAL MINIMUM BILL CHARGE

Q. PLEASE SUMMARIZE RMP'S PROPOSED INCREASE TO ITS RESIDENTIAL MINIMUM BILL CHARGE.

A. The Company has proposed to increase the minimum bill from $7.00 per customer per month to $15.00 per customer per month.

Q. DO YOU HAVE A POSITION ON THE PROPOSAL TO INCREASE THE RESIDENTIAL MINIMUM BILL?

A. Yes, I oppose the increase the Company is requesting. The Company is proposing to more than double the minimum bill for residential, single-phase customers, but has not provided justification for their increase beyond a desire to recover some fixed cost (above the customer charge that applies to all customers) from very low-use customers. The Company's request in this rate case is in fact a significant departure from their previous rate case, in which they proposed eliminating the minimum bill completely.

For some context, currently the minimum bill is $2 more than the customer charge. In recent years, it has been as little as $0.03 above the customer charge, to as great as $3.00 above. In the current Application, the Company proposes to set it at $7 above their proposed customer charge, without justification as to why this is the proper amount.

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

A. Yes.