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BEFORE THE PUBLIC SERVICE COMMISSION OF UTAH

In the Matter of the Application of Rocky Mountain Power for Authority to Increase its Retail Electric Service Rates in Utah and for Approval of its Proposed Electric Service Schedules and Electric Service Regulations	**Docket No. 11-035-200** UCE Exhibit 1.0D [COS+RD]

DIRECT TESTIMONY OF SARAH WRIGHT

ON BEHALF OF

UTAH CLEAN ENERGY

[COST OF SERVICE AND RATE DESIGN]

June 22, 2012

INTRODUCTION

Q: Please state your name and business address.

A: My name is Sarah Wright. My business address is 1014 2nd Ave, Salt Lake City, Utah 84103.

Q: By whom are you employed and in what capacity?

A: I am the Executive Director of Utah Clean Energy, a non-profit public interest organization whose mission is to lead and accelerate the clean energy transformation with vision and expertise. We work to stop energy waste, create clean energy, and build a smart energy future.

Q: On whose behalf are you testifying?

A: I am testifying on behalf of Utah Clean Energy (UCE).

Q: Please provide your professional experience and qualifications.

A: I am the founder and director of Utah Clean Energy. Through my work with Utah Clean Energy over the last 11 years, I have been involved in a number of regulatory dockets, including Integrated Resource Planning, rate cases, tariff filings, and other dockets relating to energy efficiency, renewable energy, and net metering. I serve on both Rocky Mountain Power's and Questar Gas Company's Demand Side Management Advisory Committees.

I have over ten years of energy policy experience working on state, local and national energy policy, providing expertise and policy support for energy efficiency and renewable energy. I have served on numerous energy policy working groups and taskforces, including the Energy Efficiency and Energy Development Committees supporting Governor Herbert's Energy Task Force and Ten Year Energy Plan; the Governor's Utah Renewable Energy Zone Task Force; Governor Huntsman's Energy Advisory Council and Blue Ribbon Climate Change

Advisory Council; Utah's Legislative Energy Policy Workgroup, and Salt Lake City's Climate Action Task Force. I also served on the State of Utah, Division of Air Quality PM2.5 State Implementation Plan workgroup.

For15 years prior to founding Utah Clean Energy, I was an occupational health and environmental consultant working on occupational health and ambient air quality issues for a wide variety of commercial, industrial, and governmental clients across the west.

I have a BS in Geology from Bradley University in Peoria, Illinois and a Master of Science in Public Health from the University of Utah in Salt Lake City. My resume is attached at the end of my testimony.

Q: Have you testified previously before this Commission?

A: Yes. I testified on behalf of Utah Clean Energy in Docket No. 05-057-T01 (In the matter of the joint application of Questar Gas Company, the Division of Public Utilities, and Utah Clean Energy for approval of the Conservation Enabling Tariff adjustment option and accounting orders) and filed testimony in Rocky Mountain Power's Energy Cost Adjustment Mechanism proceedings **(**Docket No. 09-035-15**)** and in Rocky Mountain Power's last general rate case (Docket No. 10-035-124)**.**

OVERVIEW AND CONCLUSIONS

Q: What is Utah Clean Energy's interest in this docket?

A: Utah Clean Energy prioritizes a more efficient, cleaner, and smarter energy future. We envision and enable increased utilization of energy efficiency, distributed generation, and utility-scale renewable energy. Our long-range vision of the smart energy future includes a more modern, agile, diversified and secure energy system that can readily take advantage of new

capabilities for saving energy and expand the use of electric vehicles, distributed generation, demand response and energy storage, and use of information and control technologies.

Rate design decisions have a direct influence on increased utilization and adoption of energy efficiency and distributed generation and will have long-term impacts on consumer energy decisions, which in turn, impact the adoption rates of energy efficiency and distributed generation. In order to facilitate a smooth, cost conscious, and orderly transition to this smarter energy future, and given the impact today's decisions will have on over the long-term, it is important that this Commission approve rate designs that send appropriate price signals to ratepayers and maintain and effectuate the clean energy policies currently in place in Utah.

Q: What is the purpose of your testimony?

A: The purpose of my testimony is to support residential rate design that promotes smart, efficient, and distributed energy use. Specifically, I will discuss rate design as a means of discouraging energy waste and encouraging conservation and investments in energy efficiency and maintaining Utah's net metering policy for distributed generation. I will respond to the Company's rate design recommendations, present Utah Clean Energy's recommendations, and outline the policies and principles supporting our recommendations.

Q: Please provide a brief outline of your testimony.

A: I first introduce Utah Clean Energy's general position on residential rate design, then specifically address and make recommendations on the following components of residential rate design:

- The energy rates;
- The customer charge; and
- The minimum bill.

Finally, I provide an overview of the policies supportive of Utah Clean Energy's residential rate design recommendations.

INTRODUCTION TO RESIDENTIAL RATE DESIGN

Q: What is Utah Clean Energy's general position with regard to residential rate design?

A: Utah Clean Energy views residential rate design as an important component of smart energy policy. Residential rate design affects the price signals consumers receive from their energy bills and can influence customer choices and energy consumption behaviors. A rate design that collects the most revenue from volumetric energy rates, and incorporates inclining block rates, conveys the message that increasing energy consumption increases the costs of energy. Collecting revenues through volumetric rates reinforces energy conservation because consumers can more obviously benefit from energy conserving behaviors and efficiency investments and more quickly realize returns on investment. Inclining block rate designs that collect more costs through volumetric charges send price signals to conserve energy through behavior change and investment in energy efficient homes, energy improvement retrofits, and efficient appliances and technologies.

As explained below, Utah Clean Energy believes that energy rates should be set to send conservation-encouraging price signals and that the customer charge should not include costs that are affected by consumption and be set such that it does not blunt the ability for price signals to be sent through the volumetric portion of the bill. We also support elimination of the minimum bill.

RESIDENTIAL ENERGY RATES

Q: What is Utah Clean Energy's position with regard to residential energy rates?

A: As discussed above, Utah Clean Energy supports sending strong signals to customers to conserve energy and use it efficiently. Such signals can be sent through inclining block rates, consumption-based surcharges, and targeted messaging on customer bills, among other things. In the interest of sending strong and accurate price signals for energy conservation and efficiency, Utah Clean Energy recommends that rates be informed by consideration of the long-term impacts of energy use. In Docket No. 06-035-21, the Commission recognized that "marginal cost information can and should be used to guide rate design because collecting revenues based solely on a "snap shot" embedded cost of service study, disregards the "dynamic process that starts once rates are set."[1]

Q: What is the Company's proposal for the residential energy rates?

A: The Company's calculation of the residential energy rate is dependent on its calculation of the monthly customer charge.[2] The Company proposes to collect any revenues not collected through the customer charge through the energy rates, but proposes no substantive changes to the residential energy charge structure. The Company does not justify its proposed energy rates in terms of marginal costs.

Q: What is your recommendation for the residential energy rates?

A: I recommend that the Company utilize long run marginal cost information in its calculation of energy rates and allow energy rates to inform the customer charge. Furthermore, I recommend that the rate increase be distributed between the two summer tail blocks and that the

[1] Docket No. 06-035-21, In the Matter of the Application of PacifiCorp for Approval of its Proposed Electric Service Schedules and Electric Service Regulations, *Report and Order* (Issued December 1, 2006) (hereinafter *06-035-21 Order*), page 31.
[2] *Griffith Direct*, page 2, lines 97-101; *See also* Exhibit RMP__(WRG-3).

winter rates be restructured into an inclining block rate structure with the rate in the first block equivalent to the rate in the first summer block.

RESIDENTIAL CUSTOMER CHARGE

Q: What is Utah Clean Energy's position with regard to the monthly residential customer charge?

Utah Clean Energy supports the customer charge policy that was established by the Commission in Docket No. 82-057-15, implemented for Rocky Mountain Power in Docket No. 84-035-01, and reaffirmed in Docket Nos. 90-035-06, 97-035-01, 06-035-21, and 09-035-23.

In Docket 82-057-15 the Commission found that the customer charge was the proper mechanism for requiring that each customer pay for the costs he imposes upon the system regardless of energy usage.[3] The Commission found that "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."[4] It is clear from this language that the customer charge is not the proper mechanism for recovering costs that are affected by monthly energy usage.

[3] Docket No. 82-057-15, In the Matter of the Application of Mountain Fuel Supply Company for a General Increase in Rates and Charges Incident to Natural Gas Service Rendered, *Report and Order on Rate Design and Cost Allocation* (Issued July 1, 1985) (hereinafter *08-057-15 Order*), page 27. *See also* Docket No. 84-035-01, In the Matter of the Application of Utah power and Light Company for Approval of its Proposed Electric Rate Schedule and Electric Service Regulations, *Report and Order on Rate Design and Spread Issues* (hereinafter *84-035-01 Order*), pages 11-12.

[4] *82-057-15 Order*, page 27.

In Docket No. 09-035-23, the Commission found that recovering costs for local distribution facilities in the customer charge, that is, equally from all customers regardless of usage, was not equitable because it ignored differences in peak use.[5]

Q: What is the Company's position with regard to the residential customer charge?

A: The Company's position with regard to the residential customer charge is laid out in the testimony of William R. Griffith. Mr. Griffith outlines three separate customer charge methodologies. The first is the "fixed costs methodology" which recognizes three fixed cost components of functionalized revenues as appropriate for inclusion in the customer charge. The Company asserts that these costs do not vary with usage and are therefore appropriate for inclusion in the monthly customer charge. This methodology includes the distribution function (substations, poles and wires, line transformers, service drops, meters), the retail function (meter reading, customer accounting, customer service activities), and the miscellaneous function (regulatory activities, franchise requirements, and commission expenses). The Company used this methodology to calculate a monthly customer charge of $28.63.[6]

Q: What is your response to this customer charge methodology?

A: First, I disagree that the need for distribution investments does not vary with usage. The Company's costs for the distribution system may be fixed, but that does not mean those costs are not affected by energy usage. Additionally, regulatory activities, including franchise requirements and regulatory commission expenses are "costs that generally increase with the

[5] Docket No. 09-035-23, 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, *Report and Order on Rate Design* (Issued June 2, 2010) (hereinafter *09-035-23 Order*), page 30.
[6] Docket No. 11-035-200, Direct Testimony of William R. Griffith (Rate Spread and Rate Design) (Hereinafter *Griffith Direct*), pages 5-6, lines 114-129.

number of customers, but are not caused by each customer" and are therefore inappropriate for inclusion in the customer charge.

Q: What is the second customer charge methodology discussed by the Company?

A: The second methodology outlined by the Company is the 1985 methodology based on the ruling in Docket No. 84-035-01. The Company explains that this methodology fails to collect costs for which residential customers are each solely responsible. This methodology produces a customer charge of $3.85.[7]

Q: What is the third method?

A: The Company calls the third method the 2012 methodology. It is based on the 1985 methodology but makes three adjustments. While the 1985 methodology collects costs associated with meters, service drops, meter reading, billing, and collections, it does not include maintenance costs associated with meters and service drops, so these have been added to the 2012 methodology. The company also included costs associated with the retail function that were not included in the 1985 method. Additionally, the Company included the "customer-related cost component of distribution line transformers."[8] This calculation methodology results in a customer charge of $11.60.[9]

Q: What is the Company's proposal for a residential customer charge?

A: The Company has proposed a $10.00 customer charge as a compromise approach based on the 2012 methodology.[10] Mr. Griffith explains that the Company's pricing objectives in this

[7] *Griffith Direct*, pages 6-7, lines132-146.
[8] *Griffith Direct*, page 7, lines 160-161.
[9] *Griffith Direct*, pages 7-9, lines 157-204.
[10] *Griffith Direct*, page 10, lines211-216.

case are to implement the proposed rate increase while reflecting cost of service, specifically fixed costs, and minimizing customer impacts.[11]

Q: What is your response to the Company's proposal?

A: Sending adequate price signals for conservation is a critical principle of rate design. Increasing the customer charge blunts price signals to conserve energy. A higher fixed fee limits the ability to send price signals to conserve energy through volumetric charges and inclining block rates. A high customer charge disproportionately raises the bills of low energy users compared to high energy users,[12] and therefore only minimizes customer impacts for higher usage customers. At a time when it is important to raise customer awareness about the impacts of increased energy consumption and to encourage energy efficiency, this is an inappropriate price signal to send.

The Company's proposal is a philosophical departure from the long approved policy that a customer charge is based on customer-specific costs, not generalized "fixed" costs that are affected by energy use. I recommend that the Commission maintain its policy that a customer charge should include customer-related costs that are unaffected by energy usage. All other costs, even though the Company views them as fixed costs, should be collected through the volumetric rate because they are costs that are driven and affected by usage.

Although fixed costs are not variable in the short term, varying levels of energy usage impact the long term "fixed" costs of maintaining and updating the electric system. For example, the need for distribution system upgrades is influenced by increasing demand. Therefore, collecting fixed costs through the monthly customer charge can send erroneous price

[11] *Griffith Direct*, page 2, lines 26-28.
[12] UCE Exhibit 1.2D.

signals about the long term impacts of high energy use. Therefore, in order to send price signals for consumers to reduce energy consumption and invest in energy efficiency, some "fixed" costs should be recovered through volumetric rates. Customers should be allowed to receive and respond to price signals that allow them to affect their energy bills by changing their usage.

Q: From a policy perspective how would you balance the company's need to recover its fixed costs with the objective of sending price signals for conservation?

A: High customer charges obliterate the ability to send price signals through volumetric rates and are counter to prior Commission orders. On the other hand, the Company recovers more costs when they sell more kilowatt hours. Utilizing the Company's bill frequency data we analyzed the revenue impact of two different efficiency scenarios ranging from a modest 6% consumption reduction across all residential customers to a 20% reduction in the last two blocks.

We found that revenue loss associated with the efficiency scenarios ranged from approximately $18 million in the 6% scenario to $56 million in the 20% scenario.[13] This demonstrates that revenues can vary significantly with consumption.

Given that Utah has not implemented a rate design structure that supports recovery of lost revenues associated with energy efficiency, or another mechanism, such as decoupling, to address the throughput incentive, it will be important for Utah parties to consider and evaluate a Utah solution for an alternate residential rate design that supports fixed cost recovery as well as the promotion of energy efficiency and conservation.

Q: What is your recommendation for the monthly residential customer charge in this case?

A: As discussed, I recognize the importance of allowing the Company to recover its fixed

[13] UCE Exhibit 1.3D, "Scenario Summaries" tab, column N.

costs, but this objective must be balanced with maintaining appropriate price signals for consumers. I think it may be reasonable to include customer-related costs that are not currently included in the 1984 methodology, listed in Exhibit WRG-2, such as meter expense and meter maintenance, but disagree with inclusion of transformer and distribution cost components. In an effort to balance the objectives of fixed cost recovery and the promotion of energy conservation and efficiency, Utah Clean Energy would support a customer charge of up to $7.00—depending on the allowed revenue increase—if the Commission finds that the components included in the customer charge are not affected by energy usage and if energy rates are informed by marginal costs (see residential energy rate section, *above*).

RESIDENTIAL MINIMUM BILL

Q: What is Utah Clean Energy's position with regard to a residential monthly minimum bill?

A: Utah Clean Energy supports elimination of the minimum bill. A minimum bill is confusing to ratepayers because is not obviously a customer charge, nor is it associated with volumetric energy rates. Additionally, depending on where you set the minimum bill, it assumes that individual customers' energy usage should not fall below a certain level, which is a price signal inconsistent with encouraging energy efficiency and conservation. A minimum bill also has the potential to undermine Utah's net metering policy, which I address more below.

Q: What are arguments for a minimum bill?

A: This Commission has utilized a minimum bill to preserve revenue stability for the Company while moving gradually toward a customer-cost-based customer charge.[14] The theory is that a minimum bill ensures a certain level of fixed revenue for the Company each month while maintaining a low customer charge.

Q: Do you agree with the idea that a minimum bill preserves revenue stability?

A: No. As shown below, the Company's revenues and their recovery of fixed costs are much more dependent on consumption levels than on a customer charge or a minimum bill, unless these monthly charges are set quite high.

Utilizing the analysis discussed above we analyzed the revenue impact of a variety of scenarios with different customer charges and minimum bills.[15] We then analyzed the revenue impact of various efficiency scenarios and found that revenues collected from minimum bills ranged from $269,000 under the current $4.00 customer charge/$7.00 minimum bill scenario, to just over $1 million under a $8.00 customer charge/$15.00 minimum bill scenario.[16] On the other hand, the revenues 'lost' through energy efficiency ranged from approximately $18 million in the 6% scenario to $56 million in the 20% scenario.[17] These two analyses demonstrate that the revenues collected from a minimum bill are relatively insignificant compared to the revenues that may be lost through reduced consumption.

[14] *See 06-035-21 Order*, page 32.
[15] UCE Exhibit 1.3D, "Scenario Summaries" tab, column N.
[16] UCE Exhibit 1.3D, "Scenario Summaries" tab, column N.
[17] UCE Exhibit 1.3D, "Scenario Summaries" tab, column N.

Q: You said a minimum bill could undermine Utah's net metering policy. What is net metering?

A: Net metering is a mechanism for valuing customer-generated electricity. Many states, including Utah, have implemented net metering policies as a means of valuing distributed renewable energy generation. Utah's current net metering law was passed in 2002 and amended in 2008 and 2010.[18] In 2008, the Commission opened Docket No. 08-035-78 to consider changes to the Company's net metering tariff in response to issues raised during a technical conference on barriers to the implementation of net metering. The Commission requested public comments and held a hearing; comments were received from approximately 30 parties, representing private citizens, businesses, special interest groups, county and city governments, and state agencies.[19] The Company's current net metering tariff is a result of this public process.

Q: What is Utah's net metering policy?

A: Under Utah's net metering policy, Rocky Mountain Power customers with on-site renewable electricity generation systems may generate electricity for their own use, supply their surplus electricity to RMP's system, and receive credit on their electricity bills if they generate more electricity than they consume on a monthly basis.[20] The term "net metering" means measuring the amount of net electricity for a designated billing period.[21]

If a net metering customer *consumes* more electricity than he generates, RMP bills the customer for the "net electricity" in accordance with RMP's normal billing practices.[22] If a net

[18] Utah Code Title 54, Chapter 15, *Net Metering of Electricity*.
[19] Docket No. 08-035-78, In the Matter of the Consideration of Changes to Rocky Mountain Power's Schedule No. 135 – Net Metering Service, *Report and Order Directing Tariff* Modifications (Issued February 12, 2009) (hereinafter *08-035-78 Order*), pages 1-2.
[20] *See* U.C.A. 54-15-102(12).
[21] U.C.A. 54-15-102(10).
[22] U.C.A. 54-15-104(2).

metering customer *generates* more electricity than he consumes, RMP will credit the customer's bill with one kWh of energy for every excess kWh generated.[23] Any credits not used during an annual billing period expire at the end of that period[24] and the excess generation represented by those credits is essentially donated to the Company and ratepayers. Regardless of the amount of monthly net or excess electricity, RMP may bill net metering customers the same monthly customer charges all customers receive.[25]

Q: How would a minimum bill undermine Utah's net metering policy?

A: A minimum bill that is set above a reasonable customer charge will undermine the economics of net metering by increasing the payback time for investments in distributed energy, which could discourage these investments. This is especially the case for energy-conscious, low energy use customers who have already taken steps to reduce their energy consumption and impact on system peak through efficiency. This is the type of customer we want to encourage, rather than undermine, in order to reduce long run costs to the system. This customer type will be increasingly important as we transition to a cleaner, smarter energy future. Utah's policies, including the net metering policy and Governor Herbert's *10-Year Strategic Energy Plan* support encouraging, not undermining, efficiency and distributed generation.[26]

[23] *08-035-78 Order*, page 19.
[24] U.C.A. 54-15-104(3).
[25] U.C.A. 54-15-104(3).
[26] Governor Gary R. Herbert, *Energy Initiatives and Imperatives: Utah's 10-Year Strategic Energy Plan* (March 2, 2011), page 8, available at http://www.utah.gov/governor/docs/10year-stragegic-energy.pdf ("Modernize the regulatory environment to support sustainable power generation, energy transmission solutions and energy conservation" and "Promote energy efficiency, conservation, and peak consumption reductions").

Q: Has the Utah Public Service Commission ruled on the issue of the applicability of the minimum bill to net metering customers?

A: Yes, in Docket No. 08-035-78, the Commission declined to exempt net metering customers from application of a minimum monthly bill, finding that net metering customers imposed costs on the Company independent of their consumption or generation. "While parties indicate the benefits associated with net metering, in our view these benefits are not related to the costs recovered by the minimum bill. . . . Therefore, we find it reasonable to apply the minimum bill to net metering customers who provide net excess generation during a month and direct the Company to continue using the current minimum bill for all customers."[27]

It is important to note, however, that at the time of this Order (February 2009), the minimum bill was set at $3.67 (for single phase service) while the customer charge collected $2.00 per month. In the Docket that established these monthly charges (Docket No. 06-035-21), the Division calculated the customer charge, utilizing the Commission's methodology, to be $3.75.[28] At that time the minimum bill was set *below* the calculated level of the customer charge and therefore did not fully recover customer-related costs of service.

The Commission did not rule on the value of the energy and non-energy benefits of distributed generation, but rather found that there are customer-related costs independent of these benefits that are properly recovered from all customers regardless of usage: "Even though a net metering customer provides net excess generation in any given month, . . . a net metering

[27] *08-035-78 Order*, page 28.
[28] *06-035-21 Order*, page 25.

customer still imposes costs on the Company independent of the customer's consumption or generation."[29]

The Commission found that the costs recovered by the minimum bill, which, at that time, did not recover Commission-approved customer-related costs, were not related to the benefits provided by distributed generation. At that time that was true; however, the current $7 minimum bill is above the customer charge calculated by the Commission-approved methodology. If the minimum bill is set to collect costs *above* the Commission-approved customer charge, it will no longer be linked to costs that are applicable to each customer regardless of usage.

Q: You mentioned benefits provided by distributed generation. What are these benefits?

A: Most of the distributed generation in Utah comes from solar PV. In addition to providing energy in summer peak daytime hours, distributed solar generation also provides value beyond this energy benefit. Studies from other states show that distributed solar provides additional value in line loss savings, generation capacity savings, protection against fuel price volatility, a hedge against economic risks associated with environmental regulations, T&D capacity savings, energy security benefits, job creation/economic development benefits, and environmental/health benefits, including water savings and reduced air pollutants and greenhouse gases.[30] While

[29] *08-035-78 Order*, page 28.

[30] Several studies describe and analyze the various benefits and value of distributed solar PV, including: Ben Norris and T. Hoff, *PV Valuation Tool Final Report Prepared for the New York State Energy Research and Development Authority*, Clean Power Research, May 2012; *Ben Norris and T. Hoff, Designing Austin Energy's Solar Tariff using a Distributed PV Value Calculator*, Clean Power Research, March 2012**;** Richard Perez, K. Zweibel, and T. Hoff, *Solar Power Generation in the US: Too Expensive, or a Bargain?*, 2011, available at http://www.asrc.cestm.albany.edu/perez/2011/solval.pdf; R.W. Beck, *Distributed Renewable Energy Operating Impacts and Valuation*, prepared for Arizona Public Service, January 2009, available at: http://www.aps.com/_files/solarRenewable/DistRenEnOpImpactsStudy.pdf; and Tom Hoff, R. Perez, G. Braun, M. Kuhn, B. Norris, *The Value of Distributed Photovoltaics to Austin Energy and the City of Austin*, Clean Power Research, March 2006, available at: www.austinenergy.com/about%20us/newsroom/reports/PV-ValueReport.pdf.

current market penetration of all electric and plug-in hybrid vehicles is low, distributed solar has the potential to provide additional transportation and air pollution benefits if applied to electric vehicle charging as that market grows and expands. For maintenance and non-attainment areas for EPA air pollution standards (such as most of northern Utah), this affiliated transportation/air quality benefit could be significant. Additionally, a study that evaluated how distributed PV would impact the need for demand response for three utilities, Rochester Gas and Electric, SMUD, and Consolidated Edison showed that PV has the potential to dramatically reduce the need for demand response.[31]

Although there has not been a comprehensive investigation of specific benefits of distributed generation for Utah, Sandia National Laboratories conducted two studies using data from specific Utah distribution systems. One of the studies focused on the ability of solar to defer distribution system upgrades. The study showed the distribution system benefits are site specific and therefore this analysis may not be reflective of all residential distribution systems. Their analysis showed a distribution system benefit on the residential feeder line that was analyzed. They showed that a 20% penetration of PV with a nameplate capacity of 1.25 MW added a capacity value of 0.9 MW or 72%,[32] indicating that high penetrations of residential solar can provide capacity value benefits.

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[31] Perez, R., *Integration of PV in Demand Response Programs*, NREL subcontract # AEK-5-55057-01 Final Report (Albany Nanotech, June 2006), *available at* http://www.asrc.cestm.albany.edu/perez/directory/LoadMatch.html.

[32] UCE Exhibit 1.4D: Abraham Ellis, Mark Ralph, Garth Corey, Dan 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 4, 2010), Slide 25. Contact: aellis@sandia.gov.

Q: What is your recommendation with regard to the minimum bill?

A: Given that the minimum bill collects minimal revenues, is confusing to ratepayers, sets an artificial minimum use threshold, and has the potential to undermine Utah's net metering policy, Utah Clean Energy recommends elimination of the minimum bill.

RATE DESIGN PRINCIPLES AND POLICIES

Q: What principles of rate design support Utah Clean Energy's rate design position?

A: Residential rate design is an exercise in balancing policies and objectives while recovering the Company's residential revenue requirement. The Commission has recognized numerous policy objectives in establishing residential rate designs, including intra-class equity, cost-based rates, revenue stability, gradualism, rate stability, appropriate energy price signals, and incentives for energy conservation.[33]

Q: Why does Utah Clean Energy put such heavy weight on sending appropriate energy price signals and encouraging conservations in its recommendations for rate design?

Utah Clean Energy's mission is to lead and accelerate the clean energy transformation with vision and expertise. We work to prevent energy waste, facilitate the creation of clean energy resources, and to envision and build a smart energy future for the long term public interest.

Studies show that the potential for energy efficiency is significant and that cost-effective technologies can be implemented to reduce our electricity consumption by 20-30% from the business as usual trajectory by 2030 even when accounting for population and economic

[33] *See, e.g. 06-035-21 Order*, page 30.

growth.[34] Efficiency in the building sector alone has the potential to negate the need for new power plants.[35] In addition, the residential sector, a target audience for energy efficiency upgrades, represents 35% of the total end use energy efficiency potential.[36]

Furthermore, studies indicate that approximately $200 Billion will be invested in electricity infrastructure in the West by 2030.[37] We are a crossroads where we can invest in the current fossil fuel predominated electricity infrastructure or we can make a choice to begin to move toward a clean energy vision. Energy efficiency and distributed energy not only have immediate and significant energy and non-energy benefits, but they also have the important benefit of deferring Company investments in costly supply-side resources. Deferral of investments not only saves ratepayers money, but it also buys the Company and ratepayers time that can be used to avoid environmental and technology risks associated with making potentially imprudent investments on long-lived utility scale investments. Energy efficiency, conservation, and distributed renewables provide these benefits while leveraging private investments and personal commitments to reduce energy consumption.

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[34] McKinsey Company, *Unlocking Energy Efficiency in the US Economy* (July 2009) at iv, available at http://www.mckinsey.com/en/Client_Service/Electric_Power_and_Natural_Gas/Latest_thinking/Unlocking_energy_efficiency_in_the_US_economy.aspx; The National Academies, *Real Prospect for Energy Efficiency in the United States: Report in Brief* (2009) at 1, available at http://dels-old.nas.edu/dels/rpt_briefs/aef_efficiency_brief_final.pdf. (The McKinsey report looks through 2020 whole the National Academies report looks through 2030.)

[35] The National Academies, *Real Prospect for Energy Efficiency in the United States: Report in Brief* (2009) at 1, available at http://dels-old.nas.edu/dels/rpt_briefs/aef_efficiency_brief_final.pdf.

[36] McKinsey Company, *Unlocking Energy Efficiency in the US Economy* (July 2009) at iv, available at http://www.mckinsey.com/en/Client_Service/Electric_Power_and_Natural_Gas/Latest_thinking/Unlocking_energy_efficiency_in_the_US_economy.aspx. (The McKinsey report looks through 2020 whole the National Academies report looks through 2030.)

[37] Carl Linvill, John Candelaria, and Ashley Spalding, *Western Grid 2050: Contrasting Futures, Contrasting Fortunes* (August 22, 2011), page 1, available at http://www.cleanenergyvision.org/clean-energy-vision-technical-report/; Ron Binz, Richard Sedano, Denise Furely, and Dan Mullen, *Practicing Risk-Aware Electricity Regulation" What Every State Regulator Needs to Know* (A Ceres Report, April 2012), page 16, available at http://www.ceres.org/resources/reports/practicing-risk-aware-electricity-regulation/view.

In addition to investment and technology risk, there is the ever looming risk posed by climate change. Although there is no current federal carbon policy, the costs and risks associated with continuing to emit high levels of greenhouse gas emissions are real and growing. Carbon emissions are increasing at an unprecedented rate. The National Oceanic and Atmospheric Administration (NOAA) recently reported that this spring marks the first time a monthly average measurement for carbon dioxide reached 400 parts per million (ppm) in a remote location, indicating that worldwide average concentrations of carbon dioxide will reach 400 ppm by 2016.[38] "That observed increase, independent of the seasonal ups and downs . . . , is due to the accelerating pace of emissions from human activities, particularly the burning of fossil fuels."[39]

Researchers at the National Aeronautics and Space Administration (NASA) have found that 2005 and 2010 are tied for reaching the hottest global temperatures on record.[40] Extreme weather events are increasing: in 2011, a record-breaking $1 billion-plus was spent addressing natural disasters in the U.S. Recently, insurance companies confirmed to members of the U.S. Senate that the costs to taxpayers and businesses from extreme weather will continue to soar because of climate change.[41]

Given the risks we face and the tremendous benefits of energy efficiency and distributed renewable energy, Utah Clean Energy recognizes that it is imperative to weigh the principle of providing proper price signals for energy conservation very heavily in rate design decisions.

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[38] National Oceanic and Atmospheric Administration, *NOAA: Carbon Dioxide Levels Reach Milestone Levels at Arctic Sites* (May 31, 2012), available at http://researchmatters.noaa.gov/news/Pages/arcticCO2.aspx.
[39] *Id.*
[40] National Aeronautics and Space Administration, *NASA Research Finds 2010 Tied for Warmest Year on Record* (January 12, 2011), available at http://www.giss.nasa.gov/research/news/20110112/.
1998, 2002, 2003, 2006, 2007 and 2009 are tied for third, while 2011 comes next. *Id.*; *see also*, National Aeronautics and Space Administration, *NASA Finds 2011 Ninth Warmest on Record* (January 19, 2012), available at http://www.nasa.gov/topics/earth/features/2011-temps.html.
[41] Pat Speer, *Climate Change: Insurers Confirm Growing Risks, Costs* (Insurance Networking News, March 2, 2012), available at http://www.insurancenetworking.com/news/insurance-climate-change-risk-ceres-30007-1.html.

Q: What Utah policies support Utah Clean Energy's rate design position?

A: Recently, Governor Gary Herbert, in his energy plan for Utah, *Energy Initiatives and Imperatives: Utah's 10-Year Strategic Energy Plan*, identified the following goals with regard to "[m]aximiz[ing] Utah's commitment to energy efficiency"[42]: "Modernize the regulatory environment to support sustainable power generation, energy transmission solutions and energy conservation" and "Promote energy efficiency, conservation, and peak consumption reductions."[43]

Utah's 10-Year Strategic Energy Plan further highlights the importance of the regulatory process in encouraging energy conservation: "Utah's regulatory framework is most effective in focusing its efforts in reducing overall energy consumption, managing peak loads through best practices, and supporting energy efficiency and demand response programs, consumer education, and *utility rate design to promote energy efficiency and conservation*."[44]

In addition to Utah's Governor, the State Legislature has provided policy direction to electric utilities, regulators, and others to create incentives to increase energy efficiency and conservation. In the Legislature's 2009 H.J.R. 9—*Joint Resolution on Cost-effective Energy Efficiency and Utility Demand-side Management*—Utah's lawmakers expressed support for innovative rate designs intended to increase efficiency and conservation, as long as they are in the public interest.[45]

Utah Code 54-3-1, which requires that all charges made, demanded, or received by a public utility shall be just and reasonable, also explains that the scope of just and reasonable may

[42] Governor Gary R. Herbert, *Energy Initiatives and Imperatives: Utah's 10-Year Strategic Energy Plan* (March 2, 2011) page 8, available at http://www.utah.gov/governor/docs/10year-stragegic-energy.pdf.
[43] *Id.* at 3.
[44] *Id.* at 30 (emphasis added).
[45] HJR 9, Enrolled Copy (Utah 2009) at lines 85-89, available at http://www.le.state.ut.us/~2009/bills/hbillenr/HJR009.pdf.

include means for encouraging energy conservation. Additionally, Utah Code 54-4-4.1specifically provides that methods of just and reasonable rate regulation may include rate designs that utilize volumetric, demand, fixed, and variable rate components.

Q: How do these statutes support energy conservation as a priority principle in designing rates?

A: These statues provide the Commission with direction to prioritize energy conservation in designing just and reasonable rates. Additionally, in Docket No. 08-999-05, the Utah Public Service Commission found that Utah Code sections 54-3-1 and 54-4-4.1, along with H.J.R. 9, were sufficient to support the purposes of Title 1 of PURPA[46] such that adoption of the PURPA Rate Design Standard (*see below*) in Utah was redundant and therefore unnecessary.

Q: What are the purposes of Title 1 of the Public Utilities Regulatory Policies Act (PURPA)?

A: Title 1 of PURPA established three purposes, namely the conservation of energy, efficient use of facilities and resources by electric utilities, and equitable rates to electricity consumers.[47] In furtherance of these goals, in 2007, the Energy Independence and Security Act (EISA) amended PURPA by adding, among other things, a rate design standard[48] to Title 1, Subtitle B of PURPA to encourage energy efficiency investments.[49]

Q: What is the PURPA Rate Design Standard?

A: Section 2621(d)(17) of PURPA (Rate design modifications to promote energy efficiency investments), states that electric utility rates shall (i) align utility incentives with the delivery of

[46] Public Utilities Regulatory Policies Act, 16 U.S.C. 46.
[47] 16 U.S.C. 46, Section 2611.
[48] 16 U.S.C. 46, Section 2621(d)(17).
[49] For a brief background of PURPA and the 2007 amendments, see Docket No. 08-999-05, particularly the *Determination Concerning the PURPA Rate Design Standard*, issued December 16, 2009 by the Utah Public Service Commission.

cost-effective energy efficiency, and (ii) promote energy efficiency investments. Specifically, regulatory authorities are to consider "including the impact on adoption of *energy efficiency as one of the goals of rate design* recognizing that energy efficiency must be balanced with other objectives," and "adopting *rate designs that encourage energy efficiency* in each customer class."[50]

State regulatory commissions were tasked with determining whether it was appropriate to implement the Rate Design Standard in order to carry out the purposes of PURPA, or whether comparable standards had already been implemented.[51] Because the Utah Commission found that comparable standards, which facilitated designing rates for encouraging energy efficiency, had already been implemented in Utah, they declined to adopt the PURPA rate design standard.

Q: What is your conclusion with regard to residential rate design polices?

A: I conclude the Commission must consider and promote energy conservation through rate design in its residential rate design determinations. Both Commission precedent and Utah policies support it.

Q: Does this conclude your testimony?

A: Yes.

[50] 16 U.S.C. 46, Section 2621(d)(17)(B)(iii-iv) (emphasis added).
[51] Docket No. 08-999-05, *Order on the Determination Concerning the PURPA Rate Design Standard*, issued December 16, 2009 at 2.