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BEFORE THE ARIZONA CORPORATION COM

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

Docket No. E-04204A-15-0142

Arizona Corporation Commission
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RUCO'S NOTICE OF FILING

The Residential Utility Consumer Office ("RUCO") hereby provides notice of filing the Direct Testimony of Lon Huber on rate design, in the above-referenced matter.

RESPECTFULLY SUBMITTED this 9th day of December, 2015.

Daniel W. Pozefsky
Chief Counsel

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of the foregoing filed this 9th day
of December, 2015 with:

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UNS ELECTRIC, INC.

DOCKET NO. E-04204A-15-0142

DIRECT TESTIMONY

OF

LON HUBER

ON

RATE DESIGN

ON BEHALF OF THE

RESIDENTIAL UTILITY CONSUMER OFFICE

DECEMBER 9, 2015

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INTRODUCTION

Q. Please state your name, position, employer and address.

A. Lon Huber. I am a Director at Strategen Consulting LLC located at 2150 Allston Way # 210, Berkeley, CA 94704.

Q. Please state your educational background and work experience.

A. My career in the energy industry began in 2007 when I started working at a research institute housed within the University of Arizona. In 2010, I became the governmental affairs staffer for TFS Solar, a solar photovoltaic ("PV") integration company based in Tucson. I was hired by Suntech America in 2011 where I led the company's regulatory and policy efforts in numerous US states until December 2012. In 2013 I served as a consultant for the Residential Utility Consumer Office ("RUCO") on energy issues. I joined RUCO as a full time employee in January 2014. Since March 2015 I have worked at Strategen Consulting where I continue to advise RUCO on energy policy matters.

I obtained a Bachelor of Science Public Administration degree in Public Policy and Management from the University of Arizona in 2009. I also received a Masters of Business Administration from the Eller College of Management at the same university.

A full resume is attached in Exhibit One.

Q. Please state the purpose of your testimony.

A. The purpose of my testimony is to present RUCO's analysis of UNS Electric, Inc.'s (UNSE) rate design proposal in their application for a permanent rate increase filed with

the Arizona Corporation Commission ("ACC" or "Commission'') on May 4, 2015. Additionally, I provide several recommendations of ways to improve UNSE's proposal and ensure that it is just and reasonable for all ratepayers. My testimony will focus primarily on rate design options that affect distributed generation customers, both present and future.

Q. Please state how you approached this subject matter.

A. To the extent possible, my analysis relies on data provided by UNSE or other reputable sources. On certain subjective policy issues I received direction and guidance from the Director of RUCO. I also relied on my expertise and experience from years working in academia, the solar industry, and as a consumer advocate in Arizona. The views and recommendations expressed in this testimony are reflective of my own views, developed in consultation with RUCO. However, these views do not reflect Strategen's overall approach to rate design policy here in Arizona or elsewhere.

OVERVIEW OF THE UNSE PROPOSAL

Q. Please provide a high-level overview of UNSE's rate design proposal as it relates to RUCO's interests.

A. UNSE proposes the following rate design changes for three important customer segments:

For traditional residential customers: UNSE is proposing to increase the fixed customer charge from $10 to $20. Additionally, the Company proposes to eliminate the third volumetric rate tier in the standard residential service. UNSE is also proposing to increase

the fixed customer charge from $11.50 to $20 for residential time of use and residential time of use for super peak customers.

For a select group of business customers: The Company is recommending an Economic Development Rate containing a 5 year discount for certain customers that meet a state specified criteria and an equal to or higher than 75 percent load factor.

For distributed generation customers: The Company is proposing to create a special rate for distributed generation ("DG") customers with a 0.059 cent/kWh energy volumetric energy rate, $20 fixed charge, and a 24/7 demand charge (i.e. the demand charge is assessed based on the peak usage hour, regardless of the time of day or week) ranging from $6-9.95 per kW. Finally, all energy exported to the grid is compensated at a slightly lower volumetric rate of $0.0584 kWh. Existing customers that signed up before June 1, 2015 will be grandfathered into the current rate design.

Q. Why is the Company proposing these changes?

A. The main reasons provided by the Company are as follows:[1]

1. "To align rate structures with our customers' evolving energy use."
2. "To reduce the level of cross-subsidies between customers."
3. "To give the Company an appropriate opportunity to recover its fixed costs."

[1] Page 6 and 7 of Mr. Hutchens testimony

Q. Please comment on the appropriateness of these changes

A. **Residential Customer Changes:** For standard non-DG residential customers, RUCO understands the need for proper cost recovery, especially in a service territory with slow customer growth. However, RUCO also believes that there should be balance between the risk of cost recovery for utilities, the reward to the utility, and the preservation of conservation related price signals. Moreover, UNSE's proposal to increase the fixed customer charge by 100 percent does not reflect the principle of rate gradualism. Therefore, RUCO does not believe that the proposed changes to residential customer rates are appropriate.

Economic Development Rate: If the proposed Economic Development Rate ("ED Rate") is set at an incorrect or inappropriate level, then residential customers may end up paying for additional system costs that participants in the proposed ED Rate are able to avoid. Thus, RUCO is concerned about this rate and strongly believes that it should be modified to include provisions for cost containment as well as additional studies for determining the rate.

DG Customer Changes: For new DG customers, RUCO believes the Company's proposal is not appropriate because it lacks optionality for customers, may jeopardize Renewable Energy Standard and Tariff ("REST") compliance and does not provide proper price signals to customers. Finally, for current DG customers RUCO believes grandfathering should occur upon approval of the Company's application.

Q. Does RUCO have recommendations to improve upon the Company's proposal?

A. Yes, RUCO has several suggested modifications as well as new program features. I will attempt to provide as much detail as possible on those modifications while acknowledging that additional technical and programmatic details will need to be provided by the Company or other parties at a later date

RUCO'S RATE DESIGN RECOMMENDATIONS

Q. In preparing your recommendations what guidelines and principles did you follow?

A. After consulting with the director of RUCO, I developed these recommendations according to four core guidelines:

- Do not inhibit conservation related price signals
- Do not "rock the boat" for 98% of UNS ratepayers to accommodate 2 percent of DG adopters
- Establish rates that both provide more accurate price signals to DG customers and minimize the cost shift
- Create options for future solar customers

My recommendations are also based upon the following rate design principles as laid out by James C. Bonbright in his work, "Principles of Public Utility Rates," and summarized succinctly by NARUC:[2]

- "Simplicity, understandability, public acceptability and feasibility of application and interpretation
- Stability of rates themselves, minimal unexpected changes that are seriously adverse to existing customers
- Fairness in apportioning cost of service among different consumers
- Avoidance of "undue discrimination"
- Efficiency, promoting efficient use of energy and competing products and services"

[2]http://www.naruc.org/international/Documents/Tariff%20Development%20II%20Rate%20Design%20final%20draft%20ver%201%200.pdf

Q. Did you review the Company's Cost of Service Study ("COSS")?

A. Yes.

Q. Did you make any changes to the Company's Cost of Service Study?

A. No.

Q. What is a Cost of Service Study?

A. In very simple terms, a COSS is an estimation of cost-causation by customer class, i.e. how much does it cost the utility to provide its service to each specific customer class. The reason for determining the costs incurred by the utility to serve each customer class is to assist in allocating the revenue requirement for each customer class. For each type utility, there are several generally accepted methods for conducting a COSS. There is no one "correct" COSS method, but rather a range of reasonable alternatives. This is not to suggest that COSSs are arbitrary; some allocations are clearly more reasonable than others. This is the reason a COSS should only be used as a general guide and as one of several considerations in allocating revenue requirements and designing rates.

Q. Should the COSS be the sole factor used when developing a rate design?

A. No. The COSS should only be used as a general guide and as one of several considerations when designing rates.

Q. If RUCO did not rely solely on the COSS for developing rates, what other factors did RUCO consider?

A. In addition to using the results of the COSS as a general guideline, RUCO also considered factors such as promotion of efficient electricity usage, gradualism in rate increase to mitigate rate shock, and uniformity of rates between customer classes.

Q. How did RUCO use the COSS as a guide in its rate design?

A. RUCO utilized the COSS as a basic tool, starting point or first step in its rate design. However, due to the other factors cited above, RUCO also incorporated these changes into its rate design. (See Exhibit 3 for complete rate design schedules)

Q. Does RUCO have any other general recommendations for how UNSE should revise its proposal for residential customers?

A. Yes, UNSE should revise its residential time of use ("TOU") rate to better align the rate to peak system needs in the summer. The spread between off-peak and on-peak should be larger and more effort should be taken to market and attract customers to the rate.

Q. What features do you recommend retaining for standard residential customers?

A. The fixed customer charge should remain as low as possible to retain the connection between electricity consumption and customer costs. Also the third tier of the standard residential rate should remain to send conservation related price signals to high-energy users. RUCO does not see a compelling reason to increase the fixed charge 100 percent nor eliminate the third tier. Both of these changes would increase costs for customers who use

less energy. These concepts are important as UNSE looks to become more energy efficient, following the Commission's energy efficiency priorities and in preparation for possible EPA 111(d) compliance.

Q. Would RUCO be open to increasing the fixed customer charge?

A. No. RUCO believes that constant upward pressure on the fixed charge will start to erode price signals embedded in rates for policy reasons. That said, in this case, RUCO would be willing to entertain the concept of a minimum residential customer bill at a higher rate than the RUCO proposed fixed charge.

Q. What is a minimum Bill?

A. A minimum bill guarantees that UNSE will collect a basic amount of revenue if a customer's usage drops below a certain amount. It accomplishes many of the objectives of a fixed charge but without reducing energy or demand based price signals. In other words, it only looks like a fixed charge for customers with low usage. For customers with sufficient usage to overcome the minimum bill amount, there would no additional fixed charge line item on their bill.

Q. What are your recommendations regarding the Economic Development Rate?

A. This discount for qualified businesses has some merit; however, there must be some safe guards built in for the non-participating ratepayers that are helping to cover the cost of the discount. First, there must be a cap on the overall cost of the discount. RUCO recommends a total program cost cap of $3 million dollars. Second, customers receiving the discount

must meaningfully participate in Demand Side Management ("DSM") programs to lower peak demand needs. The ED Rate purports to benefit non-participating customers by increasing UNSE's total kWh sales over which system costs are spread. However, this only holds true if system costs do not also increase as a result of this increased demand. Finally, a study must be conducted into the system wide benefits of this program as well as the local economic benefits within three years from approval.

Q. Can RUCO support the Economic Development Rate without these provisions?

A. No. There is not enough information related to potential costs. In addition to the subsidy costs, RUCO does not want this program to add additional costs by driving more peak summer resource needs.

Q. What are your suggestions for Non-DG customers?

A. Please see Exhibit 2 for RUCO's recommended rates based on the Company's current rate structure, which is based on traditional rate design. Exhibit 3 is RUCO's typical residential bill analysis which shows the impacts of UNSE's current rates v. RUCO's proposed rates on residential ratepayers. RUCO has utilized the existing rate structure, allocated the percentage of revenue to each customer class based on the Company's proposed rate design, and modified the current charges to account for the elements RUCO believes should be included in the rate design.

Q. What are your recommendations regarding DG customers?

A. It can be argued that UNSE's rates are in need of modernization, especially in light of the proliferation of DG options for consumers. However, RUCO believes that UNSE's proposal for DG customers can be improved. Moreover, RUCO believes that it is possible to create a "win-win" from new advances in technology for both customers and the utility by creating options for DG and non-DG customers alike. We believe any rate design changes specific to DG customers should carefully consider unintended consequences especially given the fact that 98 percent of ratepayers in UNSE territory do not employ solar DG. As such RUCO's aim is to find a middle path that matures the rooftop solar industry while ensuring fairness for all ratepayers, balances cost-recovery with pro-conservation price signals, and which eschews the imperfect proposal proposed by UNSE. I provide three options for DG customers.

1. A non-export option.
2. An advanced DG TOU Rate.
3. Renewable Portfolio Standard ("RPS") bill credit arrangement tied to compliance.

	Non-Export Option	Adv. DG TOU Option	RPS Bill Credit Option
Rate Option:	Customer can select any of UNSE's traditional rates	Three part rate: • Minimum bill - $12 • Base Energy Rate ($0.085/kWh) • TOU Demand ($19.50/kW, 2-8pm summer peak) • Customer must be on rate for full calendar year so they do not gain the benefit of lower costs during winter but avoid higher costs during summer.	Customer can select any of UNSE's traditional rates
Export Rate:	No export of excess power to grid, therefore, no month to month carryover and no grandfathering is required. RUCO may also be open to having instantaneous exports be paid at wholesale rates.	Export rate of excess power to grid, for customers who exchange Renewable Energy Credits ("RECs") with UNSE, is $8.5 cents/kWh. For customers who does not exchange RECs with UNSE, the export rate is the Market Cost Comparable Conventional Generation ("MCCCG") rate.	Credit rate decrease over time, based on increased renewable energy capacity added to the UNSE's energy portfolio. The rate would start at 11 cents/kWh and go no lower than MCCCG rate. This credit rate would be locked in for a 20 year term. In order for a customer to take advantage of this rate, the customer would have to exchange RECs with UNSE

Q. How does RUCO propose a customer would select their plan and how would a change of plan be handled?

A. RUCO proposes that each of the DG options would be available to a new DG customer to select as their plan option at their DG install. There would be no mandatory plan or opt-out style plan. Some restrictions do apply, such as a customer who does not exchange their RECs with UNSE are no allowed to be on the RPS Bill Credit option. Additionally, customers who select the Advanced DG TOU option will need to remain on the plan for a full calendar year to avoid gaming the benefits of no demand charges during the winter while dodging the demand charge during the summer. Customers will also have the option to switch from plan to plan on an annual basis.

Q. Do these options solve all of RUCO's concerns with DG?

A. No, but RUCO fully acknowledges that subsides exist throughout our current regulated system and rate designs. These should be routinely quantified, reexamined, and debated. The existence of such cross subsidies should not mean we should ignore new ones that are fast growing. At the same time, it should not mean we must be overly zealous focusing on just one cross-subsidy when there may be larger subsidies elsewhere. RUCO would like to see incremental and gradual progress to sending more accurate price signals to customers, especially those that drive certain cost increases or decreases. In terms of DG, RUCO would like to begin by ensuring that rooftop DG can be a neutral cost proposition for ratepayers as soon as possible. Once that milestone is reached RUCO would like to see DG be a net benefit to all ratepayers. Finally, the third milestone, RUCO would like to see a closer cost parity between wholesale grid-connected solar and rooftop solar.

Q. Please describe the non-export option.

A. The non-export option simply does not allow a DG customer to export his/her generation; however, the customer can chose to be on any residential rate available to them. This option is intended to treat DG adopters in the same manner as a traditional customer. It gives DG customers the ability to reduce load behind the meter but restricts the export of electrons onto the grid. This reflects the fact that non-DG customers are distinct from DG customers since they generally do not engage in two way power flow. Moreover, there will not be any grandfathering, as is the case for the vast majority of residential customers. This offering allows solar adopters access to the same rate plans and charges of the traditional residential customer. Inadvertent exports would be kept to a reasonable minimum and not be compensated. Restricting power to the grid would be accomplished primarily through inverter curtailment. Alternatively, if the Commission believes that providing an option where a customer volunteers to restrict exports is not agreeable, RUCO may also be open to having instantaneous exports be paid at wholesale rates.

While RUCO is concerned that the retail rate may over compensate DG adopters during self-consumption, it is in the spirit of fairness to allow DG customers access to the standard rate. Moreover, RUCO anticipates that residential rates will gradually start to change in the future and become more time variant (hence our call for a more advanced TOU rate). As solar penetration increases, daytime energy may become less valuable and peak times may shift into the night. Thus, the retail rate may not be a good approximation of value; however, in the spirit of gradualism and avoiding undue discrimination RUCO recommends that this option be extended to future DG customers at this time.

Q. Please describe the "DG TOU Rate".

A. It is a three part rate, with the energy and TOU demand components intended to recover fixed costs. The three components of this rate are 1) A minimum bill 2) A Variable per kWh energy Charge and 3) a variable per kW Demand Charge covering over peak hours during summer months. The starting point for designing the DG TOU Rate was to approximate the value of south facing fixed tilt PV on the UNSE system. Absent a Commission policy in this regard, I performed a basic calculation of the cost of the next marginal unit of generation needed for the UNSE system while still acknowledging the uniqueness and intermittency of solar PV. I set this value as the base energy rate for the plan. I then created a TOU demand charge to send accurate on-peak price signals to the DG adopter while allowing for cost recovery by the company if the customer fails to reduce peak demand.

Q. Why did you feel that a special rate was necessary for DG adopters?

A. Customers with distributed generation are significantly different than traditional customers and customers that engage in energy efficiency. DG customers can:

- Mask load and their true demand for power, which is later revealed during certain times and weather conditions
- Export electrons to the distribution system
- Come in and out of needing service unlike those deploying energy efficiency measures
- Completely erase a monthly bill even when using the full suite of utility services

Q. Could this rate become available to non-DG customers?

A. The rate was designed to send accurate price signals to reduce peak summer usage. Therefore, RUCO believes that a rate such as the one being proposed can be open to other customers. Nevertheless, since this is a new rate merging different concepts together for the first time in UNSE territory, RUCO would like to place a limit on the total number of non-DG customers that engage with the rate. Therefore, a pre-specified number of customers, including those directly linked to DSM programs should be able to participate.

Q. What is a demand charge?

A. A demand charge is a mechanism for billing customers based on their peak energy usage. It is determined by multiplying a demand rate (typically expressed in $/kW) by the highest level of power drawn by the customer (often measured over the course of one hour or 15 minutes). The highest demand over a predetermined time period (e.g. afternoon peak hours of a summer month) is used for the calculation

Q. Does RUCO support demand charges for general residential customers?

A. At this point in time, RUCO firmly believes that if demand charges are implemented they should be optional for standard residential customers. RUCO also believes that such a demand charge should be limited to a window of peak usage and only to be used seasonally during those months where demand is highest. RUCO believes that it is very easy to inappropriately design demand charges, making them essentially unavoidable fixed charges that do not drive down system cost. It is far easier to design a flat demand charge, as the Company proposes, than to create a demand charge that fairly and accurately sends

price signals to customers. Under UNSE's proposal, the demand charges associated with a high power draw at 3:00 am in March would be the same as a high power draw at 6:00 PM in July. This does not provide an accurate price signal to customers of system costs and reflects a poorly designed demand charge.

RUCO also believes that demand charges should only be offered in conjunction with the utility's commitment to develop and expand tools and education programs that will help customers mitigate demand. RUCO would like UNSE to commit to providing customers with these tools in their next DSM plan. This should include a commitment by UNSE to develop and propose integrated energy efficiency and demand response programs, such as those offerings discussed in the Commission's workshops on technology and innovation.

Q. Please describe RUCO's view on grandfathering existing solar customers.

A. RUCO thinks there are very few good choices with regard to grandfathering. Those customers that installed DG before either UNSE issued disclaimers or the conclusion of the REST incentive program should undoubtedly be grandfathered into their current rates. These customers were encouraged to go solar through Commission approved incentives and the utilities desire to meet its Renewable Energy Standard ("RES") requirements. However, since that time customers have been warned about the possibility of changes to utility rates that may adversely affect a solar PV system's economic value proposition. Nonetheless, RUCO believes that these customers may not fully understand the magnitude of the negative impact to this value proposition that may come from a rate redesign. Therefore, RUCO accepts the argument that customers between now and the conclusion of

the rate case should be grandfathered into their existing rates. RUCO proposes that grandfathering extend for a 20 year term minus the number of years the system has been interconnected.

Q. How would this grandfathered rate work?

A. Customers on this rate would have the volumetric energy rate portion of the bill locked in at today's level. All other reasonable charges and adjusters would correspond directly with the standard residential rate.

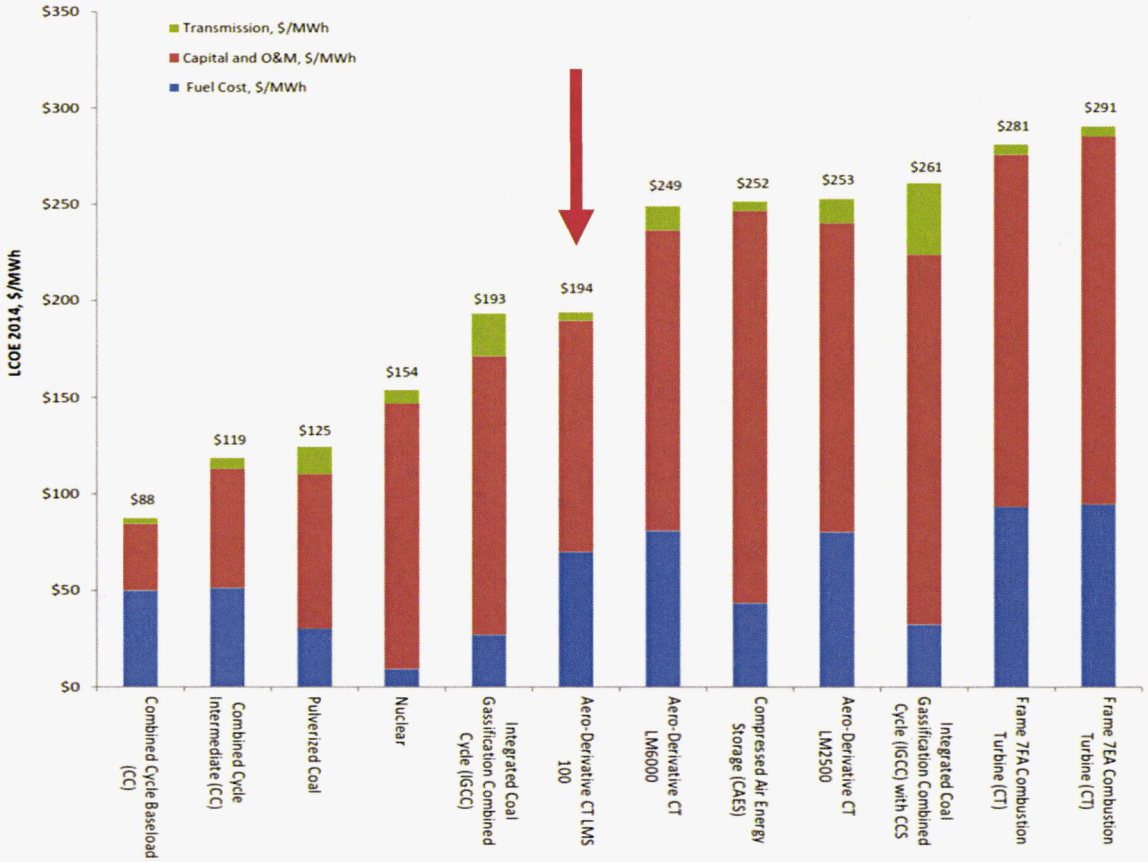
Q. Please describe in more detail how you determined the volumetric energy rate level in the rate.

A. The volumetric energy rate was determined based on an estimation of UNSE's avoided cost of generation in $/kWh. I examined the UNSE 2014 IRP plan and accessed Company provided data to understand system cost drivers and the next marginal unit of generation needed to meet system needs. Within the Integrated Resource Plan ("IRP") the Company highlights the need for a new combustion turbine (CT) in 2019. The Company notes that the levelized cost of energy ("LCOE") is 19.4 cents/kWh for a new CT. However, this value is based on the operating characteristics of a CT unit, which are not perfectly analogous to operating characteristics of Solar PV. According to the Company the capacity value of fixed tilt PV is approximately 33 percent with a corresponding capacity factor of 19 percent. Typical capacity factors for CT units range from 8 percent to 18 percent.

While CT's fairly represent the marginal costs for system capacity, they are not necessarily indicative of marginal costs for power generation (excluding fuel) from an energy-centric resource like a combined cycle natural gas unit (CCGT). Since solar PV's capacity factor is higher than a typical CT unit, it can be considered more of an energy-centric resource, akin to a CCGT. With these considerations, I computed the non-fuel energy costs (LCOE at 33 percent capacity value) of a CT (~12.9 cents/kWh). Meaning with enough PV, UNSE may be able to downsize or defer investment in a new centralized generation facility. I then relied on the Company's MCCCG calculation for the avoided energy rate.[3]

This exercise yielded an 8.5 cent/kWh rate. I took this figure to set the energy rate for the rate plan. Losses may also have to be taken into account if the Company did not include them in their LCOE and MCCCG calculations. RUCO is also open to Company suggestions on how to include kWh based adjusters to the rate in the most administratively efficient way to ensure the figure is as close to 8.5 cent/kWh as possible.

[3] http://images.edocket.azcc.gov/docketpdf/0000162403.pdf



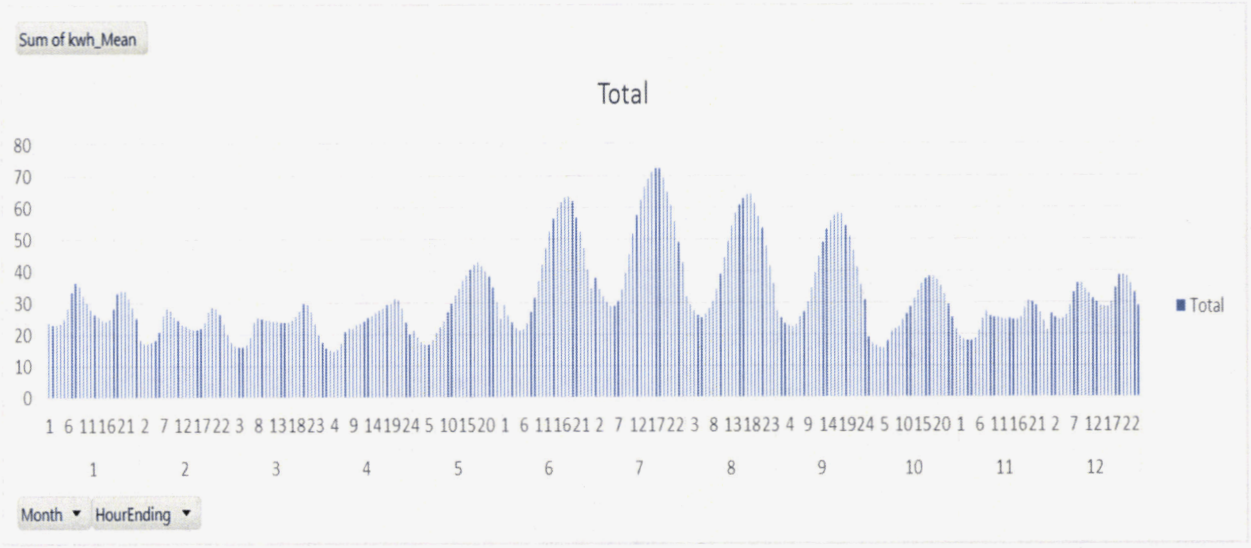
Q. How detailed was your analysis on Value and Cost of DG?

A. As there is no official Commission position or guidance on this issue and due to the fact that many of the possible cost-benefit categories are speculative in nature, rely on policy decisions, are nearly impossible to quantify, and may not have a significant impact on the final total, RUCO has taken a conservative approach and will be looking only at the major categories of benefits. In addition, RUCO believes that many of hard to quantify environmental and societal benefits are captured in the preferential treatment given to resources like solar energy. Treatment such as procurement not tied directly to demand driven need, fixed payments based on future levelized amounts, and the avoidance of any

cost effectiveness tests like energy efficiency measures undergo, are examples of this preferential treatment.

Q. How did you determine the timing of the demand change?

A. Once I arrived at the figure for the levelized energy value of south facing fixed tilt PV the remaining part of the rate was fitted with a demand charge. I first took a look at overall energy and demand on the UNSE system.



As one can see from the chart above, UNSE is a summer peaking system, with peaks occurring primarily in the months from May to October. I determined the peak hours of demand for each of these months since 2011. After examining these data, it appears that the hours between 2:00 PM to 8:00 PM capture all of the top 5 percent of demand hours.

Q. How does this correspond to existing UNSE TOU offerings?

A. The months and hours I chose also correspond to what the Company current outlines for TOU based rates.

Q. Are there other details you would like to share about the DG TOU rate?

A. Yes, the demand charge would be determined by averaging the top three hours of demand occurring during each summer month from 2:00 PM to 8:00 PM. Also, I propose a minimum bill to recover customer related charges. RUCO initially proposes $12 to match the residential rate; however, given that a minimum bill has different dynamics than a fixed charge, RUCO would consider slightly increasing the minimum bill upwards. Finally, if a customer does not exchange renewable energy credits ("RECs") with the utility any excess monthly credits would be compensated at the MCCCG rate. This lower rate reflects the fact that UNSE may not be getting "green" energy from DG customers if the rights to that claim have already been sold or exchanged away to other states or companies.

Q. What if neither the non-export option nor the DG TOU rate is sufficient to spur DG adoption?

A. RUCO recognizes the DG carve-out policy put forward by the Commission to encourage residential distributed generation. With this in mind, RUCO believes that a straightforward and simple procurement mechanism be created to ensure REST compliance. This provides a third potential option as mentioned above.

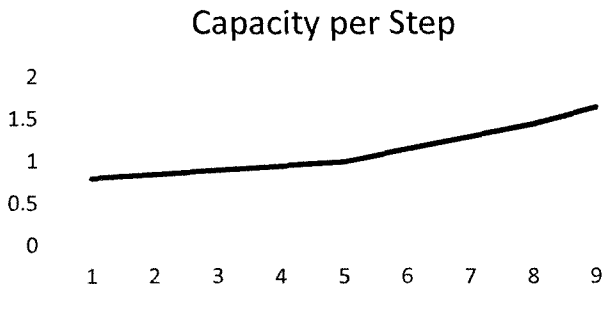
Q. Please describe the RPS credit option for DG customers?

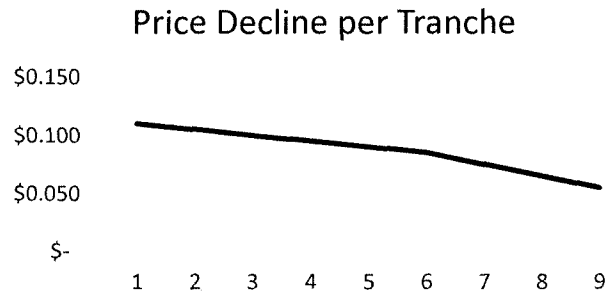
A. It is a simple fixed crediting mechanism for the output of a PV system that is linked to a specific REST procurement target. Based on the 2016 UNSE REST implementation plan, it appears that around 10 MW of residential DG is needed to meet the Commission's 2025 goal. This amount may fluctuate depending on the number of systems installed by the end

of this rate case and whether the Commission recognizes systems that have not exchanged their RECs. Exhibit 2 shows these basic calculations.

The crediting mechanism would operate much like the declining up-front incentive system the Commission used a few years ago. The credit would start at a set rate (RUCO proposes 11 cents/kWh) and would gradually decline in a predictable manner as installs increase over time. Below is an illustration of the concept and the step downs RUCO proposes:

Capacity per Tranche	Price per Tranche
0.79406351	$ 0.110
0.84369248	$ 0.105
0.893321449	$ 0.100
0.942950418	$ 0.095
0.992579388	$ 0.090
1.141466296	$ 0.085
1.290353204	$ 0.075
1.439240112	$ 0.065
1.63775599	$ 0.055





To avoid grandfathering issues and to facilitate financing, the credit rate would be fixed for 20 years. The system would be fully metered and a bill credit would be applied to a customer's bill every month. In other words, the customer's underlying rate design would not impact the economics of the transaction.

The Company would have the flexibility in each year's REST plan to recommend and adjust the terms and payment of future customers. This could include increasing the payment based on inverter capabilities or orientation of the system. Additionally, all RECs would need to be surrendered to UNSE in order to participate in this option.

Q. How would this option interface with the DG TOU rate?

A. If solar capacity is installed under the standalone DG TOU Rate (i.e. without the RPS credit), that capacity would also count towards the capacity for the REST and contribute to the step downs in the RPS credit rate. In sum, the more solar capacity that comes online, the lower the RPS credit rate for new customers.

Q. What is RUCO's anticipated ratepayer acceptance of each of the DG rate options?

A. RUCO believes that the most popular rate, at least in the beginning, will be the RPS Bill Credit option. This option provides a bridge for the industry to use in preparation for using the TOU DG Rate. With the credit rate set at $0.11/kWh and declining as additional DG capacity comes on the grid, this option most closely mirrors that of current rate design.

Customers with more sophistication and tools to control their peak loads will likely immediately select the DG TOU option. Thus, it allows the solar industry to further mature by being optional and not forcing users to be on the rate now. The solar industry will have the option of crafting tools and business plans around the advanced DG TOU, which may turn out to be more advantageous to their customers than either of the other options.

One of the benefits of the DG TOU option is that it essentially creates a floor for the offset rate of DG customers. As most DG customers in the beginning will likely choose to be on the RPS Bill Credit, and as the DG capacity hits the threshold that makes the credit rate less than the offset rate on the Advanced DG TOU ($8.5 cents/kWh), the industry can rely on the certainty provided by the Advanced DG TOU option and maintain an offset rate of $8.5 cents/kWh.

The Non-Export Option is a rate that will likely not be very popular among DG customers. This rate was designed after concurring with DG advocates who have insisted that DG customers "not be treated differently." The Non-Export option provides exactly that.

CONCLUSION

Q. Any concluding comments?

A. I believe that the rate design proposals put forward in this testimony provides benefits for all parties. Standard residential customers will see little change and hopefully will be able to take advantage of an improved TOU rate. DG customers are given three different options depending on their level of sophistication. The solar industry is able to continue selling by utilizing the RPS credit option if other options do not make economic sense at this point in time. Moreover, companies that innovate have clear price signals for how to adapt their product offerings to help customers save money on the non-export and DG TOU options. The Company's concern about fixed costs losses from DG is minimized and subsides are now more transparent.

Q. Does your silence on any of the issues, matters or findings addressed in the testimony of UNS witnesses for UNSE constitute your acceptance of their positions on such issues, matters or findings?

A. No, it does not.

Q. Does this conclude your testimony?

A. Yes it does.

EXHIBIT 1

Lon Huber
928-380-5540
lonmhuber@gmail.com

EDUCATION

January 2010 – May 2011
Eller College of Management - University of Arizona
Masters of Business Administration (MBA)

August 2005 – May 2009
School of Government & Public Policy - University of Arizona
Bachelor of Science - Public Policy and Management

RELEVANT WORK EXPERIENCE

Strategen Consulting
Director –March 2015 to present

Arizona's Residential Utility Consumer Office (RUCO)
Special Projects Advisor and former consultant – April 2013 to March 2015

- Responsibilities: policy analysis and design, advocacy, case testimony, constituent outreach, and financial analysis.
    - Team lead on net metering, utility-owned rooftop solar, and new resource procurement policies.

Suntech America
Manager, Regional Policy – September 2011 to December 2012

- Point person for the company in every key state solar market except California.
    - Worked to balance cost effective utility-scale solar with state distributed generation policy goals.
    - Elected by SEIA member companies to be the state lead in Arizona.

TFS Solar
Government Affairs – September 2010 to September 2011

- Created a solar financing program for faith based organizations in Tucson.
- Instrumental in forming the Southern Arizona Solar Standards Board.
- Advocated for polcies in front of ACC.

Arizona Research Institute for Solar Energy at the University of Arizona
"Founding employee" and Policy Program Associate – August 2007 to September 2010

- Helped build the institute while gaining experience with the technical attributes and challenges of various energy technologies.

Lon Huber
928-380-5540
lonmhuber@gmail.com

Congressional Fellow – D.C.

January 2009 to May 2009

- Responsibilities included weekly memos to the Congress member on energy issues, forming energy related legislation (Solar Schools Act - H.R. 4967), and creating educational presentations on energy.

COMMUNITY INVOLVEMENT

- Appointed to the Arizona Governor's Solar Task Force, 2013
- Chairman - Southern Arizona Regional Solar Partnership at the Pima Association of Governments, 2011
- Founding Chairman - University of Arizona Green Fund, 2010 to 2011
- Member of UA President's Campus Sustainability Advisory Board, 2008 to 2011
- Big Brother for a child in special needs program - Tucson Big Brothers Big Sisters, 2006 to 2008

AWARDS AND HONORS

- *Arizona Daily Star's* "40 Under 40" winner for leadership, community impact, and professional accomplishment, 2011
- University of Arizona Honors College Young Alumni Award Winner, 2011
- Outstanding Professional Staff Member – University of Arizona, 2010
- Arizona Foundation Outstanding Senior Award for the Eller College of Management, 2009
- Honors College Pillars of Excellence Award, March 2009
- Congressional Recognition Award, May 2008

EXHIBIT 2

1

Monthly Usage Charge	Present	Company Proposed Rates	RUCO Recommended Rates
Residential Service CARES			
Customer Charge	$ 4.900000	$ 9.000000	$ 5.903457
Energy Charge 1st 400 kWhs	0.018973	0.030810	0.028338
Energy Charge, all additional kWhs	0.035400	0.050810	0.052873
Base Power Supply Charge, all kWhs	0.064510	0.049260	0.049260
PPFAC	(0.003488)	varies monthly	varies monthly
Residential Service			
Customer Charge	10.000000	20.000000	12.258241
Energy Charge 1st 400 kWhs	0.019300	0.030810	0.030972
Energy Charge 401-1,000 kWhs	0.034350	0.050810	0.055124
Energy Charge, all additional kWhs	0.038499	0.050810	0.061782
Base Power Supply Charge, all kWhs	0.061700	0.049260	0.049260
PPFAC	(0.003488)	varies monthly	varies monthly
Residential Time of Use Rates, all kWhs			
Customer Charge	11.500000	20.000000	13.630412
Energy Charge 1st 400 kWhs	0.030350	0.030810	0.045098
Energy Charge 401-1,000 kWhs	0.030350	0.050810	0.045098
Energy Charge, all additional kWhs	0.030350	0.050810	0.045098
Base Power Supply Charge, all kWhs			
Summer On-peak, kWh	0.129605	0.101110	0.101110
Summer Off-peak, kWh	0.039605	0.033900	0.033900
Winter On-peak, kWh	0.129605	0.098960	0.098960
Winter Off-peak, kWh	0.031385	0.033579	0.033579
PPFAC Charges			
Summer On-peak, kWh	(0.003488)	varies monthly	varies monthly
Summer Off-peak, kWh	(0.003488)	varies monthly	varies monthly
Winter On-peak, kWh	(0.003488)	varies monthly	varies monthly
Winter Off-peak, kWh	(0.003488)	varies monthly	varies monthly
Residential Time of Use Rate Super Peak, all kWhs			
Customer Charge	11.500000	20.000000	14.002216
Energy Charge 1st 400 kWhs	0.025000	0.030810	0.045934
Energy Charge, all additional kWhs	0.035000	0.050810	0.052816
Base Power Supply Charge, all kWhs			
Summer On-peak, kWh	0.170000	0.149700	0.149700
Summer Off-peak, kWh	0.039700	0.038250	0.038250
Winter On-peak, kWh	0.150000	0.149700	0.149700
Winter Off-peak, kWh	0.038700	0.038250	0.038250
PPFAC Charges			
Summer On-peak, kWh	(0.003488)	varies monthly	varies monthly
Summer Off-peak, kWh	(0.003488)	varies monthly	varies monthly
Winter On-peak, kWh	(0.003488)	varies monthly	varies monthly
Winter Off-peak, kWh	(0.003488)	varies monthly	varies monthly
Residential Service Bright Arizona Community Solar			
Customer Charge	10.000000	20.000000	11.908582
Energy Charge 1st 400 kWh	0.019300	0.030810	0.022984
Energy Charge 401 -7,500 kWh	0.034350	0.050810	0.040906
Energy Charge >7,500 kWh	0.038499	0.050810	0.045847
Base Power Supply Charge, all kWhs	0.084510	0.069260	0.069260
PPFAC	(0.003488)	varies monthly	varies monthly
DG TOU Rate			
Customer Minimum Bill			12.25000
Demand Charge per kW (May to Oct. 2:00 to 8:00 PM)			19.50000
Energy Charge. kWh			0.08500

2

EXHIBIT 3

Monthly Usage Charge	Present	Company Proposed Rates	RUCO Recommended Rates
Residential Service CARES			
Customer Charge	$ 4.900000	$ 9.000000	$ 5.903457
Energy Charge 1st 400 kWhs	0.018973	0.030810	0.028338
Energy Charge, all additional kWhs	0.035400	0.050810	0.052873
Base Power Supply Charge, all kWhs	0.064510	0.049260	0.049260
PPFAC	(0.003488)	varies monthly	varies monthly
Residential Service			
Customer Charge	10.000000	20.000000	12.258241
Energy Charge 1st 400 kWhs	0.019300	0.030810	0.030972
Energy Charge 401-1,000 kWhs	0.034350	0.050810	0.055124
Energy Charge, all additional kWhs	0.038499	0.050810	0.061782
Base Power Supply Charge, all kWhs	0.061700	0.049260	0.049260
PPFAC	(0.003488)	varies monthly	varies monthly
Residential Time of Use Rates, all kWhs			
Customer Charge	11.500000	20.000000	13.630412
Energy Charge 1st 400 kWhs	0.030350	0.030810	0.045098
Energy Charge 401-1,000 kWhs	0.030350	0.050810	0.045098
Energy Charge, all additional kWhs	0.030350	0.050810	0.045098
Base Power Supply Charge, all kWhs			
Summer On-peak, kWh	0.129605	0.101110	0.101110
Summer Off-peak, kWh	0.039605	0.033900	0.033900
Winter On-peak, kWh	0.129605	0.098960	0.098960
Winter Off-peak, kWh	0.031385	0.033579	0.033579
PPFAC Charges			
Summer On-peak, kWh	(0.003488)	varies monthly	varies monthly
Summer Off-peak, kWh	(0.003488)	varies monthly	varies monthly
Winter On-peak, kWh	(0.003488)	varies monthly	varies monthly
Winter Off-peak, kWh	(0.003488)	varies monthly	varies monthly
Residential Time of Use Rate Super Peak, all kWhs			
Customer Charge	11.500000	20.000000	14.002216
Energy Charge 1st 400 kWhs	0.025000	0.030810	0.045934
Energy Charge, all additional kWhs	0.035000	0.050810	0.052816
Base Power Supply Charge, all kWhs			
Summer On-peak, kWh	0.170000	0.149700	0.149700
Summer Off-peak, kWh	0.039700	0.038250	0.038250
Winter On-peak, kWh	0.150000	0.149700	0.149700
Winter Off-peak, kWh	0.038700	0.038250	0.038250
PPFAC Charges			
Summer On-peak, kWh	(0.003488)	varies monthly	varies monthly
Summer Off-peak, kWh	(0.003488)	varies monthly	varies monthly
Winter On-peak, kWh	(0.003488)	varies monthly	varies monthly
Winter Off-peak, kWh	(0.003488)	varies monthly	varies monthly
Residential Service Bright Arizona Community Solar			
Customer Charge	10.000000	20.000000	11.908582
Energy Charge 1st 400 kWh	0.019300	0.030810	0.022984
Energy Charge 401 -7,500 kWh	0.034350	0.050810	0.040906
Energy Charge >7,500 kWh	0.038499	0.050810	0.045847
Base Power Supply Charge, all kWhs	0.084510	0.069260	0.069260
PPFAC	(0.003488)	varies monthly	varies monthly
Small General Service			
Customer Charge	14.500000	30.000000	16.987627
Energy Charge 1st 400 kWh	0.030176	0.039497	0.041829
Energy Charge 401 -7,500 kWh	0.041042	0.049497	0.056891
Energy Charge >7,500 kWh	0.076042	0.086950	0.105406
Base Power Supply Charge, all kWhs	0.058241	0.048610	0.048610
PPFAC	(0.003488)	varies monthly	varies monthly
Small General Service Time of Use Rates, all kWhs			
Customer Charge	16.500000	30.000000	19.641237
Energy Charge 1st 400 kWh	0.030176	0.039497	0.035921
Energy Charge 401 -7,500 kWh	0.043176	0.049497	0.051396
Energy Charge >7,500 kWh	0.076042	0.086950	0.090519
Base Power Supply ChargeS			
Summer On-peak, kWh	0.129605	0.126510	0.126510
Summer Shoulder-peak, kWh	-	-	-
Summer Off-peak, kWh	0.039605	0.033010	0.033010
Winter On-peak, kWh	0.129605	0.108510	0.108510
Winter Off-peak, kWh	0.031385	0.032910	0.032910
PPFAC Charges			
Summer On-peak, kWh	(0.003488)	varies monthly	varies monthly
Summer Off-peak, kWh	(0.003488)	varies monthly	varies monthly
Winter On-peak, kWh	(0.003488)	varies monthly	varies monthly
Winter Off-peak, kWh	(0.003488)	varies monthly	varies monthly
Medium General Service			
Customer Charge	50.000000	100.000000	46.260193
Demand Charge, per kW	12.810000	13.050000	11.851862
Energy Charge (kWhs)	0.005470	0.005500	0.005061

Base Power Supply Charge, all kWhs	0.056603	0.048440	0.044817
PPFAC	(0.003488)	varies monthly	varies monthly
Medium General Service TOU			
Customer Charge	52.000000	100.000000	50.483189
Demand Charge, per kW	12.810000	13.050000	11.898142
Energy Charge (kWhs)	0.005470	0.005500	0.005081
Base Power Supply Charge, all kWhs	-	-	-
Summer on-peak	0.114886	0.109900	0.109900
Summer off-peak	0.039886	0.033500	0.033500
Winter On-peak, kWh	0.114886	0.089900	0.089900
Winter Off-peak, kWh	0.026168	0.031600	0.031600
PPFAC Charges	(0.003488)	varies monthly	varies monthly
Large General Service			
Customer Charge	50.000000	300.000000	287.169328
Demand Charge, per kW	12.810000	12.960000	11.235704
Energy Charge (kWhs)	0.005470	0.005400	0.005169
Base Power Supply Charge, all kWhs	0.041880	0.048400	0.048400
PPFAC	(0.003488)	varies monthly	varies monthly
Large General Service TOU			
Customer Charge	52.000000	300.000000	287.169328
Demand Charge, per kW	12.810000	12.960000	11.581248
Energy Charge (kWhs)	0.005470	0.005400	0.004826
Base Power Supply Charge, all kWhs			
Summer on-peak	0.114886	0.145510	0.145510
Summer off-peak	0.039886	0.034510	0.034510
Winter On-peak, kWh	0.114886	0.124510	0.124510
Winter Off-peak, kWh	0.026168	0.032910	0.032910
PPFAC Charges			
Summer On-peak, kWh	(0.003488)	varies monthly	varies monthly
Summer Off-peak, kWh	(0.003488)	varies monthly	varies monthly
Winter On-peak, kWh	(0.003488)	varies monthly	varies monthly
Winter Off-peak, kWh	(0.003488)	varies monthly	varies monthly
Large Power Service (<69KV)			
Customer Charge <69 kV	1,200.000000	300.000000	287.169328
Customer Charge >69 kV	1,200.000000	1,200.000000	1,148.677312
Demand Charge <69kV, per kW	22.000000	12.960000	11.581248
Demand Charge >69kV, per kW	17.000000	12.480000	11.946244
Energy Charge (kWhs) <69 kV	0.000462	0.005400	0.004826
Energy Charge (kWhs) >69 kV	0.000462	0.000520	0.000498
Base Power Supply Charge, all kWhs <69 kV	0.041880	0.048400	0.048400
Base Power Supply Charge, all kWhs >69 kV	0.048410	0.048410	0.048410
PPFAC <69kV Summer	(0.003488)	varies monthly	varies monthly
PPFAC <69kV Winter	(0.003488)	varies monthly	varies monthly
PPFAC >69kV Summer	(0.003488)	varies monthly	varies monthly
PPFAC >69kV Winter	(0.003488)	varies monthly	varies monthly
Large Power Service (>69KV) TOU			
Customer Charge	1,200.000000	1,200.000000	1,148.677312
Demand Charge <69kV, per kW	22.000000	12.960000	11.581248
Demand Charge >69kV, per kW	17.000000	12.480000	11.946244
Energy Charge (kWhs)	0.000462	0.000462	0.004826
Base Power Supply Charge, all kWhs			
Summer on-peak	0.122510	0.145510	0.145510
Summer off-peak	0.032110	0.034510	0.034510
Winter on-peak	0.092110	0.124510	0.124510
Winter off-peak	0.030910	0.032910	0.032910
PPFAC Charges			
Summer On-peak, kWh	(0.003488)	varies monthly	varies monthly
Summer Off-peak, kWh	(0.003488)	varies monthly	varies monthly
Winter On-peak, kWh	(0.003488)	varies monthly	varies monthly
Winter Off-peak, kWh	(0.003488)	varies monthly	varies monthly
LARGE POWER SERVICE MINING			
Customer Charge	1,200.000000	-	-
Demand Charge, per kW	17.000000	-	-
Energy Charge (kWhs)	0.000462	-	-
Power Factor Adjustment	-	-	-
Base Power Supply Charge, all kWhs	0.041880	-	-
PPFAC	(0.003488)	varies monthly	varies monthly
Interruptible Power Service			
Customer Charge	18.000000	75.000000	18.343444
Demand Charge, per kW	5.000000	6.520000	5.234311
Energy Charge (kWhs)	0.019408	0.019790	0.020318
Base Power Supply Charge, all kWhs	0.043760	0.049821	0.049821
PPFAC	(0.003488)	varies monthly	varies monthly
Lighting Dusk to Dawn			
New 30' Wood Pole (Class 6) - Overhead	4.340000	4.680000	4.759514
New 30' Metal or Fiberglass - Overhead	8.660000	9.350000	9.497095
Existing Wood Pole - Underground	2.180000	2.350000	2.390724
New 30' Wood Pole (Class 6) - Underground	6.520000	7.040000	7.150238
New 30' Metal or Fiberglass - Underground	10.812000	11.672126	11.857112

Wattage, per Watt	0.051681	0.060516	0.057100
Lighting Base Power Supply Charge, per Watt	0.010113	0.013110	0.013110
PPFAC	(0.003488)	varies monthly	varies monthly
TOU - Small General School			
Customer Charge	16.500000	30.000000	19.641237
Energy Charge 1st 400 kWh	0.030176	0.039497	0.035921
Energy Charge 401 -7,500 kWh	0.043176	0.049497	0.090519
Energy Charge >7,500 kWh	0.076042	0.086950	0.086950
Base Power Supply ChargeS			
Summer On-peak, kWh	0.126510	0.126510	0.126510
Summer Off-peak, kWh	0.033010	0.033010	0.033010
Winter On-peak, kWh	0.108510	0.108510	0.108510
Winter Off-peak, kWh	0.032910	0.032910	0.032910
PPFAC Charges			
Summer On-peak, kWh	(0.003488)	varies monthly	varies monthly
Summer Off-peak, kWh	(0.003488)	varies monthly	varies monthly
Winter On-peak, kWh	(0.003488)	varies monthly	varies monthly
Winter Off-peak, kWh	(0.003488)	varies monthly	varies monthly
TOU - Large General School			
Customer Charge	52.000000	300.000000	287.169328
Demand Charge, per kW	12.810000	12.960000	11.581248
Energy Charge (kWhs)	0.005470	0.005400	0.004826
Base Power Supply Charge, all kWhs			
Summer on-peak	0.114886	0.145510	0.145510
Summer off-peak	0.039886	0.034510	0.034510
Winter On-peak, kWh	0.114886	0.124510	0.124510
Winter Off-peak, kWh	0.026168	0.032910	0.032910
PPFAC Charges			
Summer On-peak, kWh	(0.003488)	varies monthly	varies monthly
Summer Off-peak, kWh	(0.003488)	varies monthly	varies monthly
Winter On-peak, kWh	(0.003488)	varies monthly	varies monthly
Winter Off-peak, kWh	(0.003488)	varies monthly	varies monthly

Typical Bill Comparison - Present and Proposed Rates
RESIDENTIAL SERVICE

BILL IMPACTS CURRENT RATES

	Total kWh	Delivery (kWh)			Customer Charge	Delivery 0-400 kWh	Delivery 401-1,000 kWh	Delivery 1,000+ kWh	TCA	Base Fuel	PPFAC	Net Bill
		0-400	401-1,000	1,000+	$10.00	$0.01930	$0.03435	$0.03850	$0.001140	$0.064510	-$0.002139	
Xsmall	111	111	0	0	$10.00	$2.14	$0.00	$0.00	$0.13	$7.16	-$0.24	$19.19
Small	330	330	0	0	$10.00	$6.37	$0.00	$0.00	$0.38	$21.29	-$0.71	$37.33
Medium	664	400	264	0	$10.00	$7.72	$9.07	$0.00	$0.76	$42.83	-$1.42	$68.96
Large	1,144	400	600	144	$10.00	$7.72	$20.61	$5.54	$1.30	$73.80	-$2.45	$116.53
Xlarge	2,162	400	600	1,162	$10.00	$7.72	$20.61	$44.74	$2.46	$139.47	-$4.63	$220.37
Mean	830	400	430	0	$10.00	$7.72	$14.75	$0.00	$0.95	$53.51	-$1.77	$85.16
Sum	983	400	583	0	$10.00	$7.72	$20.04	$0.00	$1.12	$63.43	-$2.10	$100.20
Win	669	400	269	0	$10.00	$7.72	$9.25	$0.00	$0.76	$43.18	-$1.43	$69.48
Annual												$1,018.12

BILL IMPACTS PROPOSED RATES

	Total kWh	Delivery (kWh)			Customer Charge	Delivery 0-400 kWh	Delivery 401-1,000 kWh	Delivery 1,000+ kWh	TCA	Base Fuel	PPFAC	Net Bill	$ Change	% Change
		0-400	401-1,000	1,000+	$12.26	$0.03097	$0.05512	$0.06178	$0.000000	$0.049260	$0.000000			
		400	600	1000										
Xsmall	111	111	0	0	$12.26	$3.44	$0.00	$0.00	$0.00	$5.47	$0.00	$21.17	$1.97	10.3%
Small	330	330	0	0	$12.26	$10.22	$0.00	$0.00	$0.00	$16.26	$0.00	$38.74	$1.41	3.8%
Medium	664	400	264	0	$12.26	$12.39	$14.55	$0.00	$0.00	$32.71	$0.00	$71.91	$2.95	4.3%
Large	1,144	400	600	144	$12.26	$12.39	$33.07	$8.90	$0.00	$56.35	$0.00	$122.97	$6.44	5.5%
Xlarge	2,162	400	600	1,162	$12.26	$12.39	$33.07	$71.79	$0.00	$106.50	$0.00	$236.01	$15.64	7.1%
Mean	830	400	430	0	$12.26	$12.39	$23.68	$0.00	$0.00	$40.86	$0.00	$89.18	$4.02	4.7%
Sum	983	400	583	0	$12.26	$12.39	$32.16	$0.00	$0.00	$48.44	$0.00	$105.24	$5.04	5.0%
Win	669	400	269	0	$12.26	$12.39	$14.85	$0.00	$0.00	$32.98	$0.00	$72.48	$3.00	4.3%
Annual												$1,066.32	$48.21	4.7%