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Distributed Energy Association of Arizona
5401 N. 25TH STREET
Phoenix, AZ 85016

SEPTEMBER 1, 2006

DOCKET CONTROL
Arizona Corporation Commission
1200 W. Washington
Phoenix, AZ 85004

SUBJECT: Testimony of AzCA/DEAA under Docket # E-01345A-05-0816

Dear Sir or Madam:

Attached is the testimony of witness William J. Murphy for the Arizona Cogeneration Association d/b/a Distributed Energy Association of Arizona.
If you have any questions,, you can email me at billmurphy@cox.net or phone me on (602) 703-8163.

Sincerely:

William J. Murphy P.E.
DEAA

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BEFORE THE ARIZONA CORPORATION COMMISSION

COMMISSIONERS

JEFF HATCH-MILLER, Chairman
WILLIAM A. MUNDELL
MIKE GLEASON
KRISTIN K. MAYES
BARRY WONG

IN THE MATTER OF THE APPLICATION OF ARIZONA PUBLIC SERVICE COMPANY FOR A HEARING TO DETERMINE THE FAIR VALUE OF THE UTILITY PROPERTY OF THE COMPANY FOR RATEMAKING PURPOSES, TO FIX A JUST AND REASONABLE RATE OF RETURN THEREON, TO APPROVE RATE SCHEDULES DESIGNED TO DEVELOP SUCH RETURN, AND TO AMEND DECISION NO. 67744	DOCKET NO. E-01345A-05-0816

Direct Testimony of

William J. Murphy

on behalf of DEAA

Docket No. E-01345A-05-0816

September 1, 2006

Direct Testimony of William J. Murphy
Docket No. E-01345A-05-0816

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DIRECT TESTIMONY OF WILLIAM J. MURPHY ON BEHALF OF THE DISTRIBUTED ENERGY ASSOCIATION OF ARIZONA.
(DOCKET No. E-01345A-05-0816)

I. INTRODUCTION AND SUMMARY

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS

A. My name is William J Murphy P.E., and my business address is 5401 N. 25 Street, Phoenix, AZ 85016.

Q. BY WHO ARE YOU EMPLOYED AND WHO DO YOU REPRESENT IN YOUR TESTIMONY?

A. I'm with Murphy Consulting and am working on behalf of the Arizona Cogeneration Assn, (AzCA), d/b/a Distributed Energy Association of Arizona (DEAA).

Q. WOULD YOU PROVIDE SOME INFORMATION ON THE DEAA AND DESCRIBE THEIR INTEREST IN THIS PROCEEDING?

A. The DEAA is a nonprofit coalition of interested parties organized for the purpose of exchanging information on distributed generation and advocating for policies that permit safe, reliable and economically viable use of distributed generation. DEAA members represent utilities customers, gas and electric utilities, environmental consultants, developers and energy industry consultants. DEAA has interest in this proceeding due to the impact the proposed rates would have on customers in terms of their energy budgets as well as their ability to effectively implement and derive economic and operational benefits from a wide range of distributed generation (DG) alternatives in Arizona.

Q.WOULD YOU DISCUSS YOUR EDUCATIONAL BACKGROUND AND BUSINESS EXPERIENCE.

A. I attended Grammar, and High School in Arizona. I received a BS in Engineering from the University of Arizona; I also attended Phoenix College, Regis University, and ASU.

I worked for a number of small and large businesses in California and Arizona before joining APS as an Industrial Sales Engineer. During the 16 years I served on the various committees including the Totalizing Committee, the Load Forecast Committee, and the Cogeneration Committee, leaving as Manager of Power Contracts for retail and wholesale customers.

Then I operated an Energy consulting firm by the name of Murphy Engineering (ME) for 12 years. ME provided energy and utility rate consultation services for many businesses, governmental, and educational organizations including: Arizona DOA, Arizona DOT, Arizona Corporation Commission, University of Arizona, Arizona Western College, Arizona Interfaith Coalition on Energy, Anderson Clayton, Inc. Arizona Energy Office, Arizona Residential Utility Consumer Office (RUCO), Arizona School Boards Association, America West Industries, Cyprus Mines, and others.

Then I next served as the "Energy Manager" for the City of Phoenix from 1992 until 2003 during this time I managed the Phoenix' 3,000 individually metered electric accounts.

The City pays over $42 million/year for electrical energy.

Q. WERE YOUR TESTIMONY AND ACCOMPANING EXHIBITS PREPARED BY YOU OR UNDER YOUR DIRECTION?

A. Yes any and all were.

Q. WOULD YOU SUMMARIZE YOUR TESTIMONY AND RECOMENDATIONS?

A. My testimony will focus on how the APS rates have changed over the last 10 years. Specific emphasis will be on Distributed Generation (DG) rates, including Standby, Maintenance, and Supplemental. A Rate Case (Docket E-0134A-95- 0491) in 1996 which investigated the rates paid by General Service (GS) (non- residential) customers who generate their own electricity. An Informal Data Request from DEAA to APS in 1996 revealed that E-32R was lower cost For DG customers than E-51, E-52, or E-55.

Changes since this rate case produced rate changes that significantly discourage Distributed Generation, Conservation, and Demand Side Management (DSM).

Over the last 10 years the rates have gone in the opposite direction of costs:

- ✓ The Companies costs have significantly changed with the capital (Demand) costs down 12% and fuel (Energy) costs increasing 85%.
- ✓ The costs of demand are up over 50% and energy charges down by 5%
- ✓ The increased negative impact the current and proposed rates would have on customers who desire to lower energy costs using DG.
- ✓ DG is discouraged by:
  1. The increased costs related to Standby Charges
  2. The increased costs related of Supplemental Energy.
  3. The decreased costs related to DG displaced energy.
- ✓ Increased costs (cents/kWh) related to customers using less energy with conservation/DSM.
- ✓ The continued inability of these rates to communicate pricing signals to the customer

Unfortunately for most GS customers these rates provide incentives to increase energy use or decrease the customer's peak demand (not the system peak). Neither of these alternatives will automatically benefit all customers.

WHAT RATES DO YOU RECOMMEND BE ADOPTED FOR CUSTOMERS WHO CHOSE TO GENERATE THEIR OWN ELECTRICITY?

We recommend the introduction of a rate similar to Salt River Project's E-32 TOU for DG customers with demands between 20 and 1000 kW and SRP TOU E- 61 for larger customers. These rates would cover Standby, Supplemental, and Maintenance energy.

WHY DO YOU PREFER THE SRP RATES TO THE APS RATES FOR THE SAME TYPE OF CUSTOMERS IN THE SAME CLIMATE?

The SRP rates are TOU with the major emphasis on energy (kWh) and have significant differences in on-peak prices, both diurnal and seasonal. This is a much easier to understand and respond to these price signals approach than demand charges (kW) that are not time sensitive.

DOES APS HAVE RESIDENTIAL RATES THAT DISCOURAGE DISTRIBUTED GENERATION?

Yes, there are 2 methods that APS residential rates discourage DG, (primarily renewable). They are:
METHOD #1.Rates: ET-1, ET-2 EC-1, EC- 1R, ECT-1, ECT-1R, AND ECT-2.
The disincentive is that all of these time based rates have on-peak times that are much longer than necessary to meet the primary 4:00 to 6:00 summer on-peak hours.
METHOD #2. Rates: EC-1, ECT-1, ECT-IR, AND ECT-2
These capacity (C) rates discriminate by charging high prices for standby and supplemental energy.

DO YOU HAVE A RECCOMENDATION FOR RESIDENTIAL CUSTOMERS WHO UTILIZE DG?
Due to the fact that the largest residential customers are on Demand/energy rates (EC-1, ECT-2, ECT-1R) these rates discourage renewable (solar) DG. Unfortunately these customers must change to a more expensive rate before they install Solar DG.

COULD YOU PROVIDE A BRIEF HISTORY OF THE PRICING OF ELECTRICITY?

Yes Thomas Alva Edison originally priced his services in "light-hours" as lighting was the primary use for electricity in the early years. In 1898 he changed to billing in "Webbers' (kilowatt-hours) as there were increasing uses of non-lighting electricity (street cars).

Much later the industry began rendering monthly bills with various components including:

- Customer (billing and metering)
- Energy (kVAh, kWh)(FUEL/OPERATIONS)
- Demand (kVA,kWh).(CAPITOL COSTS)

The demand charges are generally intended to recover capital costs, while the energy charges are considered to cover fuel and operating costs.

Q. DO THE CUSTOMERS UNDERSTAND THE FACTORS USED IN MEASURE THEIR ENERGY USE WHEN THEY RECEIVE A MONTHLY BILL?

A. For over 8% of residential customers and 96% of non-residential customers the pricing of electricity is based on two units of electric measure; DEMAND – which is measured in kilowatts (kW), and ENERGY – which is measured in kilowatt-hours (kWh). Most customers do not understand the differences between these two engineering units. I find that most customers believe these two units of measure are basically the same thing, in other words kW= kWh. This common misconception renders these measurements of little use in customers' desire to lower monthly costs.

Q. WHY DON'T CUSTOMERS UNDERSTAND THE FACT THAT THEY ARE BEING BILLED ON BOTH KW and KWH?

A. I believe that this is a very difficult concept and that not only do most customers not understand, but many within the industry, do not understand that kW is not the same as kWh. I have taught utility classes that focused how rates impacted the monthly billing. At the end of the class all my students were delighted to state they now understood this concept. Unfortunately in subsequent conversation they would often discuss energy and interchange kW and kWh.

Q. WHY IS THIS RELATIONSHIP (kWh/kWh) SO HARD TO UNDERSTAND?

A. It may be the similar nomenclature that makes this a difficult concept. As an example of the difficulty of understanding we now look at the most commonly used analogy (miles & MPH). Unfortunately this analogy falls apart because the units that include time are reversed. The total in the car analogy (miles) contains no time, while the rate of use in the car analogy (MPH) does contain time. This is the exact opposite of the electric comparison. Said another way -kW is to MPH- as – kWh is to miles – confusing huh? In addition, the kilowatt is an engineering unit that we do not confront in our life apart from the utility bill.

Q. ARE THERE OTHERS BESIDES CUSTOMERS WHO DO NOT UNDSERSTAND THE DIFFERENCE BETWEEN KW and KWH?

A. Yes, there are many closely associated with the electric utility industry including many utility employees, plus some suppliers of DSM services, including suppliers who provide metering services.

Q. IS IT IMPORTANT FOR CUSTOMERS TO UNDERSTAND THE DIFFERENCE BETWEEN KW AND KWH?

A. Yes, Where customers plan to alter their energy use by conservation, DSM, investments in energy management devices and distributed generation including renewable generators. It is extremely important for the customer to understand the dollar impact these efforts will have on the monthly bill.

Most importantly to small commercial customers who may chose to employ DG (solar, and combined heat and power (CHP)) whether to increase security and reliability, lower their costs and improve the environment, or any combination of the above, the continuing demand (kW) increases in rate E-32R will significantly inhibit these choices by doubling the cost of standby power & energy over what this Commission previously approved. I addition, it is my testimony that prices for utility purchase of electricity bought from DG are 1/5 to 1/2 of the price that the Company must pay for incremental energy at wholesale. This despite the fact that purchases from DG can be within the "load pocket", thereby unloading the transmission/distribution system.

Q. WHY HAVE YOU CHOSEN TO DIRECT YOUR TESTIMONY TOWARD GENERAL SERVICE (GS) RATES AND SPECIFICALLY E-32R, E-52 & E-55?

A. 96% of all potential GS DG customers will be on Rate E-32R and E-52. Of this large percentage, most are small and medium sized customers (under 1000kW). Small Customers include commercial and industrial operations, such as coffee shops, offices, hair salons, small school buildings, machine shops, and government facilities. Medium customers include high schools, government facilities, resorts, hospitals, manufacturers, and others.

Emerging technologies like DG, and to an extent DSM, can benefit this large population of APS ratepayers only if the rate design will encourage understanding and change. General Service customers pay more than their share of cost to serve them and the proposed rates will only add to that in equity by removing technology alternatives that could benefit them the most.

Q. WHAT STANDARDS ARE THERE FOR PRINCIPLES TO GOVERN RATE DESIGN?

A. I believe Dr. James C. Bonbright's 1961 book best sets out principles for measuring effectiveness of rates. This book lists 8 the principles as follows:

1. Simplicity and understandability
2. Freedom from controversies
3. Effectiveness
4. Revenue stability
5. Rate stability
6. Fairness
7. No "undue discrimination"
8. Discourages "wasteful use"

Q. GIVEN THE BONBRIGHT PRINCIPLES OF RATE DESIGN YOU'VE LISTED, WHAT IS YOUR VIEW OF E-32R, E-52, & E-55, AND ITS ADHERENCE TO

THESE PRINCIPLES? AND GIVEN THAT MOST OF DR. BONBRIGHT'S WORK WAS DONE BEFORE ENVIRONMENTAL AND CONSERVATION ISSUES CAME TO PROMINENCE, WHAT WOULD YOU CHANGE IN THE LIST OF PRINCIPLES?

A. In regard to E-32R's adherence with the Bonbright principles, many conflicts exist. E-32 is neither simple nor understandable. Although "understandability" is first on Bonbright's list (as it should), most GS customers don't begin to understand the complex E-32R, E-52, and E-55 rates for many reasons. I will attempt to include them as appendixes to my testimony although they go on for many more pages than this testimony. Please remember that most customers that I have discussed this with (the few who know the difference between kW and kWh) can't grasp the meaning.

These same rates, I contend, are not free from controversy either. A rate that is free from controversy would be a rate any customer can apply to his/her own billing determinants to quickly and accurately verify their utility bill. The imbedded demand charge, capacity reservation charges, penalty charges, switching from one rate to another for Standby, Supplemental, and Maintenance is confusing and prevents customers from understanding and selecting the proper rate. In addition, as my previous testimony regarding fairness reveals, this approach cannot be considered fair or non-discriminatory.

In regard to conservation I would suggest that Dr. Bonbright's admonishment to "discourage wasteful use" would today be more prominent. While the Bonbright principles indeed list conservation as a criterion for rate design, I suggest that its 'last place' ranking in the order of principles should not be interpreted to mean that it is of least importance. The current E-32R, E-52, & E-55 rates, with the significant shift toward higher demand costs, will discourage the use of distributed generating resources and certain DSM measures and will actually inhibit conservation.

WHAT IS YOUR OPINION OF WHAT ARE THE UTILITIES RANKING FOR THE THREE MOST IMPORTANT ASPECTS OF RATE DESIGN/

I think the utility list would be the following:

1. Revenue Stability
2. Revenue Stability
3. Revenue Stability

Q. BESIDES THE PRINCIPLES DEFINED BY DR. BONBRIGHT, HAVE ANY POLICY MAKING BODIES ATTEMPTED TO CHANGE THE WAY UTILITIES PRICE ENERGY TO CUSTOMERS?

A Yes, more recently the United States Department of Energy (DOE) supported the Public Utility Regulatory Policies act of 1978 (PURPA). This National law for the first time created what I consider a "bill of rights" for electricity customers. PURPA, and its related rules, provided guidance that discouraged declining block rates (such as E-32R) and instead attempted to encourage Time of Day (TOD) rates. DOE also provided witness in a 1980's APS rate case to advocate for TOD rates and in opposition to declining block rates.

One more interesting feature of DOE's approach was an incentive to provide a readout device within the home or business that would read out how much the next unit of energy would cost the consumer.

Currently the DOE is advocating the use for larger GS customers of "real time pricing" (RTP) with the billing kWh varying hourly. A Time of Use rate with realistic time periods utilizing kWh units.

Q WHAT FURTHER COMMENTS DO YOU WANT TO PROVIDE ON HOW THE PRESENT, AND OR PROPOSED; E-32R, E-52, and E-55 RATES AFFECT GS CUSTOMERS?

A. The biggest unknown and most vexing problem, for any customer on these rates is, "When exactly was the 15-minute period during the previous billing month when the peak demand was set?" Knowing this helps the customer begin to know how to lower peak demand and reduce costs. But, alas in the case of these rates, even the utility does not know when it occurred as current utility meters cannot record the time peak demand

occurred. This can be solved. To make matters worse, the proposed rates continue the focus on the customers peak demand kW (not the system peak) portion of the bill, no matter when it occurs!

Additionally as the demand is not generally understood by consumers, a significant portion of the charges arise from demand charges imbedded (hidden?) in the energy cost component of the rate. This billing mechanism by its complexity and imbedded nature reduces the customer's ability to determine the impact demand has on their final bill and leaves them hard pressed to accurately modify their usage in an effort to lower their costs. Add to that the utility bill can arrive almost six weeks after the customer may have attempted to change his peak, or consumption, and he has a hard time relating the outcome of his actions to this limited feedback – late as it is.

Finally, billing periods can vary from 33 to 27 days. This is due to the fact that the billing process is dependant on a meter reader physically reading the customer meter every month, often times on a different day of the month. The implementation leaves customers lacking timely, understandable, and actionable information. This also complicates the rate calculation

HOW DOES THIS BILLING INFORMATION COMPARE WITH A CELL PHONE BILL?

It would be the same as receiving an E-32R type cell phone bill that only told you:

- ✓ The total minutes you used (not when or to whom)
- ✓ The length of your longest call (not when it occurred) and
- ✓ The total bill (much money you owe).

Q. DO THE X-LARGE CUSTOMERS HAVE RATES MORE COMPLEX THAN THE CURRENT E-32R RATES?

A. No, extra large GS customers (demand greater than 3,000 kW) have relatively simple three part rates – Customer charges, Demand charges, and Energy charges. These customers generally have a person dedicated to understanding of rates, or they can afford to employ consultants to advise them on energy rate issues. Unfortunately these rates

also punish low load factors and thereby discourage DG and conservation (DSM). This apparent simplicity turns negative once the customer decides to utilize DG. E -55 is so complex as to stifle understanding and utilization.

Q. WHAT DIFFERENCE DOES IT MAKE IF ONLY RATE EXPERTS (WONKS) CAN UNDERSTAND THESE CHANGES?

A. Most customers do want to know what they use, when they used it, and most importantly how to reduce their bill. Not only is peak reduction beneficial to the individual customer, if the reduction is also coincident with the utility peak, all customers will benefit by decreasing the need for more peak capacity and peak energy. If a customer's actions can contribute to a reduction in coincident peak demand it will ultimately lower the need to invest in new capacity whose costs would be borne by all ratepayers. If these peak reductions is not coincident with the utilities peak there is no across-the-board benefit, but certainly less revenue to the utility, and there is still benefit to the customer. Also, with the proper information, the customer could figure out that rather than cut the peak they could add energy usage away from their peak because it is cheaper to them, though not beneficial to all customers.

Without a clear understanding of the rates, an understanding that most small and medium commercial customers do not possess, customers can not economically reduce energy use by conservation and use of small scale renewable distributed energy resources. If only a few customers, with hired or on-staff rate experts, can understand the rates, then most of the GS population is left with little ability to make a difference. If such a large percentage of the utilities load is incapable of reducing their peak demand and energy consumption then ultimately all ratepayers are adversely affected.

Q. DOES THE EXISTING E-32R, E-52, & E-55 PROVIDES PRICE SIGNALS FOR DECREASING THE SUMMER PEAK DEMAND AND ENERGY USAGE?

A. No, unfortunately the customer that understands the demand/energy details of the rate it provides the price signal that summer cost is not too different from winter costs. It

provides incentives to increase the load factor (whether beneficial to the system or not). The reason for these reactions is that the difference between summer and winter pricing is less than 10% (if the usage is the same). But if there is more air conditioning usage in the summer (duh) it will easily overcome this and result in lower costs in the summer. This provides an inappropriate signal that summer energy use is approximately the same (or lower) cost than winter use.

Q. HAS PRICING FOLLOWED ACTUAL COSTS AS THE GENERATION COSTS CHANGED OVER THE LAST 10 YEARS?

A. Before I answer this let me give a little background on traditional Utility pricing philosophy. Pricing has been split between capital and operating costs. First, capital investment (generating, transmission, and distribution plant) has traditionally been recovered in demand charges, in units such as $7/ kW/Month. Second, operating costs (fuel, labor, maintenance, losses, etc.) are in turn traditionally recovered in energy charges, in units such as 5¢ per kWh.

This philosophy has resulted over the last 40 years in large central generation investments whose goal was to lower fuel costs but raised capitol charges. Coal and nuclear plants are examples of this investment shift toward low fuel (kWh) costs. The results are rates with low (base load) fuel costs – for example 1 to 2¢/kWh. With corresponding capital costs that are about equal to – say 5¢/kWh (about $14/kW/mo)

In the last five years however, more generating capacity has come on line than previously existed in Arizona. Not only has this new capacity exceeded the capacity of all the previous plants, but the new plants are fundamentally different from their predecessors. The new plants are Combined Cycle (Jet engines with waste boilers) that, in comparison To earlier central station plants, are relatively low capital cost, but have much higher fuel costs. – E.g. 5¢/kwh. (Gas at $6/ million BTU, heat rate of 7,000 BTU/kWh + losses. For a total of 5¢ energy and 2¢/kWh demand equivalent).

This change to Combined Cycle plants has occurred across the world, with a huge impact on natural gas prices – now roughly 3 times the cost from when these plants were announced.

Q. HOW DOES THE CHANGE IN UTILITY ECONOMICS RELATE TO THE CURRENT STANDBY AND SUPPLIMENTAL DG RATES?

A. The shift towards generation plant of lower relative capital cost should equate to a shift away from demand as the vehicle for recovering the investment. The subject rates moving in the exact opposite direction from this concept and comes at a time when APS' and all other new generating plants (with very limited exceptions) have installed facilities whose cost recovery should be based primarily on operating costs, not capital costs. Worded another way, these rates do not properly reflect the cost recovery realities of the new generation fleet.

Q. WILL THE PROPOSED DEMAND-BASED CHARGES IN E-32R IMPACT THE USE OF DG BY CUSTOMERS?

A. Unfortunately yes, even though DG technologies coupled with the grid can significantly increase reliability. But it should be noted that approximately 90% of utility customer outages are caused by utility distribution failures. Generation and Transmission make up the other 10%.

Even though many DG technologies can rival the capacity factors (not to mention the thermal efficiency) of central station utility plants, there must come a time when all generating plants come 'off-line', if for no other reason than to perform scheduled maintenance. In addition, even the highest capacity factor plant design can and will suffer unplanned outages – just like any regulated utility plant.

This Standby problem is exacerbated by the classic utility view and obviously erroneous that all DG plants will fail simultaneously and at the time of the system peak.

A customer's decision to invest in DG, and the economic performance of that asset once installed, is highly dependent on reasonable prices for electricity from the utility when the DG plant is out of service. Under the existing and proposed DG rates, the cost of

"standby" electricity (kW or demand related charges) will increase dramatically due to the significant % of demand charges in these DG rates. This will have the effect of decreasing the economic attractiveness of solar and any other DG application. These technologies require just and reasonable standby electricity pricing in order to hit a rate of return threshold necessary for implementation. As an example, an E-32R customer with 60% load factor will see an almost 150% increase in demand charges from $7.5/kW in 1996 to $11/kW in the current rates. These changes are so dramatic that they could remove DG as a viable alternative to utility generation.

Q. IS THERE SOME UPSIDE IN THE CURRENT RATES FOR THOSE THAT ARE INTERESTED IN ACHIEVING ECONOMIC SAVINGS BY UTILIZING CONSERVATION?

A. Unfortunately, here too, revenue stability wins out over conservation. The small customer mentioned above will change from a savings of 4.8¢/kWh to a savings of only 4.6¢/kWh with the proposed E-32R. – A slight reduction of approximately in the economic benefits of conservation. Customers respond to clear price signals. The proposed & current rates will not send price signals that encourage conservation.

Q. DO YOU BELIEVE THAT UTILITY CONSERVATION & DEMAND SIDE MANAGEMENT (DSM) PROGRAMS ARE NECESSARY?

A. Absolutely, but DSM is not a permanent replacement for understandable price signals to customers. And as long as we have a current rate or a proposed rate design that relies on the declining block structure and demand charges that are generally misunderstood, DSM will not take hold and produce the intended results

Q. DO YOU THINK THAT RATES DESIGNED FOR CLARITY, SIMPLICITY, AND UNDERSTANDABILITY CAN ULTIMATELY DISPLACE OR LIMIT THE NEED FOR DSM PROGRAMS.

A. No, by implementing rates that deliver clear and correct price signals, we can achieve more uniform loads that will result in benefits for all customers. Clear pricing signals that reflect actual market costs, when applied through understandable rates, will further

encourage customers to alter their usage in a variety of ways that will benefit all customers.

IS THE RELATIVELY NEW GENERAL SERVICE RATE E-32TOU A BETTER RATE THAN E-32, FOR DG CUSTOMERS?

This appears to be a Hobson's choice!
It is not better from price signal, encouraging conservation, encouraging DG or DSM. Worse the Company is in the process of eliminating some good rates that were created as the result of efforts of the Interfaith Coalition 0n Energy (ICE) to get fair rates for Houses of Worship that operate mostly on Saturday and Sunday. These rates are being eliminated! They will soon be eliminated or Frozen. (E- 20, 21, 22, 23, & 24)

Q. DO YOU BELIEVE RATE DESIGN IS AN ART OR A SCIENCE?
A. Neither, but I believe that rates can and should be designed to also benefit the customer.

Q. ARE THERE ACTIONS THAT THIS COMMISSION CAN TAKE TO ANSWER THE RATE DESIGN ISSUES THAT YOU HAVE RAISED IN THIS TESTIMONY?
A Yes, and I will attempt to provide a list of actions that this Commission can take to solve these "Revenue Stability" vs. "Clear Price Signals". These actions include the following:

1. Provide a rate designs that are at least neutral for DG.
2. Provide a rate that provides significant seasonal TOD energy (kWh) price signals.
3. This new proposed rate should be designed with clarity, simplicity, A and with the appropriate TOD (energy) pricing signals.

Q. THERE HAVE BEEN WORKSHOPS IN THE PAST 6 YEARS TO AGREE ON NEW, FAIR INTERCONNECTIONS FOR SMALL COGENERATION AND RENEWAL RESOURCES- WERE YOU PLEASED WITH THESE WORKSHOPS?

A. No, as this turned into an endurance effort in which the Arizona utilities clearly outlasting other stakeholders. The current ratemaking process of continuing workshops and rate proceeding where utilities "rate base" their staff and consultant time (legal and engineering) – and customers who want to be part of the process use their own funds as well as risk higher rates as a result of being involved in the process due to paying the utility's costs of the process. I would suggest a hearing on this subject to decide interconnection rules. We can create a record and settle on the fairest cost-based standard.

Q. DOES THIS COMPLETE YOUR COMMENTS?

A. Yes.

ATTACHMENTS / WEBSITES

Attachment #1 – W JM -1

Website for APS Application (1/31/06)

http://images.edocket.azcc.gov/docketpdf/0000040073.pdf

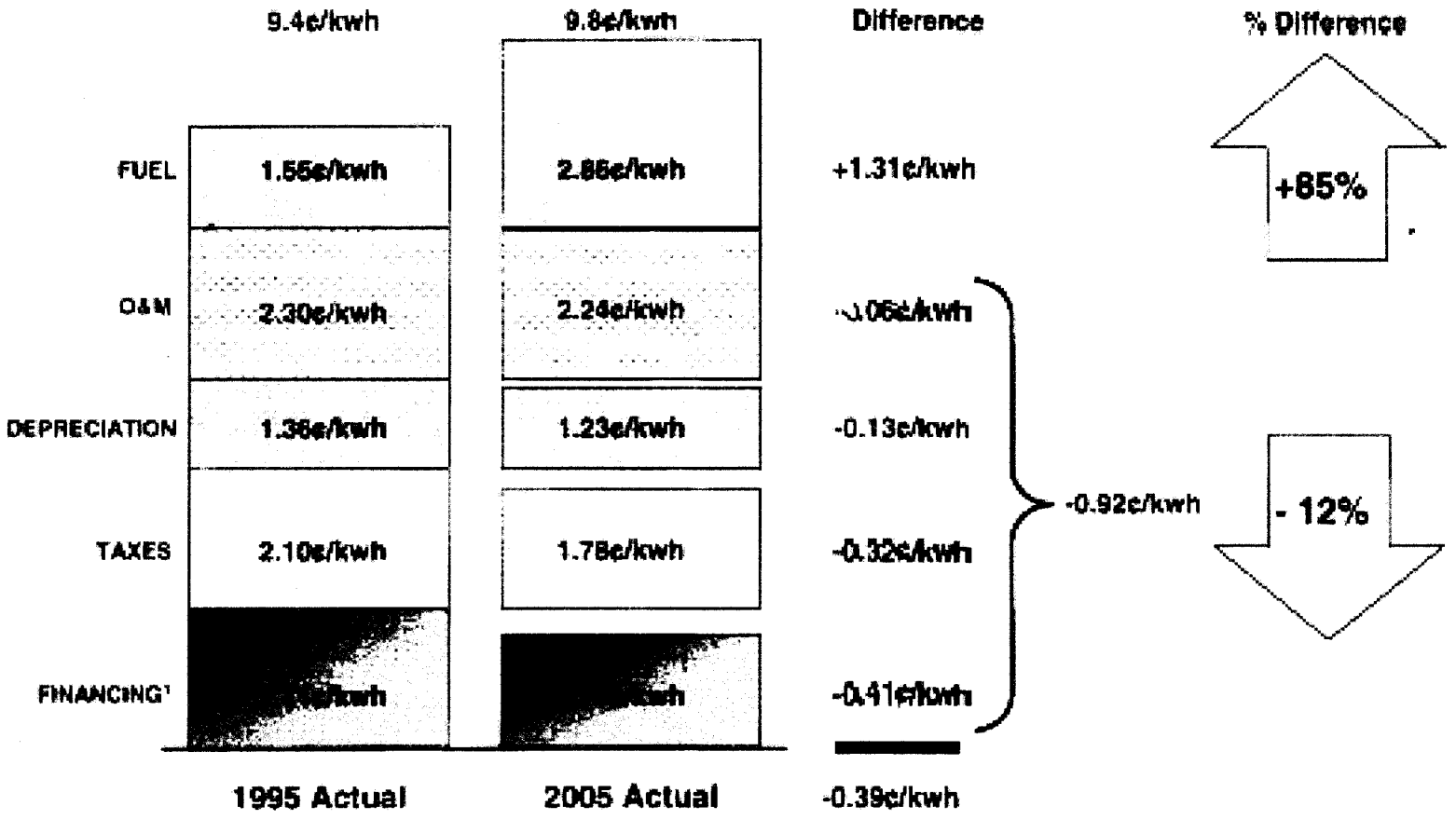
Website -2 - Website for SRP rates - www.srpnet.com /SELECTED SECTIONS - payment, billings, & prices/Complete Price Plan Details/Standard Electric Price Plans

Website 3 – Websites for APS rates

http://www.aps.com/aps_services/residential/rateplans/ResRatePlans_11.html

http://www.aps.com/aps_services/business/rateplans/busrateplans_9.html

Arizona Public Service Company
Cost per kwh Comparison



[1]Includes both debt and shareholder financing costs