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BEFORE THE ARIZONA CORPORATION COMMISSION

JIM IRVIN
COMMISSIONER-CHAIRMAN
RENZ D. JENNINGS
COMMISSIONER
CARL J. KUNASEK
COMMISSION

IN THE MATTER OF THE COMPETITION IN IN THE PROVISION OF ELECTRIC SERVICES THROUGHOUT THE STATE OF ARIZONA	)))	DOCKET NO. U-0000-84-165

TESTIMONY OF

DR. MARK N. COOPER

ON BEHALF OF

THE ARIZONA CONSUMERS COUNCIL

JANUARY 21, 1998

EXHIBIT
Admitted
AZ Consumers
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SUMMARY

1. SHOULD THE ELECTRIC COMPETITION RULES BE MODIFIED REGARDING STRANDED COSTS, IF SO, HOW?

A. The rules should be clarified to allow the utility recovery of costs that only an efficient utility would have incurred. They should not allow the full recovery of above market costs as proposed by the companies. In my testimony I show that the company's proposal rely on an assumed relationship between ratepayers and utilities that never existed. This relationship has been fabricated by the utilities to protect them from the impact of competition. This fictitious relationship has the effect of denying consumers the benefit of efficient prices in the marketplace. It has no legal, regulatory, or economic basis.

There is a relationship between ratepayers and utilities in which the company is required to deliver service in an economic fashion. Uneconomic costs are not recoverable from ratepayers. The company has no claim to the costs that it wants to have guaranteed. If the Commission decides to rely more on competition to accomplish the regulatory goals and obligations which have always applied to the electric utility industry, it cannot and should not allow the recovery of stranded costs calculated as proposed by the Company.

3. WHAT COSTS SHOULD BE INCLUDED AS PART OF "STRANDED COSTS" AND HOW SHOULD THOSE COSTS BE CALCULATED.

There are two circumstances in which costs may become stranded and recoverable from ratepayers.

First, management must have exercised no discretion whatsoever over costs, i.e. costs may have been incurred directly and entirely by legislative or regulatory edict. Such costs must also be unrecoverable. Management must also not have been previously compensated for the risk of stranding. The question is an empirical one -- who made the decisions, under what conditions and subject to what risks and rewards.

Second, even where management is responsible and should not normally be compensated for costs going forward, but the result would be severe financial distress, ratepayers may have to allow recovery of costs that they should not otherwise bear for a transition period. If the analysis reveals uneconomic costs for which management is responsible but the utility would not survive financially, if it bore the burden of the costs, ratepayers may allow recovery of costs while the utility's economic house is put in order.

Having established the fact that a utility only has a claim to recover the efficient costs of production and that the Commission has never been required to allow the recovery of uneconomic costs, we turn to the question of how to measure the economic costs of production. There are two relevant standards that should be considered.

One standard is the most efficient producer standard. Under routine assumptions about competitive market behavior, this would be the market clearing price. In essence, we ask at what price would competitive supply clear the market. This is a relevant consideration because competition would force producers to continuously evaluate and choose the most efficient technology. In a competitive market, if you get stuck with an inefficient technology, you suffer inadequate returns or losses until you lower your costs.

A second standard is the most efficient utility standard. This standard recognizes that certain obligations were placed on utilities. While they might have been able to choose the most efficient plant for any specific decision about a specific increment of supply, they may also have been required to make decisions that were not strictly least costs in the aggregate for policy reasons. For example, they might be required do things a competitive profit maximizer might not do, such as to have a larger reserve margin, a different resource mix, or a higher level of reliability. However, it is crucial not to confuse the fact that a utility was required to have more capacity with the fact that it paid too much for that capacity. The former is a policy obligation, the latter is a management mistake.

Based on my analysis of other utilities with large stranded costs, it is interesting to analyze the sources of these uneconomic costs. As in other cases, the market value that the Arizona utilities anticipate equals roughly the operating costs of those facilities. The utilities, operating costs are actually close to the operating costs of other utilities. Its capital charges are much higher. Return of and on capital contribute about equally to its uneconomic costs.

Given the financial constraints, in these cases I have argued that ratepayers should be held responsible for, at most, 50 percent of stranded costs. As discussed throughout my testimony, management must be responsible for their share of stranded costs where management discretion was exercised. This frequently works out to a return of, but not on capital.

6. HOW AND WHO SHOULD PAY FOR "STRANDED COSTS" AND WHO IF ANYONE SHOULD BE EXCLUDED FROM PAYING FOR STRANDED COSTS?

I recommend the following approach to the calculation and allocation of stranded costs. The purpose is to allocate responsibility between ratepayers and stockholders (50/50 in the example) and then between customer classes to ensure the affordability of service.

1. Calculate Economic Costs of Production
2. Estimate Stranded Costs
3. Decide on Recoverability of Stranded Cost
4. Apportionment Between Stockholders and Ratepayers
   --> 50 % to Stockholders
   --> 50 % to Ratepayers
5. Allocate Stranded Costs to Non-residential
   --> (Baseload Kwh + ?)/Baseload Kwh to Non-residential
6. Allocate Residual to Residential
   --> (Baseload Kwh - ?)/Baseload Kwh to Residential
7. Minimize Impact on Basic Service to Assure Affordability
   --> Inverted Charges
8. Promote Universal Service for Targeted Groups
   --> Exempt Low Income from Stranded Cost Recovery

9. WHAT FACTORS SHOULD BE CONSIDERED FOR THE "MITIGATION" OF STRANDED COSTS?

I would reverse the direction of the incentive with respect to mitigation. I prefer to have utilities write down their plant first and place stockholders at risk for the write-down. To the extent that management can mitigate stranded costs, stockholders would enjoy the benefits. This is exactly the way it would work in the marketplace. Thus, after stranded costs are reasonably estimated and responsibility ascertained, utilities can be the beneficiaries of opportunities to mitigate stranded costs or incentives to improve operating efficiencies. It this approach is taken, the Commission does not have to concern itself with policing mitigation.

I. INTRODUCTION AND OVERVIEW

A. QUALIFICATIONS

Q. PLEASE STATE YOUR NAME, ADDRESS AND OCCUPATION.

A. Dr. Mark N. Cooper, President, Citizens Research, 504 Highgate Terrace, Silver Spring Maryland 20904. I am also Director of Research of the Consumer Federation of America (CFA). My testimony reflects my personal views and not those of CFA.

Q. PLEASE BRIEFLY SUMMARIZE YOUR RELEVANT EMPLOYMENT EXPERIENCE AND RESEARCH INTERESTS.

A. Prior to founding Citizens Research, a consulting firm specializing in economic, regulatory and policy analysis, I spent four years as Director of Research at the Consumer Energy Council of America. Prior to that I was an Assistant Professor at Northeastern University teaching courses in Business and Society in the College of Arts and Sciences and the School of Business. I have also been a Lecturer at the Washington College of Law of the American University co-teaching a course in Public Utility Regulation.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE PUBLIC UTILITY COMMISSIONS?

A. I have testified on various aspects of telephone and electricity rate making before the Public Service Commissions of Arkansas, California, Colorado, Connecticut, Delaware, the District of Columbia, Florida, Georgia, Hawaii, Illinois, Indiana, Iowa, Kentucky, Manitoba, Maryland, Missouri, New Jersey, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, South Carolina, Tennessee, Texas, Vermont, Virginia, and Washington, as well as the Federal Communications Commission (FCC), the Canadian Radio-Television, Telephone Commission (CRTC) and a number of state legislatures.

For a decade and a half I have specialized in analyzing regulatory reform and market structure issues in a variety of industries including telecommunications, railroads, airlines, natural gas, electricity, medical services and cable television. This includes approximately 125 pieces of testimony split fairly evenly among state regulatory bodies, federal legislative bodies, and federal administrative bodies.

Q. HAVE YOU TESTIFIED ON ELECTRIC UTILITY RESTRUCTURING ISSUES?

A. Yes. In cases dealing with formal restructuring proposals, I testified before the New York State Public Service Commission in the Rochester Gas and Electric, Consolidated Edison, and New York State Electric and Gas Cases. I testified before the Pennsylvania Public Utility Commission in the PECO and PP&L cases. Finally, I testified before the Virginia State Corporation Commission in the Virginia Power restructuring proposal.

In generic proceedings dealing with electric utility restructuring, I recently testified before the New York State Energy Research Development Administration, Indiana legislature and the Texas Public Utility Commission and the National Association of Attorneys General.

Q. ON WHOSE BEHALF ARE YOU TESTIFYING?

A. I am testifying on behalf of the Arizona Consumers Council. I present a broad view of the issue of the principles of stranded cost recovery. My responses deal primarily with questions 1 and 3 as articulated by the Commission.

II. THE REGULATORY RELATIONSHIP BETWEEN UTILITIES AND RATEPAYERS

Q. WHAT IS THE CENTRAL ISSUE IN THE PROPOSALS FILED BY THE COMPANIES?

A. The key question raised in this proceeding by the companies is the nature of the commitment that ratepayers have to ensure the recovery of the costs incurred by utilities. The utility companies argument is invariably a rate making treatment that essentially guarantees recovery of costs that it believes it could not recover in a competitive market. It offers a variety of legal and economic arguments about why the Commission should guarantee recovery of these stranded costs.[1]

I believe a comprehensive analysis of stranded costs must be undertaken. There are four steps in the analysis --legal, economic, financial and public policy. Based on this analysis, I believe the Commission should reject the utility companies' proposals.

Q. WHAT COMMITMENTS EXIST BETWEEN THE RATEPAYERS AND THE UTILITY WITH RESPECT TO THESE COSTS?

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[1]Bayless (throughout this testimony I refer to the direct testimony of utility company witnesses by their last name) refers to the takings clause of the constitution. Fessler refers to the *Duquesne* decision several times (p. 29, l. 29; p. 29, l. 26). Both arguments are wrong. Bayless argues that being required to "sell certain of its products at a below market price, in my view, constitutes an unconstitutional "taking" for a public purpose without justification" (Bayless p. 6, l. 11). He cannot be referring to the electricity market, since his products are well above the market and he ignores that fact that selling at an above market price is unjust and unreasonable. Fessler's reading of *Duquesne* misses one important point, the court disallowed recovery of the costs. The steps I outline to disallow costs are consistent with the *Duquesne*.

A. I do not believe that there ever was an implicit or explicit guaranteed return of or on capital of the nature claimed by the company. Claims that a regulatory compact or constitutional protections bind ratepayers to make utilities whole for every penny of investment they have made or every obligation they have incurred have no legal basis.[2]

Claims that regulatory changes have created the problem are baseless.[3] In truth, the uneconomic nature of costs have been the result of market forces as the company's own analysis shows. While the company's analysis shows that market forces are the wellspring of uneconomic costs, it fails to properly interpret the implications of this fact. Utilities are and have always been obligated to provide economic service and be efficient with no claim to recover inefficient costs.[4] Efficiency would be the outcome of a competitive market and that is the outcome which regulation has always strived to achieve.

Unanticipated events on the demand-side (reductions in demand due to recessions or changes in behavior patterns) or the supply-side (changes in fuel prices or technology) are part of the risk for which utilities have been compensated. Management exercised

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[2]Utilities frequently capitalize the word "Compact" in their discussion of regulation in order to imbue it with some special significance. There is, of course, no such document with such a title anywhere in Arizona law. A series of federal and state laws defines rights of and obligations of utilities and ratepayers. In their current rendition of the "Compact" utilities stress the obligation to serve, ignoring entirely their obligation to provide economic service.

> The operation of public utilities, since shortly after their inception, have been based on the Compact. (Bayless, p. 5, l. 13).

[3]Bayless, p. 10, l. 13; Hieronymus, p. 4, l. 17.

[4]Hieronymus admits this (p. 20, l. 10), but in the context of asserting and assuming that they have done everything they reasonably could to mitigate costs, as assumption which is not substantiated.

substantial discretion in the decisions to make investments and incur contractual obligations. Management must bear the responsibility for its own actions. The burden of strategic actions or mistakes should be borne by stockholders, not ratepayers.

Q. HAVE ARIZONA UTILITIES ACCEPTED THEIR PART OF THE BARGAIN, THEIR MANAGEMENT RESPONSIBILITY?

A. No. The most fundamental problem is the proposal to absolve utility management and stockholders from all responsibility for above market costs. Essentially, the utility company argument has assumed that every penny of capital cost and expense for its uneconomic assets must be recovered first. After the utility is made whole, it then allows the market to start to operate.[5]

The utility has traditionally and continuously been under the obligation to deliver electricity service that is economic. That obligation existed prior to any change in approach to regulation and continues to exist. The considerations introduced by restructuring only make the uneconomic nature of delivery of electricity obvious and palpable.

Uneconomic costs were never recoverable under traditional regulation. They were always subject to disallowance. The fact that the company has been recovering some of those costs for a period of time has never meant that all of those costs were recoverable forever.[6] The fact that the Commission approved some rates some time in the past does not

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[5]Davis, p. 8, l 16, is most explicit, arguing that as long as the market is depressed, the utility should be made whole by a tax on ratepayers.

[6] Bayless, p. 12, l. 18, argues

mean that those rates were not reviewable. The fact that the Commission invokes competition as a more precise regulatory mechanism for determining what is economic does not change or create the requirement that the utility provide economic service -- that obligation has always been at the heart of traditional regulation.

Q. IS PRUDENCE A GUARANTEE OF RECOVERY?

A. No. The utility company argument invariably suggests that prudent investments are guaranteed recovery. That is not the case. In Arizona and many other states prudency is not a guarantee of recovery. Even where management decisions are found to be prudent, investments must be used and useful over their life. The claim of prudency lies at the heart of the utility claim to the extraordinary treatment of billions of dollars in costs it claims will be stranded.[7]

In a competitive market, investments that made sense at one moment in time are frequently rendered uneconomic by technological progress or market change. Just because they were prudent at one moment in time does not ensure their soundness over time. Competitive sector companies frequently find that they cannot recover the cost of

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> TEP strongly believes that the consideration of Stranded Cost should not include ex-post prudence reviews of costs that are already being recovered in the utilities' rates. The fact that recovery is already being made allowed is sufficient evidence of prudence as a result of prior Commission purdency determinations.

This view ignores the ongoing obligation of utilities to provide efficient service, the used and useful standard.

[7]There are no references to used and useful anywhere in the utility testimony. While the concept of just and reasonable rates is mentioned once or twice, the implications of that concept for above market plant is never explored.

investment because of technological and market changes.

A used and useful standard, which applies in Arizona, properly recognizes the ongoing risk that companies face in a competitive marketplace. No matter how prudent an initial decision, events, circumstances, technological change, behavioral changes, or just plain bad luck can render those decisions uneconomic, imposing loses on a company. That is a risk they face and for which they are generally compensated.

. The heart of the argument is that management claims it could not predict or expect technological and economic change. These types of events and circumstances are what markets are all about. Traditional regulation did not insulate utilities on the supply-side (substitutes) or the demand side (restrained growth, energy conservation), it rewarded them to face these risks. It is clear that the uneconomic costs in the utility portfolio are the result of market changes -- business risk. According to the utility, it does not believe that it can be held accountable for having become an inefficient operator while the market developed much lower cost sources of supply.

Q. HAVE ARIZONA UTILITIES BEEN COMPENSATED FOR RISK?

A. Yes, handsomely. The Arizona Corporation Commission, like every utility commission in the country that has allowed an investment to be included in rate base, has also assigned that investment a rate of return far above the risk free level in our society. The assignment of a return which includes a substantial risk premium clearly indicates that there were no guarantees being offered. If a return of or on capital were guaranteed, the Commission would have assigned a return without a risk premium. Virtually every utility in the country has, in fact, enjoyed a return far in excess of a risk-free level and has, therefore, been compensated for risks.

Utilities have also been compensated with a virtual guarantee against bankruptcy. New revenue opportunities must also be taken into account in determining responsibility for investments, such as sales outside of the service territory which will be opened up. Given this view of the relationship between ratepayers and stockholders, management responsibility must be presumed, unless specific legislative mandates over precise terms and conditions of investment or purchase commitments was exercised. If regulators did not direct specific actions, then management exercised discretion.

Q. ARE THE UTILITIES SEEKING SPECIAL TREATMENT FOR BEING EFFICIENT?

A. Yes. It is particularly ironic that utilities demand to be given special rewards[8] -- sharing of excess profits -- for doing the job that they were supposed to do in the first place. Contrary to these claims, Arizona utilities were supposed to work hard to earn their allowed rate of return. They are under the obligation to make all reductions in operating costs feasible under all circumstances, not simply in pursuit of offsets to some future potential costs.[9] In a competitive market, firms that fail to take all measures to reduce costs find

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[8]Gordon, p. 17, l. 26, gives performance based regulation with a sharing of excess profits as an example of potential mitigation.

[9]The flip side of this is the claim that somehow doing their job in the past should be given special credit in the future. Davis, p. 13, l. 10, states

With that understanding, I would initially point to past mitigation efforts. APS has themselves priced above market, losing market share, and losing money. The regulatory bargain is and has always been presumed to impose the same discipline on utilities. The utilities say they will start working hard with the next set of concessions offered by ratepayers. Ratepayers believed that they should have been pressured to do so in order to earn their risk premium all along.

Q. IS THE RISK OF STRANDING RESTRICTED TO UTILITIES?

A. No. All that a firm can expect in a competitive market is to recover efficient forward looking costs and firms are subject to the risk of stranding that result from market forces. The possibility of stranding is not simply the result of regulation. Stranding occurs where no regulation exists as the result of technology and market changes. The purpose of regulation has been to emulate the competitive market and regulated firms have known all along that treatment similar to what they would receive in a competitive market is all that regulated firms ever were entitled to. They never should have anticipated earning more than a fair return on their efficient forward looking costs.

By improperly blaming current uneconomic costs on a "regulatory switch" the utility company argument has misinterpreted the nature of traditional regulation. Regulation never indemnified utilities against the changes brought on by technological progress. Regulation never protected utilities from either supply-side or demand-side competition. A showing

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been steadily reducing its costs since 1990, has reduced prices three (3) times, and will request an additional price reduction later this year. In determining the appropriateness of any future mitigation for 1999 and beyond, the Commission should not penalize the Company for its mitigation efforts prior to 1999.

of prudency, even if there had been one, never guaranteed recovery of costs. Just like companies in a competitive marketplace, a utility is required to continually review the efficiencies of its operation compared to those around it and in light of new and emerging technologies.

The misinterpretation of the obligation placed on the utility is matched by a misrepresentation of the nature of investment in utility industries and the treatment they deserve, compared to other industries. Up front investment and the recovery of those investments over a number of years is typical of most industries. The capital intensity of companies or their contractual obligations vary widely and the exposure to the risk these choices create is a management decision for which management must bear responsibility. This is true in many industries and frequently gives rise to write-offs.

The Commission should reject this effort to shift the burden of stranded costs onto ratepayers. It has already compensated the utility for its risk with a handsome risk premium allowed and implicit guarantees against bankruptcy. If the service rendered is not economic on a going forward basis, that is management's fault. Stockholders should bear the burden of write-downs necessary to restore the forward looking profitability of investment, just as companies in the marketplace do.

III. EMPIRICAL EVIDENCE THAT STRANDED COSTS ARE PART OF THE RISK PREMIUM

Q. WHAT IS THE BASIS FOR CONCLUDING THAT THE RISK OF STRANDING IS EMBEDDED IN THE RETURN THAT VEPCO HAS BEEN ALLOWED?

A. I believe that part of the market cost of capital must include the risk of stranding costs which all industries face. The utilities have simply mischaracterized the importance of variability and write-offs in creating the average rate of return that they are allowed.[10] All of the current methods for setting return on equity make reference to the capital markets and the performance of firms.

Over seventy years, the Standard and Poor's 500 companies and the total of all companies on the New York Stock Exchange (which are the most frequent references) have suffered repeated instances of stranding of their investments. These have resulted from a variety of factors over a long period of time.

One source of stranded costs is large, unexpected changes in the economy, such as

- the great depression,

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[10]Bayless, p. 5, l. 29,

> In unregulated industries, investors bear the full costs of investments that fail, but investors are also allowed to reap the full benefits of profitable investments without the imposition of limited rates of return. Since regulated utility investors are provided an opportunity to recover only a regulated return on investment, historically in most jurisdictions they have been shielded from the risk of large losses. At the same time, investors are denied the opportunity for higher returns .

In essence, I argue that the regulated rate of return includes compensation for the risk of stranding.

- World War II,
- the inflation that occurred after the Vietnam War, and
- the energy shocks of the 1970s.

A second source of stranded costs is major change in technology, such as

- the adoption of new steel production processes in the 1950s,
- the invention and commercialization of synthetic materials in the 1950s and 1960s, and
- the advent of microcomputers in the 1980s.

A third source of stranded costs is major change in government policy, such as

- changes in legal liability and safety regulation in the 1960s and 1970s,
- adoption of environmental laws in the 1970s and 1980s,
- adoption and removal of price controls in the 1970s, and
- deregulation in the 1980s and 1990s.

It is highly unlikely that capital markets have not taken the fact that assets can be stranded into account in determining the cost of capital.

Q. HAVE UTILITY INVESTMENTS BEEN SUBJECT TO THIS RISK OF STRANDING?

A. Yes. Not only is it highly likely that investors take the possibility of stranding into account in the risk premiums they require on non utility stocks, but it is hard to imagine investors not recognizing that disallowance of costs -- non-recovery of costs -- is part of the risk of investment in utility stocks. Disallowances occurred throughout the history of the industry. In the late 1970s and throughout the 1980s very substantial disallowances took place with respect to nuclear power plants. The risks of stranding which are associated with a more dynamic marketplace certainly must have been recognized with the passage of the 1992 Energy Policy Act. The debate over stranded costs through restructuring has certainly been heated since then and there has been disallowance in a number of states in the past several years.

It is very difficult to imagine the mind-set of investors which would have not understood, even expected, the risk of stranded or write-off of costs. Since Arizona has been a used and useful state throughout the life span of the assets currently on the books of a utility, the potential write-off of assets has been a permanent part of the Arizona utility environment.

Q. CAN YOU GIVE EVIDENCE FROM CAPITAL MARKETS?

A The obvious starting point for empirical analysis is to investigate the question of variability of returns. Returns to investors fluctuate widely and that is part of the expectation. Attachment MNC-1 shows the highs and lows of total returns to investors over the past 71 years. It is based on the results presented in Ibbotson Associates, Stocks, Bonds, Bills and Inflation 1997 Yearbook (1997). Returns show very large swings, not only above and below the average, but also positive and negative returns.

As a consequence of this variability, the cost of capital determined for utilities is the result of a weighted average of high returns and low returns. Attachment MNC-2 shows the actual performance of the S&P 500 with the weights and the weighted average. The average annual return is 12.69 percent on this weighted annual basis.

Year-to-year returns are highly volatile. Investors understand short term volatility and are always told to take a longer term view. For example, risk factors (Betas) are frequently calculated over a five year period. Attachment MNC-3 shows five year moving averages for the period from 1972 to 1992 for the S&P500 and the S&P400, which will be used in subsequent analysis. The five year averages show less variability, but still a wide range of outcomes.

Q. DO WE OBSERVE VOLATILITY IN TOTAL RETURNS FOR UTILITY INVESTORS?

A. Yes. Attachment MNC-4 compares the S&P400 to the electric utilities included in the S&P500 over the twenty year period based on a study conducted for the National Association of Regulatory Utility Commissioners (Electric and Telephone Utility Stockholder Returns: 1972 - 1992, Michael Foley and Ann Thompson, September 1993). For the electric utilities both the variability in their returns and the earning over these periods are actually slightly above the S&P400.

Q. IS THERE DIRECT EVIDENCE THAT THE LARGE COMPANIES WHICH HAVE BEEN USED AS A BASIS FOR SETTING UTILITY RETURNS INCUR STRANDED COSTS?

A. Yes. A Goldman Sachs study (The Quality of Reported Earnings Has Improved, But..., January 2, 1997) demonstrates the importance of write-offs and charges against income. As Attachment MNC-5 shows, Goldman Sachs calculated the write-offs and charges against income per share and compared it to net income per share. Over the period 1988-1995, the write-off averaged 17 percent of income. These write-offs are equal to 14 percent of 1995 capitalization at the end of the period. That is, over the 1988-1995 period, companies took write-offs equal to approximately 14 percent of their 1995 capitalization. Over that same period, the S&P 500 earned a total return of 14 percent.

Q. ARE WRITE-OFFS RELATED TO TOTAL RETURNS?

A. Yes. I have conducted a study based on all the non-utilities that were included as comparison companies in the FCC's final proceeding to set AT&T's rate of return. The proceeding was conducted in the mid-1980s, before the FCC adopted price cap regulation. I have chosen the non-utilities since utilities have refused to take any write- offs for regulatory purposes. I identified 34 companies on the FCC list for which data was available through 1995.

Based on Moody's reports, I have estimated the write-offs taken by these companies as a percentage of income and total capitalization (at year end 1994/95). The results clearly show the significance of write-offs.

Write-offs as a percent of income are in the range of 14 to 21 percent. Write-offs as a percent of total capitalization are in the range of 21 to 47 percent. Attachment MNC-6 also includes the total return to investors over the prior decade. Even with the large write-offs, the comparison companies earned a total return of 10-15 percent. These companies have an average Beta of 1.05. Thus, they are close to the S&P500. The reality of write-offs is part of the expectations that investors have of the performance of companies in the marketplace. The risk premium they demand incorporates this possibility and always has. Markets have bid up the value of stocks in spite of repeated write-offs.

Q. DOES THERE APPEAR TO BE A RELATIONSHIP BETWEEN WRITE-OFFS AND RETURNS?

A. Yes. One would expect that companies subject to write offs would not be favored by investors. Attachments MNC-7 shows the relationship between write-offs and total returns. The larger the write-offs, the lower the returns.

Q. WHY DO YOU RECOMMEND THAT THE COMMISSION NOT ACCEPT THE ARGUMENT THAT FORCING WRITE OFFS OF STRANDED COSTS TREATS THE UTILITIES ASSYMETIRCALLY?

A. The utility arguments are based on a fundamental mischaracterization of risk and reward under regulation.[11]

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[11]Gordon, p. 8, l. 17, states the argument as follows.

> In terms of the current debate, denying utilities an opportunity to recover their stranded costs would upset the symmetry that lies at the heart of traditional forms of regulation. It would be a case of the regulators saying to the shareholders -- heads-we-win, tails-you-lose. If private investors -- on whose capital we rely to provide necessary services in a market economy -- are unable to rely on the government to keep its commitments and not act opportunistically, then they would demand a much higher return on their investments to compensate them for the increased uncertainty. The fact is that utility investors have not been compensated for the risk that regulators would upset the "risk/reward" symmetry of traditional regulation as a part of a policy transition to open markets to competition,

First, public utility commissions set rates based on the average and utilities can earn more than that in some years and less in others. Utility arguments fail to recognize the fact that there are years above the average to offset the one below it.

In fact, all companies, utilities included, have truly good years where they earn more than the cost of capital and bad years where they earn less. I would suggest that, if anything, there is a bias in the regulatory process in favor of the utilities. There is a structural bias in the system to help the utilities get more good years than bad years. The regulatory process is structured to yield more good years than bad.

When companies have a good year, they do not come in and say lower my rates. The commission has to drag them in, and in many states this is difficult. Once rates are set, if companies gain the advantage of some economic or technological turn of events, they get to keep the gains for as long as they can avoid a rate case. On the other hand, when the companies have a bad year, they come running into the commission as quickly as they can. Since rate making is constrained in such a way as to prevent commissions from catching up, this structural bias works in favor of utilities. After a good year commissions cannot set rates in such a way as to take back the above average profits (no retroactive rate making is allowed). They can set rates to again expect an average year, but they do not set them to take back any gains.

Some utilities have complained that they do not get the benefits of the really good years, the big peaks, since regulators do catch up with them if their earnings get too large. Historically, this has been offset by considerable protection against the really big valleys.

In my policy recommendation, I note that the size of the write-off should be constrained by the financial ratios of the company. Competitive sector companies would not get such treatment from the marketplace.

Q. CAN UTILITIES "COUNT ON" EARNING THE "EXPECTED" RATE OF RETURN?

A. No. They are supposed to earn it. I believe that it is important to stress that the average is supposed to be challenging. When analysts talk about the "expected" return it sometimes sounds like this is a guarantee over the long term. That is not the case. Management in a competitive market has to work hard to achieve that average. Utilities are supposed to work hard to achieve it too. The risk premium at the average cost of capital has traditionally been set at a very substantial level. The company does not have a "right" to earn this premium, only an opportunity. Utilities are supposed to work as hard as companies in the competitive market to earn their allowed return.

I believe that one of the reasons regulation has begun to rely more on competition to achieve its long standing goal of efficiency is that regulators could not overcome this bias. We have already seen that utilities sustained rates of return equal to or greater than companies in the competitive sector for a long period of time. This is contrary to the expectation that lower risk utility investments should receive lower rates of return. The increased reliance on competition is an effort to achieve the legal and economic goal that regulation has always embodied.

Q. WHAT IS THE SECOND REASON THAT YOU CONSIDER THE EXTRA RISK PREMIUM OF STRANDING TO BE UNJUSTIFIED?

A. The second factor is the repeated assumption that the cost of capital observed in the market does not include the cost of stranding. This frequently takes the form of the assertion that the risk of stranding is a "new" risk. Since the utility's cost of capital has been estimated by the market cost of capital, there are no such things as new risks. To some extent, the market cost of capital must include the risk of stranding, since investors only get one bite at the apple in the marketplace. They must put the risk of stranding into the cost of capital (by incorporating it into their expectations) because there are no regulators who can make them whole if they do not. All risks must be in the cost of capital. If markets do build the risk of stranding into the risk premium observed in the marketplace, then the utility is double counting the risk of stranding.

IV. MARKET ANALYSIS

Q. PLEASE DESCRIBE THE IMPORTANCE OF THE MARKET ANALYSIS IN THE UTILITY PROPOSAL.

A. Not only does utility argument get the so-called 'regulatory compact' completely wrong, but it fundamentally distorts the market analysis. Under the utility proposal, the only ones who make any money in the deregulated generation market are the incumbent utilities. They do so not because they are more efficient but by transforming all of their above market costs into stranded costs and collecting them from ratepayers as a tax (the CTC). All other producers are then assumed to sell, at a huge loss, into the generation market because of excess capacity.

The scheme requires ratepayers to support uneconomic plant until the utility feels it will become economic.[12] This is truly an effort to be absolved of marketplace risk.

Here we have the ultimate irony in the circular logic of the utility. Having created

---

[12]Davis, p. 8, l. 18; p. 10, L. 11, argues as follows

> This so called "Transition Period" should equal that period of time in which the power supply market is out of equilibrium, i.e. when market price is depressed below long term marginal generation cost. Once that period is over, supply resources should be permitted to succeed or fail based on their own economics without receiving either customer support or providing customer subsidies

> The largest cause of stranded cost is the current market imbalance caused by the relative oversupply in the Western System Coordinating Council ("WSCC") of both capacity and energy. It is ironic to note that the existence of these same low operating cost "excess" generating units also served as the economic justification for the very interconnected regional transmission system that allows for a competitive market. These factors will keep market price below the industry's long run marginal cost of generation for at least the next seven (7) years.

the condition of excess capacity and uneconomic costs through a failure to recognize market forces, the utility is made whole through stranded cost recovery and destroys the possibility for a competitive market. Not only is the company the only one to get its capital out of the market, but it is an ironic convenience that once it does, under these assumptions, the market suddenly will support the full recovery of capital in its market price.

Q. IS THERE AN EFFICIENCY REASON TO ALLOW FULL COST RECOVERY?

A. No. The company tries to argue that it should be allowed cost recovery because its marginal cost of operation is lower than or as low as new generation.

> The first reason the nation's economy will be better off with full recovery of stranded costs is that society will continue to benefit from some of the most productive generation resources. New generation is not being built that can operate as cheaply on the margin as many existing utility plants (that have large stranded costs); these plants should continue to be the prevailing source of electricity supply until new generation is needed. Without recovery, these plants may be shut down. (Bayless, p. 7, l. 19).
>
> The replacement cost valuation approach is not good for society or TEP. It would undervalue TEP's stranded assets given current market prices which reflect the existing excess capacity environment. Much of TEP's generation can be operated more cheaply than gas-fired combined cycle, combustion turbines on a marginal cost basis -- especially in the event of an increase in price (Bayless, p. 14, p. 4)

The company has confused the operation of facilities with the full recovery of costs. In competitive markets, producers continue to operate their facilities as long as they can recover costs that are in excess of their operating costs. This provides some positive contribution toward the payment of fixed costs. If they shut down facilities, they eat all the capital costs; that is why they keep running. TEP should do the same. As long as it is allowed recovery of some capital costs, it should keep running its facilities and society will benefit from the low operating costs while customers benefit from lower bills. TEP would benefit, just like firms in competitive markets, to the extent that there is a positive contribution.

Q. SHOULD THE COMMISSION ACCEPT AS STRANDED ADMINISTRATIVE COSTS OR ADDITIONAL CAPITAL COSTS?

A. No. The effort to include costs that are easily controllable or indemnify utilities against future costs is extremely troubling. Hieronymus argues that administration and general costs (overhead) should be attributed to generation stranded costs and recovered from ratepayers.[13] I disagree. These cost should be reduced to market levels. There is no reason that ratepayers should pay bloated administrative and general costs when competitors have lower prices because their management works harder for lower salaries with smaller bonuses. The marketplace would not allow these above market costs to be recovered.

Similarly, Hieronymus argues that future capital costs necessary to keep facilities running should be paid by ratepayers, even if they are above market.

> Even if such investments are not themselves properly eligible for inclusion in stranded costs, they still must be taken into account in determining stranded costs. A simple example is, suppose that environmental regulations require putting a new type of control on emissions at APS's coal station. If this is not done, the stations are valueless. Computing the contribution earned by those stations under competition must take into account the cost of the controls. Alternatively, such retrofits can be thought of as necessary mitigation, required to raise the value of the stations from zero to a significant positive value. While this example is hypothetical, there are other

[13] p. 7, l. 14.

> capital investments that are required if APS's generation is to operate and earn the contributions that are offset against the regulatory value of its assets in determining stranded costs. The costs of such investments must be taken into account.[14]

In order to keep the utility recovering its above market costs, we are told we should raise those costs even farther above the market -- clearly a case of throwing good money after bad. The marketplace would not allow these costs to be recovered. The firm would make the investment and bear the costs, as long as there was still a positive contribution to sunk costs.

Q. WHAT ARE THE POLICY IMPLICATIONS OF A 'DISTRESSED" MARKET IN GENERATION?

A. The Commission must explicitly reject the utility distressed market argument and the claim that only full recovery is in the public interest. Not only does it make a mockery of traditional regulation, it would turn restructuring of the electric utility industry into the largest corporate welfare program in the history of the state. The utility approach to stranded costs means that every penny of capital invested in the electric utility industry will have to be paid in the form of a tax on ratepayers, insulated from regulatory oversight and market forces.

If the Commission is going to assume a "depressed" market in generation that clears at the variable cost of production and does not allow any return of or on capital for non--utilities selling into the market, then it must at least deny utilities a return on their

[14]p. 9, l. 2).

investments. One can assume that no rational economic actor would ever commit capital to such a market. Therefore, utilities could be allowed to get their capital out, but they should not be allowed to get a return on their capital.

My discussion establishes two clear justifications to disallow a return on capital if the Commission accepts the "depressed" market price as the standard. First, the utility has attempted to absolve itself of all risk. Since it has no risk, it should receive no reward. Second, utility's market price does not allow recovery of capital to anyone else in the market. The utility should be allowed the competitive advantage of getting a return on its capital while no one else could even get a return of its capital. At most, the utility can get their capital out, without any return, and then all parties would be set on an equal footing.

V. POLICY RECOMMENDATIONS

A. IDENTIFYING STRANDED COSTS

Q. GIVEN THIS VIEW OF OBLIGATIONS, RESPONSIBILITIES, RISKS AND REWARDS IS IT EVER POSSIBLE THAT STRANDED COSTS CAN BE RECOVERED FROM RATEPAYERS?

A. Yes. There are two circumstances in which costs may become stranded and recoverable from ratepayers.

First, management must have exercised no discretion whatsoever over costs, i.e. costs may have been incurred directly and entirely by legislative or regulatory edict. Such costs must also be unrecoverable. Management must also not have been previously compensated for the risk of stranding. The question is an empirical one -- who made the decisions, under what conditions and subject to what risks and rewards.

Second, even where management is responsible and should not normally be compensated for costs going forward, but the result would be severe financial distress, ratepayers may have to allow recovery of costs that they should not otherwise bear for a transition period. If the analysis reveals uneconomic costs for which management is responsible but the utility would not survive financially, if it bore the burden of the costs, ratepayers may allow recovery of costs while the utility's economic house is put in order.

Q. HOW SHOULD A UTILITY'S CLAIMS TO COST RECOVERY BE EVALUATED?

A. Having established the fact that a utility only has a claim to recover the efficient costs of production and that the Commission has never been required to allow the recovery of uneconomic costs, we turn to the question of how to measure the economic costs of production. There are two relevant standards that should be considered.

One standard is the most efficient producer standard. Under routine assumptions about competitive market behavior, this would be the market clearing price. In essence, we ask at what price would competitive supply clear the market. This is a relevant consideration because competition would force producers to continuously evaluate and choose the most efficient technology. In a competitive market, if you get stuck with an inefficient technology, you suffer inadequate returns or losses until you lower your costs.

A second standard is the most efficient utility standard. This standard recognizes that certain obligations were placed on utilities. While they might have been able to choose the most efficient plant for any specific decision about a specific increment of supply, they may also have been required to make decisions that were not strictly least costs in the aggregate for policy reasons. For example, they might be required do things a competitive profit maximizer might not do, such as to have a larger reserve margin, a different resource mix, or a higher level of reliability. However, it is crucial not to confuse the fact that a utility was required to have more capacity with the fact that it paid too much for that capacity. The former is a policy obligation, the latter is a management mistake.

The divergence between the most efficient producer standard and the most efficient utility standard, if there is any, will vary depending on policy and the nature of decision making. Both should be examined by the Commission to determine which costs to allow.

Any divergence should be carefully analyzed by the Commission.

I can use the Figure in TEP's presentation (Bayless, p. 8, l. 6) to make my point (see Attachment MNC-8). TEP accepts the fact that new companies (newco) can build generation at lower costs than the existing utility (oldco). I have accepted his numbers as a premise and add the "most efficient" utility. This is an entity that may have social obligations (low income programs, conservation programs) but efficient energy costs.

The market clearing price for generation will be the price set by newcos. Oldco, should not be compensated for costs above those incurred by efficient utilities. In the example provided, TEP would get \$.04 kwh in the market price and \$.01 per kwh to support social programs. It will continue to operate its plant, since there is a positive contribution to fixed costs, but there is not full recovery of stranded costs nor is there any recovery of above market costs. All participants in the market should be required to share the social obligation.

Q. HOW CAN THE COMMISSION ESTIMATE THE STRANDED INVESTMENT COSTS?

A. The key question is to separate out risks which the company incurred knowingly and for which it has been compensated from risks that it has not been compensated for, would not have taken but for the "social contract," and no longer believes it can be compensated for because of the alleged change in the terms of the "social contract." To the extent that the company now wants to change the rules covering investment it made with full knowledge of the capital recovery it would be allowed, it should not be allowed to be compensated for risks it never bore. This requires careful consideration of the circumstances under which investments were made and the extent to which management exercised choice in keeping assets on the books.

There are two steps the Commission could take to estimate the previous compensation of risk, that prevent compensating the company twice, while also meeting the duty to compensate the company fairly.

First, if the Commission finds that the company's effort to split the rate base entails an over recovery of risk premiums, it must identify the risk premium. It could split the rate base between social investment and (for lack of a better term) entrepreneurial investment (just as the company wants to do). The Commission could reconstruct the revenue stream (return of and on capital) that was associated with those assets. It could calculate the risk premium earned on those assets as the difference between the rate of return allowed on equity and risk free investment. Some portion of this difference could be identified by the Commission as compensation for the risk of being stranded.

There is at least one specific measure the Commission could use as an indicator of the risk of being stranded. The Commission can identify comparable companies used for the purposes of setting the return on equity over the life of the asset which was stranded (most rate proceedings include such a list). It could calculate the write-down of assets taken by these companies in the period just prior to and during the life of the stranded asset.

This potential write down of assets was part of the expectation of comparable risk. To the extent that a utility has failed to take write-downs of a similar order of magnitude (relative to its assets, e.g. as a percentage of assets) it is seeking to be overcompensated for the stranding of investment. That is, it was allowed a comparable rate of return, but did not take a comparable write-down of assets. It now seeks a return of and on those assets which comparable companies have written down and taken off their books.

Q. WHAT ARE THE PRACTICAL IMPLICATIONS OF YOUR RECOMMENDATIONS FOR ARIZONA UTILITIES?

A. Until we have a full accounting, it is difficult to know the impact of stranded costs. Based on my analysis of other utilities with large stranded costs, it is interesting to analyze the sources of these uneconomic costs. As in other cases, the market value that the Arizona utilities anticipate equals roughly the operating costs of those facilities. The utilities, operating costs are actually close to the operating costs of other utilities. Its capital charges are much higher. Return of and on capital contribute about equally to its uneconomic costs.

Given the financial constraints, in these cases I have argued that ratepayers should be held responsible for, at most, 50 percent of stranded costs. As discussed throughout my testimony, management must be responsible for their share of stranded costs where management discretion was exercised. This frequently works out to a return of, but not on capital.

Q. HOW SHOULD UNRECOVERABLE STRANDED COSTS BE HANDLED?

A. I would reverse the direction of the incentive with respect to mitigation. I prefer to have utilities write down their plant first and place stockholders at risk for the write-down. To the extent that management can mitigate stranded costs, stockholders would enjoy the benefits. This is exactly the way it would work in the marketplace. Thus, after stranded costs are reasonably estimated and responsibility ascertained, utilities can be the beneficiaries of opportunities to mitigate stranded costs or incentives to improve operating efficiencies.

Q. HOW SHOULD RECOVERABLE STRANDED COSTS BE ALLOCATED?

A. I believe that they should be allocated by kwh of consumption. I have a concern that the method used to allocate stranded costs will place an unjustified burden on residential ratepayers. The problem arises because the stranded costs are associated with a specific type of asset and category of costs -- costs associated with base load generation facilities. Many cost methodologies allocate these costs to customer classes in ways that shift base load costs onto peak load rates.[15] Since the residential class consumes a much higher percentage of energy at the peak, they bear a disproportionate burden of capital costs.

Residential ratepayers will be placed at a disadvantage in the transition to competition. Residential ratepayers will be in the market for peak load power, while they bear a significant share of the stranded costs for base load power. They must pay the higher operating costs of peak load power, while they pay the capital costs of stranded generation plant. Because the recovery of stranded costs assigns these uneconomic costs disproportionately and permanently to the residential class, while the market opportunities to lower costs are likely to be better for base load power in the future, this methodology

[15]Hieronymus (p. 18. L. 8) advocates non-disturbance of rates. This may or may not be proper, depending on how base load costs are allocated at present.

may have the effect of inappropriately shifting costs onto the residential class.

Stranded costs, to the extent that they are deemed recoverable, can also be considered shared, since the basis on which uneconomic costs are recoverable is a purported "social obligation" which is certainly shared among all ratepayers.

Therefore, to further universal service policy, recovery of stranded costs could be structured in such a way as to recover larger shares of such costs from non-basic services. This could be accomplished by recovering a larger share of such costs from non-residential customer classes and by recovering a larger share from non-basic services within customer classes. Attachment MNC-9 summarizes this approach.

Q. WHAT IS YOUR POSITION ON SECURIZATION?

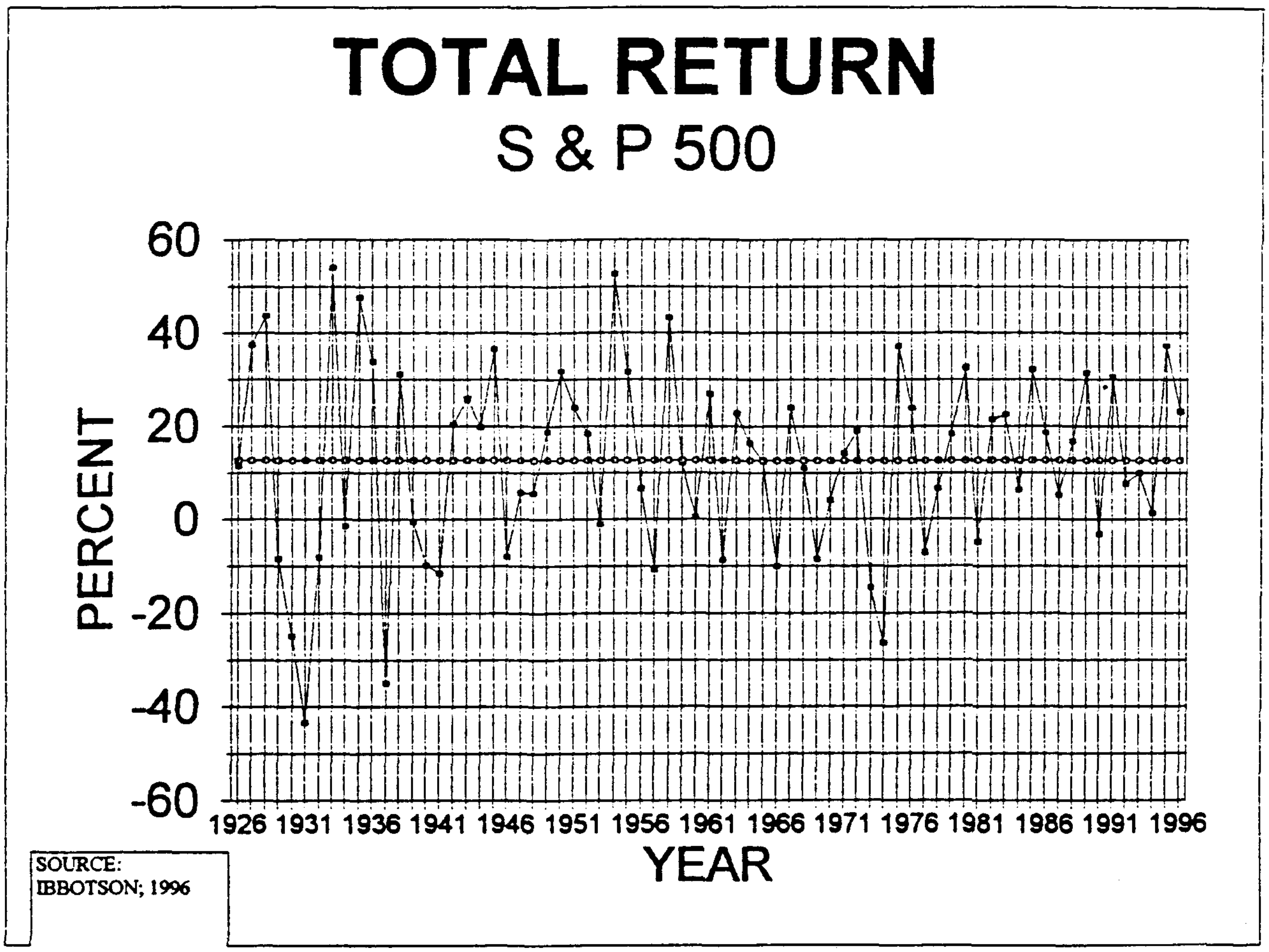
A. Securitization is a financial gimmick that uses the power of the state to tax a specific class of citizens -- electric ratepayers -- to lower the cost of capital. It has been widely abused as a vehicle for avoiding a proper allocation of responsibility for stranded costs. It has also been abused because the basis for taxation frequently does not match the causation of stranded costs.

If these problems are avoided the securitization may be acceptable, as long as ratepayer are the beneficiaries of any reductions in the share of stranded costs allocated to them.

Q. SHOULD SOCIAL BENEFITS PROGRAMS BE CONSIDERED STRANDED COSTS?

A. No. The utilities have confused the costs of ongoing social obligations with stranded costs (Bayless, p. 11, l. 18). I support the creation of mechanisms for funding unique provider of last resort obligations borne by utilities, as well as programs to ensure affordable electricity for low income consumers, and to promote conservation or environmental protection. They are fundamentally different from stranded costs because they have been specifically mandated by the Commission. Because of the way they have been incurred, these costs are easily identifiable. These will, naturally require ongoing support from all suppliers in the industry.

ATTACHMENT MNC-1

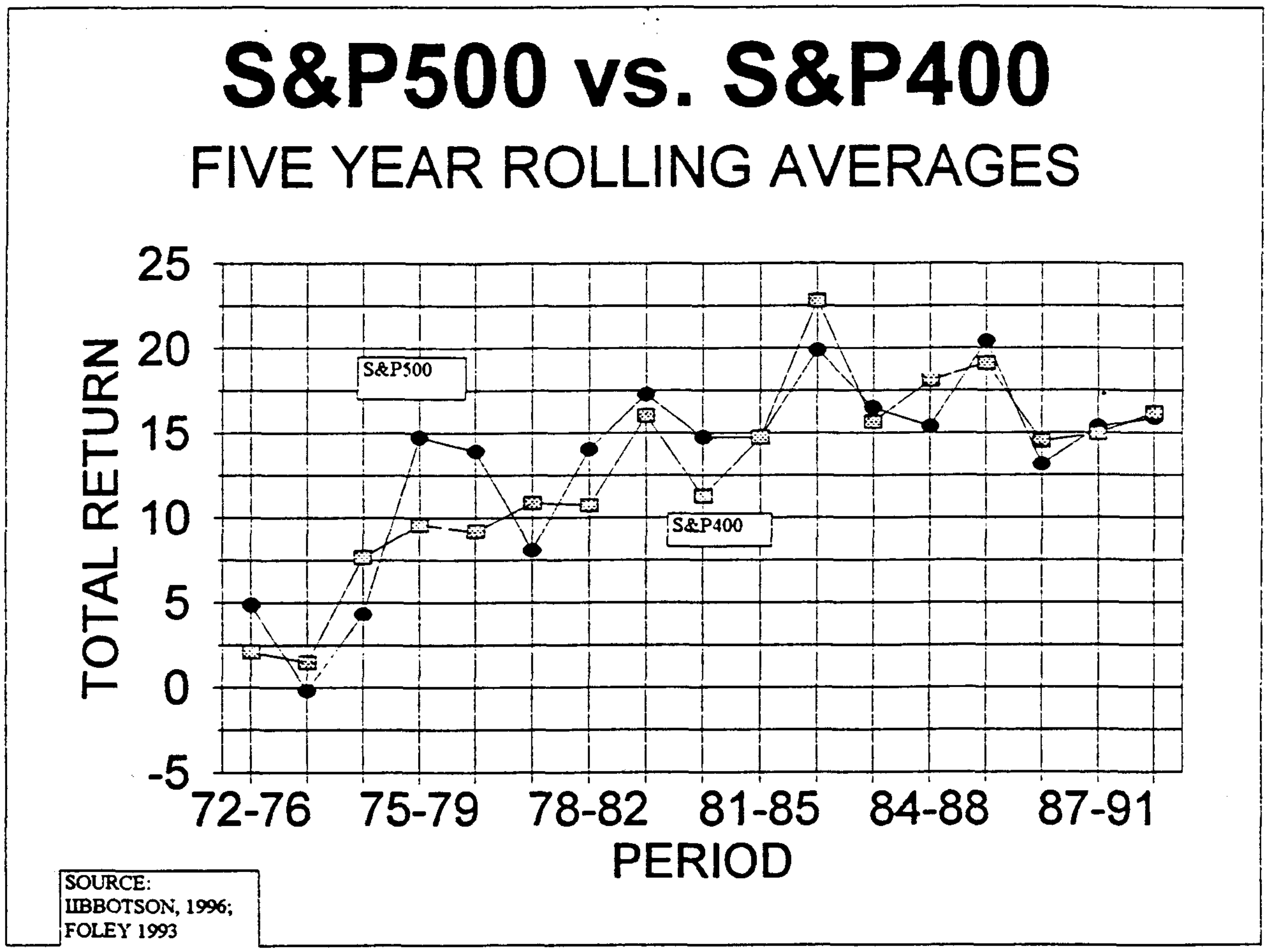


ATTACHMENT MNC-2

DERIVING THE EXPECTED RETURN

RETURN	WEIGHT	WEIGHTED SHARE	WEIGHTED AVERAGE
53.99	0.014085	0.760423	
52.62	0.014085	0.741127	
47.67	0.014085	0.671408	
43.61	0.014085	0.614225	
43.36	0.014085	0.610704	
37.49	0.014085	0.528028	
37.43	0.014085	0.527183	
37.2	0.014085	0.523944	
36.44	0.014085	0.513239	
33.92	0.014085	0.477746	
32.42	0.014085	0.45662	
32.16	0.014085	0.452958	
31.71	0.014085	0.44662	
31.56	0.014085	0.444507	
31.41	0.014085	0.442394	
31.12	0.014085	0.43831	
30.55	0.014085	0.430282	
26.89	0.014085	0.378732	
25.9	0.014085	0.364789	
24.02	0.014085	0.33831	
23.98	0.014085	0.337746	
23.84	0.014085	0.335775	
23.07	0.014085	0.32493	
22.8	0.014085	0.321127	
22.51	0.014085	0.317042	
21.41	0.014085	0.301549	
20.34	0.014085	0.286479	
19.75	0.014085	0.278169	
18.98	0.014085	0.267324	
18.79	0.014085	0.264648	
18.47	0.014085	0.260141	
18.44	0.014085	0.259718	
18.37	0.014085	0.258732	
16.81	0.014085	0.236761	
16.48	0.014085	0.232113	
14.31	0.014085	0.201549	12.69
12.45	0.014085	0.175352	
11.96	0.014085	0.168451	
11.52	0.014085	0.162254	
11.06	0.014085	0.155775	
9.99	0.014085	0.140704	
7.67	0.014085	0.108028	
6.56	0.014085	0.092394	
6.56	0.014085	0.092394	
6.27	0.014085	0.08831	
5.71	0.014085	0.080423	
5.5	0.014085	0.077465	
5.23	0.014085	0.073662	
4.01	0.014085	0.056479	
1.31	0.014085	0.018451	
0.47	0.014085	0.00662	
-0.41	0.014085	-0.00577	
-0.99	0.014085	-0.01394	
-1.44	0.014085	-0.02028	
-3.17	0.014085	-0.04465	
-4.91	0.014085	-0.06915	
-7.18	0.014085	-0.10113	
-8.07	0.014085	-0.11366	
-8.19	0.014085	-0.11535	
-8.42	0.014085	-0.11859	
-8.5	0.014085	-0.11972	
-8.73	0.014085	-0.12296	
-9.78	0.014085	-0.13775	
-10.06	0.014085	-0.14169	
-10.78	0.014085	-0.15183	
-11.59	0.014085	-0.16324	
-14.66	0.014085	-0.20648	
-24.9	0.014085	-0.3507	
-26.47	0.014085	-0.37282	
-35.02	0.014085	-0.49324	
-43.34	0.014085	-0.61042	

ATTACHMENT MNC-3:



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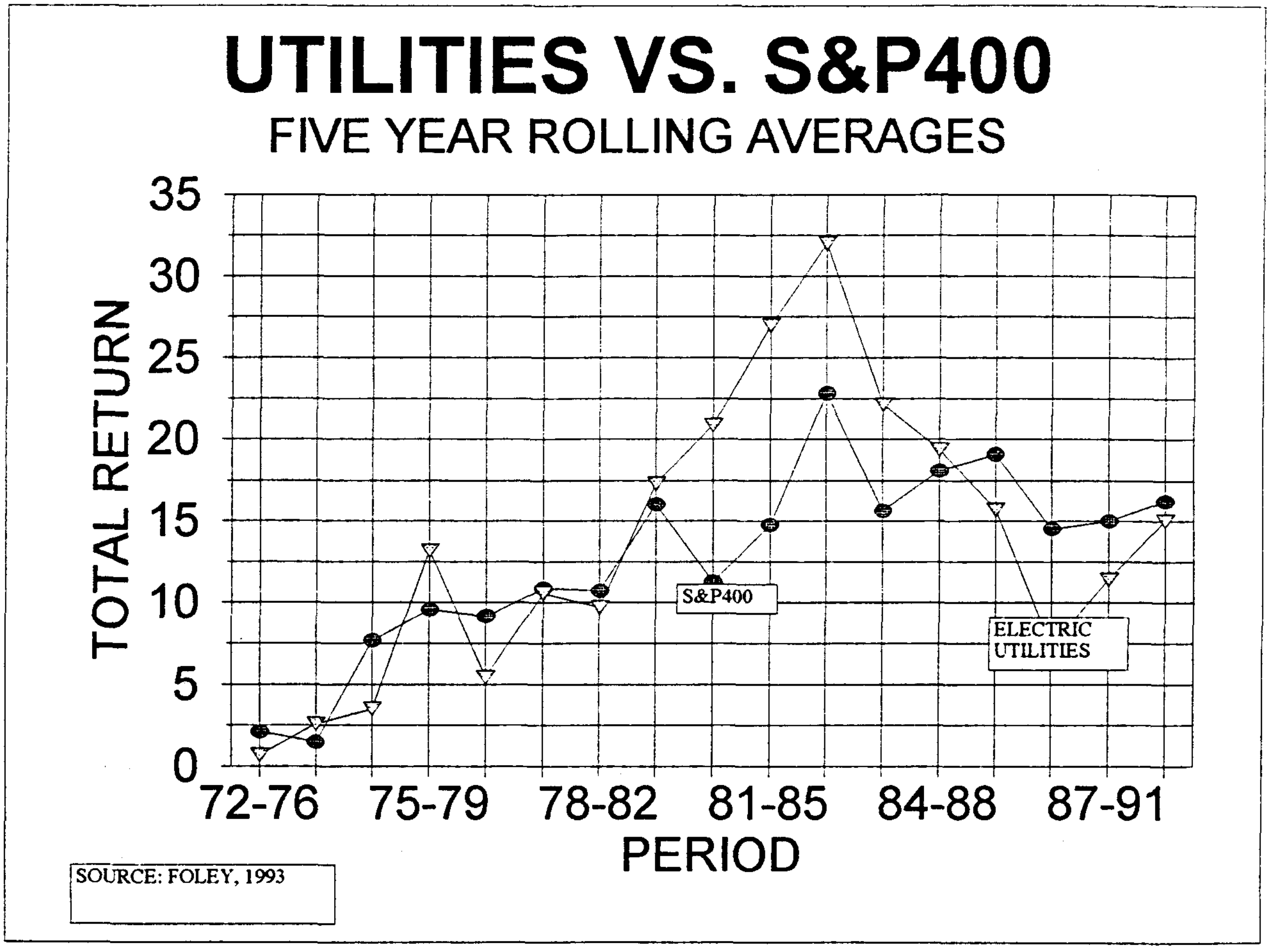


ATTACHMENT MNC-5

INCOME AND WRITEOFFS OF S&P500

YEAR	INCOME	WRITEOFFS	WRITEOFFS AS % OF INCOME
1988	23.75	0.75	3.2
1989	22.87	2.98	13
1990	21.34	3.41	16
1991	15.91	6.29	39.5
1992	19.09	5.56	29.1
1993	21.89	6.61	30.2
1994	30.6	2.4	7.8
1995	33.96	4.83	14.2
AVERAGE	23.67625	4.10375	0.173328

Source: Goldman Sachs, The Quality of Reported Earnings Has Improved, But
January 2, 1997

ATTACHMENT MNC-6:

RETURNS AND WRITE OFFS OF LECS AND COMPARISON COMPANIES

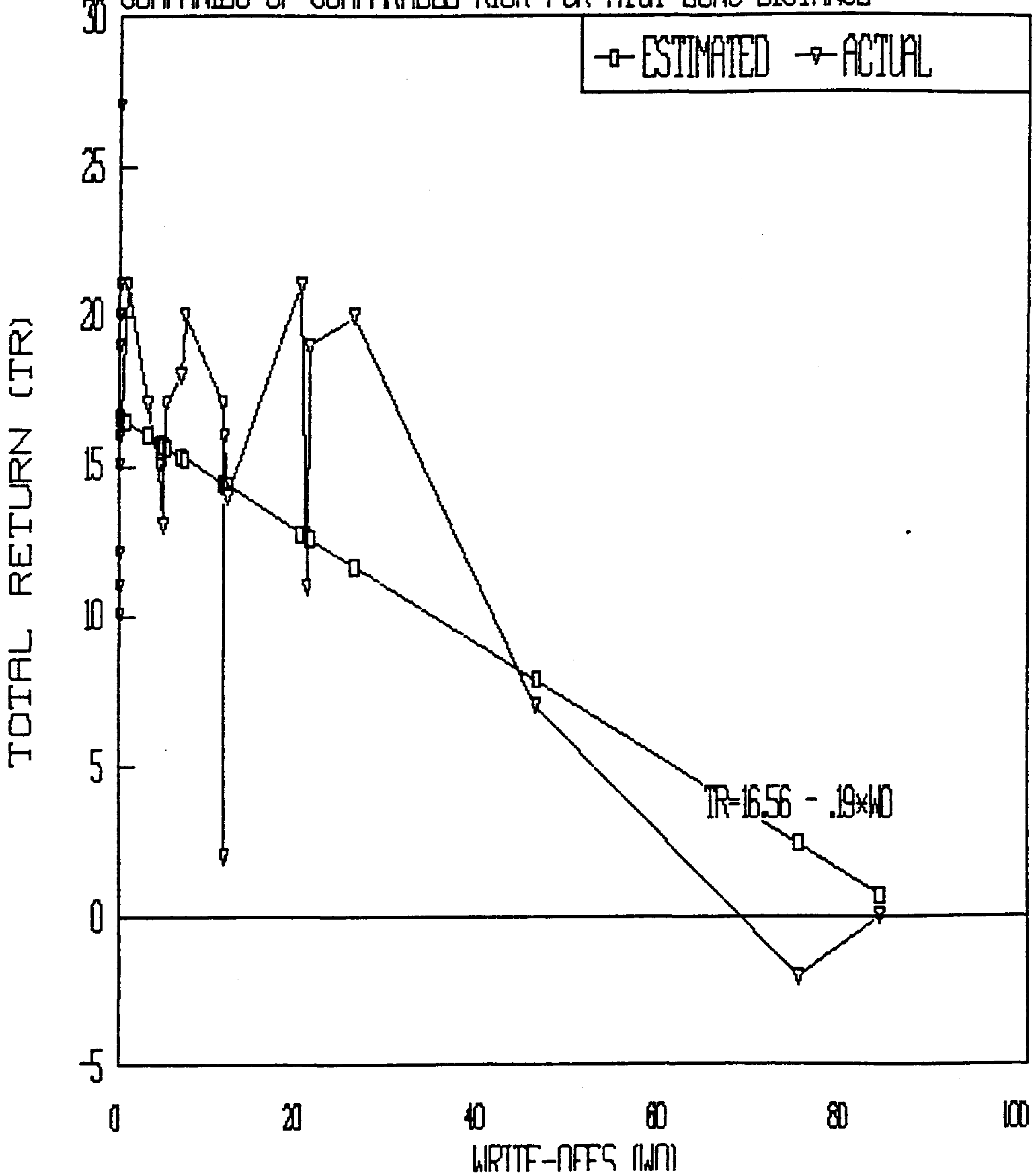
	TOTAL RETURN TO INVESTORS 86 95	WRITE OFFS 88-95 % OF CAPITAL	% OF INCOME
AVG. COMPARISON COMPANIES	15	11	14
ABBOTT	20	0	0
ALBERTO CULVER	12	0	0
AMOCO	14	12	20
CAMPBELL SOUP	20	26	35
CHEVRON	16	11	21
CONSOLIDATED FREIGHT	2	11	34
CONSOLIDATED PAPERS	11	0	0
DONNELLEY & SONS	12	0	0
DOVER	16	0	0
EXXON	17	3	5
GENERAL ELECTRIC	18	7	12
GENERAL SIGNAL	7	46	81
GARINGER	15	0	0
IBM	2	75	70
KELLOGG	19	21	12
KIMBERLY CLARK	21	0	0
LUBRIZOIL	11	0	0
MC DONALDS	19	0	0
MERCK	27	0	0
MINNESOTA MINING	15	0	0
NORFOLK SOUTHERN	15	4	9
NUCOR	21	0	0
PFIZER	21	20	14
PITNEY BOWES	17	11	14
PROCTOER & GAMBLE	20	7	10
RAYTHEON	17	5	4
ROCKWELL	15	0	0
SARA LEE	21	1	1
SEARS	11	20	42
TIME WARNER	11	0	0
UNION CAMP	10	0	0
UNION PACIFIC	13	5	12
WESTINGHOUSE	0	84	83
WHIRLPOOL	11	0	0
S&P 500	14	14	16

ATTACHMENT MNC-7

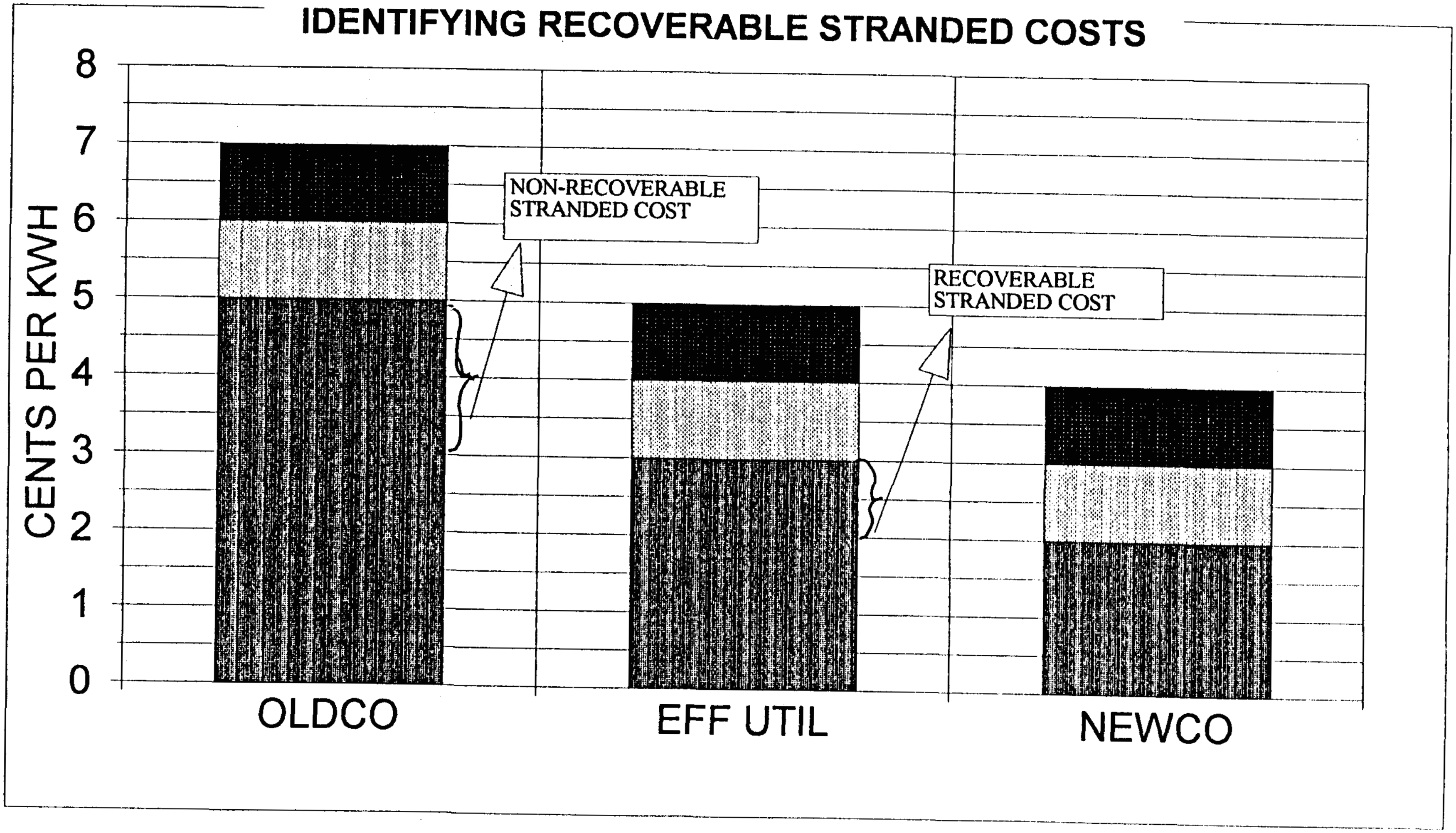
THE RELATIONSHIP BETWEEN WRITE-OFFS AND TOTAL RETURNS

34 NON-UTILITIES INCLUDED IN FCC GROUP OF

COMPANIES OF COMPARABLE RISK FOR AT&T LONG DISTANCE



ATTACHMENT MNC-8



ATTACHMENT MNC-9

USING UNIVERSAL SERVICE POLICY TO DETERMINE THE RECOVERY OF STRANDED COSTS AND PRESERVE AFFORDABILITY

1. Calculate Economic Costs of Production

STRANDED COST ALLOCATION

2. Estimate Stranded Costs
3. Decide on Recoverability of Stranded Cost
4. Apportionment Between Stockholders and Ratepayers
   --> 50 % to Stockholders
   --> 50 % to Ratepayers
5. Allocate Stranded Costs to Non-residential
   --> (Baseload Kwh + ?)/Baseload Kwh to Non-residential
6. Allocate Residual to Residential
   --> (Baseload Kwh - ?)/Baseload Kwh to Residential
7. Minimize Impact on Basic Service to Assure Affordability
   --> Inverted Charges
8. Promote Universal Service for Targeted Groups
   --> Exempt Low Income from Stranded Cost Recovery

BEFORE THE

ARIZONA CORPORATION COMMISSION

DOCKET NO. R-0000-94-165

TESTIMONY

OF

DR. WILLIAM H. HIERONYMUS

ON BEHALF OF

ARIZONA PUBLIC SERVICE COMPANY

January 9, 1998

EXHIBIT

Admitted

APS-2

TABLE OF CONTENTS

Testimony of W. H. Hieronymus

1. Introduction and Summary

Q. Please state your name, occupation and business address.

A. My name is William H. Hieronymus. I am a managing director of Putnam, Hayes & Bartlett, Inc., One Memorial Drive, Cambridge, Massachusetts 02142.

Q. Please briefly summarize your occupational experience and education.

A. I have nearly 25 years experience as a consultant specializing on the economic, business and policy issues affecting utilities, principally electric utilities. For the past 10 years, I have worked primarily on electric utility restructuring. This work began with the restructuring of the UK, New Zealand and continental European electricity sectors. For the past 5 years, it has focused on the US restructuring. I have worked on setting up the institutional structures to underpin competitive wholesale and retail markets, on utility mergers, and on asset valuation and stranded cost calculation. Much of this work has dealt with competition policy, particularly market power and its mitigation. It also has required extensive modeling and forecasting of competitive market prices.

In the 1980s, much of my work involved regulatory policy, including such topics as the nature of the regulatory compact, the consequences of the utility's obligation to serve and the appropriate definitions of "prudence" and "used and useful" as they related to that compact.

Turning specifically to stranded cost, which is the subject of this testimony, I have testified concerning the appropriateness of its recovery in Pennsylvania and on aspects of its quantification in Iowa and Pennsylvania.

I received a B.A. degree from the University of Iowa and Masters and Ph.D degrees in economics from the University of Michigan. My full resume is attached as APS Statement __ (WHH-1).

Q. Have you testified previously before the Arizona Corporation Commission?

A. Yes. I have done so on a number of occasions, most recently in Case No. ___, regarding appropriateness of Arizona Public Service's rate settlement.

Q. What is the purpose of this current testimony?

A. APS has asked me to respond on its behalf to several of the questions posed in the ACC's procedural order dated 1 December, 1997. This testimony constitutes at least a portion of its response to the issues identified in that order that are numbered 3, 6 and 9.

Q. Please summarize your conclusions.

A. Issue 3 is. what costs should be included in stranded costs and how should they be calculated? Regarding costs to be included, I conclude that the definition adopted by the ACC in Section R14-2-1601 is reasonably workable, at least as I interpret it, with the exception of ambiguity concerning the treatment of nuclear decommissioning and fuel disposal costs and the cut-off date for investments subject to stranded cost recovery. Regarding the method of calculation, I conclude that the lost revenues method is most appropriate.

Issue 6 is, who should pay for stranded costs? My conclusion is that stranded costs should be paid by all customers who would have paid the utility's generation cost of service under conventional regulation. This conclusion is consistent with the ACC's regulations, Section R14-2-1607(J) as I interpret that section. Concerning the allocation of stranded cost responsibility among customers, I conclude that the main principle should be the continuity of past ratemaking practices, resulting in minimal reallocation of costs.

Issue 9 is, what factors should be considered "mitigation"? My conclusion is that mitigation consists of those reasonable actions that a prudent and commercially oriented utility would take to minimize its costs of generation and/or maximize its net revenues for generation. It should not include cost shifting to investors or other parties, nor should it include compelling the generating activity to enter into non-traditional businesses or cross-subsidizing generation with revenues from other activities of the utility or its affiliates. Insofar as this is the ACC's intention in its definition of mitigation actions in Section 14-2-1607(A) of the ACC's regulations, that definition is incorrect.

2. Issue 3: What costs should be included as part of "stranded costs" and how should those costs be calculated?

Q. Please focus first on the first half of the question asked by Issue 3. What costs should be included as part of stranded costs?

A. The answer to this question is determined by the definition of stranded costs. Stranded costs are defined by the ACC as:

> "..the verifiable net difference between:
>
> a. The value of all the prudent jurisdictional assets and obligations necessary to furnish electricity (such as generating plants,

purchased power contracts, fuel contracts, and regulatory assets), acquired or entered into prior to the adoption of this Article, under traditional regulation of Affected Utilities; and

b. The market value of those assets and obligations directly attributable to the introduction of competition under this Article.

An alternative, and I believe fully consistent definition is that stranded cost is the difference in value of the ongoing utility enterprise under the pre-existing fully regulated regime versus its value under the new competitive regime. This definition is "top down" in that it looks at the enterprise as a whole, whereas the ACC's definition is "bottom up" in that it is concerned with the value of specific assets and liabilities. However, if stranded cost is calculated properly, the two definitions are equivalent and will result in the same quantification of stranded costs. In this context, I note particularly that the value of the parts of the utility business unaffected by the change in regulation, such as distribution and transmission, will be essentially identical with and without the introduction of competition. For this reason, even a "top down" approach can, but does not need to, be restricted to the affected parts of the utility's former business.

The focus of both definitions on the difference in value between ongoing regulation versus competition is appropriate, since the primary intent of stranded cost recovery is to compensate utility investors for the loss (or gain) in value arising from a radical change in the "rules of the game".

Q. Can you explain why the top down and bottom up methods are equivalent?

A. Yes. Using the bottom up method, one compares the market value of each of the utility's assets and liabilities under the previous regulatory regime to their value under competition. As discussed later in my testimony, their value under competition is the cash flow or earnings (contribution to recovering fixed investment costs, hereafter called "contribution") they will yield to an owner, present valued at the owner's after tax discount rate. Their value under regulation is a similar stream of net present value of contribution, discounted at the utility's after tax regulated cost of capital. Necessarily, the contribution earned by the enterprise is equal to sum of the contributions earned by each of its assets under both market and regulated conditions. Hence, the top down and bottom up methods are equivalent. I have a mild preference for the top down method, partly because of computational ease and partly because it assures that nothing is left out in calculating net stranded costs.

Q. What are the main classes of stranded cost identified in the ACC's regulations?

A. The definition quoted above allows stranded cost recovery in respect of all assets and obligations. It specifically (but, presumably without prejudice to other sources of stranded cost) enumerates four types:

- Stranded generating plant,
- Stranded power contracts,
- Stranded fuels contracts, and
- Stranded regulatory assets and liabilities.

This focus generally is appropriate since it is the commodity cost of bulk power (the generation rather than the wires components) that is being shifted from a regulated cost basis to a market basis. Hence, it is power costs, whether the power is produced from owned generation or under the terms of purchase contracts, that is a main source of stranded cost. If market prices are expected to be below the generation part of cost of service rates, then generation is worth less in the new regime than it would have been worth under continuation of the previous regulatory regime.

The reasons for including regulatory assets and obligations as stranded costs are different than those that apply to stranded generating costs and contracts. Regulatory assets are "promises to pay" in the future for costs that were incurred in the past. An example in APS's case is the Palo Verde deferrals, reductions in the regulated cost of power produced several years ago that are being amortized in the future. Another example is accelerated tax depreciation that was used to reduce past regulated cost but lead to higher future tax liabilities. There may be other obligations relating to past utility activities that are not shown as regulatory assets on the utility's books. Since these assets and obligations produce no revenues outside of regulation, their competitive value is zero, and what is stranded is the full value of them under regulation.

Q. Are you aware of provisions for recovering APS's regulatory assets and liabilities that already are in place?

A. Yes. My understanding is that the ACC has approved amortization of APS's regulatory assets and liabilities over an 8 year period. Therefore, these costs are not stranded and need not be considered further.

Q. Does APS have any stranded power purchase costs?

A. My understanding is that APS's sole long term power purchase contract is its Territorial and Contingent contract with Salt River Project. There may be stranded costs associated with this contract.

Q. Does APS have any stranded fuels contracts?

A. APS has several coal contracts, at least one of which is above market in price. However, if stranded generating costs are calculated properly, the effect of above-market fuels contracts will already have been factored into the stranded cost calculation for generation, since the contribution to fixed costs and profit made by a coal plant that has above market fuel cost will be reduced by the amount of the above market cost of fuel.

Q. Are there other categories of stranded costs, beyond the four that the ACC regulations enumerate, that Arizona utilities may face?

A. Yes. Stranded costs other than the four identified categories may exist depending on the nature of the change in regulation. The ACC regulations appear to provide for deregulation of metering and meter reading services and of billing and collection services. If metering and billing are opened up to competition there may be stranded costs associated with the undepreciated value of meters and information technology systems or with the severance of associated staff.

Another area of potentially important stranded cost is overheads, or administrative and general (A&G) expense. It generally is assumed that, at a minimum, transmission and distribution will remain rate-regulated activities. A&G that is allocated to those activities will be recoverable through rates, as at present. However, A&G that will be allocated to non-rate regulated activities, principally generation, and therefore not recovered in cost-based rates, is potentially strandable. One way in which this can be taken into account is to include associated A&G in computing the value of generation assets. That is, in computing the value of generating assets for stranded cost purposes, generation costs should include not only plant-level costs but also allocable A&G.

Another category of stranded costs arises from the financial restructuring that can accompany stranded cost recovery. The shrinkage of the utilities balance sheet that accompanies the early depreciation and amortization of its assets requires a parallel shrinkage of the liability and net worth side of its balance sheet. This may require the repurchase of its securities. Early repurchase generally will mean that penalty provisions for repurchasing debt and preferred are triggered. There also are costs associated with repurchasing equity. Generally, these financial-related costs are a relatively small part of stranded cost. However, in jurisdictions where utilities are required to sell significant assets as a part of restructuring, these costs can be significant.

Q. The ACC's definition of stranded cost appears to limit assets and liabilities eligible for stranded cost recovery to those that were "acquired or entered into prior to the adoption of this Article". Do you agree with this restriction?

A. I agree with the ACC's intent, which I take to be putting utilities on notice. However, it simply is not appropriate to ignore all investments and obligations subsequent to December 31, 1996.

One example is metering investments made in 1997 (and that will have to be made in 1998 and beyond). Despite the fact that the ACC's regulations state that these will not be regulated monopoly activities, APS continues to have an obligation to hook up and meter all of its customers.

A second example is future capital investments in generating stations. Even if such investments are not themselves properly eligible for inclusion in stranded cost, they still must be taken into account in determining stranded cost. A simple example is, suppose that environmental regulations require putting a new type of control on emissions at APS's coal stations. If this is not done, the stations are valueless. Computing the contribution earned by those stations under competition must take into account the cost of the controls. Alternatively, such retrofits can be thought of as necessary mitigation, required to raise the value of the stations from zero to a significant positive value. While this example is hypothetical, there are other capital investments that are required if APS's generation is to operate and earn the contributions that are offset against the regulatory value of its assets in determining stranded costs. The cost of such investments must be taken into account.

Q. Turning to the question of stranded cost measurement generically, what methodologies have been proposed for calculating stranded costs?

A. Because recovery of APS's regulatory assets already has been provided for, I will answer this question only for generating assets. The calculation of stranded costs, if any, for its purchase contract will be similar.

There are several competing methods for calculating stranded generating costs. These are:

- The revenues lost method. This method begins by calculating "stranded" or lost revenues. Lost revenues are the difference between those that the utility would have received under continued regulation versus those that it will receive under competition. Under circumstances when costs also vary between the two regimes (e.g. sales may be greater under competition, resulting in higher fuels costs), lost revenues are usually computed as the reduction in the after tax contribution to investors (i.e., the return "on and of" investments). This is revenues less variable costs and other "going forward" costs of operation such as fixed O&M, capital additions and so forth. For the reasons discussed above, costs deducted from revenues include allocated A&G expense.

Lost revenues can be calculated on either a book basis or a cash flow basis. The difference between the two methods is a timing difference that, on a discounted basis over the life of the asset, is immaterial.

The lost revenues method, as generally employed, requires a year-by-year calculation of lost revenues or contribution. Stranded cost is simply the net present value of the stream of stranded costs over the period for which the calculation is being performed.

- The book-versus-market contribution method. This method is very similar to the lost revenues approach. As with the lost revenues method, the concept behind it is that the market value of a generating facility is the present value of its future earnings in a competitive environment. Stranded cost is the difference between this market value and book value.

Market value is calculated as the net present value of earnings (or cash flows) which, in turn, are the annual revenues at market prices less the costs of producing the power that earns the revenues. As in the lost revenues approach, the relevant costs include fuel, O&M, future capital additions and decommissioning expense, allocable A&G and, if earnings rather than cash flows are used, depreciation.

Because the present value of regulated revenues, calculated on an after tax basis and discounted at the utility's after tax cost of capital, are equal to the book value of the asset for which the calculation is made, their book value is equal to the present value of contributions used in the lost revenues method. Hence, this approach should lead to a calculation of stranded cost that is identical to the lost revenues approach if the calculation is performed over the entire remaining life of the asset. It cannot readily be used if stranded costs are calculated over a shorter period.

- Estimated "willing buyer-willing seller" sales value. To the extent that the ACC relies on evidence of prices received for the sale of generation stations sold by other utilities and non-utility generators, valuation will be performed on much the same basis as is used in appraising real estate.

- Outright sale. A way of establishing the market value of an asset is to sell it. Market value is the price that the asset sold for. The difference between market price and book value is stranded cost.

- Partial sale. At least one regulatory jurisdiction has required that a utility sell a part of its generation. If this is sold on a "slice" basis -- e.g. 10 percent of each facility -- the sales price can be used to establish the value of the remainder.

Q. Are any of these methods always preferable?

A. No. The problem with the first two methods is that forecasts of future costs and revenues are uncertain. The further out in time that one seeks to forecast, the more uncertain they become. Hence, there is a risk that stranded costs will be substantially mis-estimated.

This risk of mis-estimation is one reason why some regulatory commissions and utilities favor truing up stranded cost estimates during the transition period.

The willing buyer-willing seller suffers from the sparcity of comparable transactions and the difficulty of "adjusting" for non-comparable conditions. APS's generation is primarily coal and nuclear. The only coal plants that have been sold are in New England and the midwest, where market conditions are quite different from Arizona. No nuclear plants have been sold, at least none at positive prices. APS's gas plants have better comparables from the recent California sales. However, the value of individual stations in California is not transparent, since they were sold in bundles. Several of the California units are under must run contracts and their sale prices are not representative of competitive values. There also are structural and price differences between the California and Arizona markets as well as unit-specific differences that would have to be taken into account, such as age and condition, environmental liabilities and alternative use value for the plant sites.

Outright sale makes the current market value of sold generation assets unambiguous. Sale of at least a portion of generating assets also may be necessary under circumstances where the existing pattern of ownership is inconsistent with competition. However, it also has a number of disadvantages. First, it does not avoid the need to forecast uncertain market prices, cost and unit performance. It merely shifts that burden from the regulator to the buyers. Indeed, my company has assisted a number of potential buyers of generating stations in determining what to bid. In all cases, determining market value has centered on estimating future costs and revenues under competition, the same uncertain activity that underlies the first two methods of stranded cost quantification.

Consequently, the risk that the cost of stranded cost recovery will be too high from the standpoint of ratepayers is not eliminated or materially diminished. Further, outright sale eliminates the ACC's ability to use a future "true-up" to correct initial mis-perceptions of costs and prices.

Second, a substantial sale of assets disturbs the ability of the incumbent utility to meet residuary load obligations. The initial evidence from California appears to be that only very small numbers of customers have elected to switch to other suppliers when given the opportunity to do so. Presumably, the incumbent Arizona utilities will have an obligation to supply customers who elect not to switch. While this could be accommodated by a power contract between the utility and the purchaser of the assets, the terms of such contracts then become an important determinant of asset value, undercutting the validity of outright sale as a means of measuring asset value.

Third, asset sale has substantial transaction costs, including taxes on the gain over the tax basis of the assets, refinancing (both the "shrink" the company and to cure bondable property and other indenture defaults) and the cost of the sale itself.

Fourth, sale may not be feasible. First, while I am not opining on the facts of the specific case in Arizona, it often has been held that the regulatory commission lacks the authority to order divestiture of assets. Second, in the case of APS, it is likely that most of its stranded generating costs are associated with the Palo Verde nuclear plant. Despite several efforts, there have been no cases of a successful sale of a nuclear station, or even a share of a nuclear station, for many years. Such failures include quite recent attempts.

The last option, partial sale, shares the defects and advantages of outright sale but to a lesser degree. The only additional point to be made uniquely about a partial sale is that it has unknown, but potentially significant, defects as a means of calculating the value of the remainder of the facilities. First, it may yield too high of a value. The sale is made to the buyer willing to pay the most. Since the market price of any asset or product generally is lower, the more of it is available, the price of the first "slice" should overstate the value of the remainder. Conversely, it generally is believed that there is a "control premium": a buyer that believes that it could make an asset more valuable if it controlled it will pay less for a slice of assets that will still be controlled and operated by the incumbent utility.

Q. Given that each method has advantages and disadvantages, which method do you recommend that the ACC adopt?

A. I recommend the lost revenues or book-versus-market methods, which I have indicated are essentially equivalent. This is the same approach as was adopted by the FERC in Order No. 888 after receiving wide-ranging comments from proponents of each of the approaches that I have discussed.[1] It is also the approach used in the Pennsylvania stranded cost proceedings, which are the farthest advanced of any state proceedings on stranded cost quantification. It was used in California,, albeit in rudimentary form, in estimating stranded costs for securitization purposes.

I recommend the lost revenues method with full knowledge of the difficulty of estimating value. However, the uncertainty of future value can be reduced sharply if the ACC elects

[1] The FERC method, which it calls the "revenues lost" method, differs in some respects from the forecast-based methods that are more conventional. Lost revenues are the average paid by the departing wholesale customer in the previous three years. These are offset by market revenues that are either the customer's acquisition cost of replacement power or the utility's estimate of the market value it will receive for the power released by loss of the wholesale customer. The customer also has the alternative of taking the power and brokering (reselling) it if it believes it can get a higher value from it than the utility's estimate. Using historic prices paid by customers likely would overstate stranded costs for APS's retail customers due to rate decreases. The brokering option probably is not feasible for retail access customers.

some form of true-up, as its regulations at R14-2-1607(L) permit. Further, the uncertainty about future value, which increases over time the more distant is the period for which market prices are being calculated, is sharply reduced by discounting. Assuming that the period of stranded cost recovery in Arizona is in the 4 to 10 year range adopted by other regulatory commissions, most of the value uncertainty is contained within this transition period. Further, if the stranded cost calculation period is limited to the transition period, as I understand to be APS's proposal for its stranded cost recovery, then post-transition stranded costs are zero by definition.

Q. Does the lost revenues method net off "stranded benefits" from the calculation of stranded costs?

A. Yes. Stranded benefits are negative stranded costs. They arise because some utility assets are worth more under competition than they are allowed to earn under regulation. Under "top down" methods of determining stranded costs, these benefits are automatically used to reduce the calculated net amount of stranded costs. Under bottom-up methods, the negative stranded cost amount would be calculated on an asset-specific basis, then deducted from the aggregate amount.

Q. Are there any strandable costs that should be recovered independently from any stranded cost recovery mechanism?

A. Yes. The main candidate is nuclear decommissioning costs and the related fuel disposal costs incurred prior to the end of transition. Decommissioning costs clearly relate to the past operations of nuclear plants. Once a nuclear plant is thoroughly irradiated, the scope of decommissioning requirements is set. Indeed, further operation, by deferring the need to decommission, actually reduces the present value of decommissioning cost. Hence, the full amount of decommissioning cost, which clearly is "stranded", is appropriately recovered as part of any transition mechanism. However, decommissioning will not take place until the distant future and costs are highly uncertain. For that reason, decommissioning costs should continue to be recovered through some form of non-market rate component over the remaining life of Palo Verde. Special treatment of fuel disposal costs also is warranted by the considerable uncertainty concerning whether the federal government will honor its commitment to dispose of spent fuel in return for the payments that nuclear station owners have made. Since the regulated cost of nuclear output recovered in the past has assumed that this commitment will be honored, any additional costs related to that output that are incurred in the future are stranded costs not reflected on the current balance sheet.

3. Issue 6: How and who should pay for "stranded costs" and who, if anyone, should be excluded from paying for stranded costs?

Q. Who should be required to pay stranded cost charges?

A. Stranded cost charges should be paid by all customers who would have paid APS's regulated generating costs under the current set of rules. Effectively, this means that they should be paid by all customers physically located in APS's service area, taking service over APS's wires. It does not include customers who leave the system or the territory.

This is consistent with the decision reached by FERC in Order 888, which exempts only customers that wholly leave the utility's system, including disconnecting from transmission.

Q. Does this recommendation mean that customers who do not leave the utility's regulated bundled service will also have to pay stranded cost charges?

A. Implicitly or explicitly, stranded cost charges should be paid by both customers that leave regulated retail service and those that do not. If non-leavers continue to pay cost of service-based rates for power, then, by definition, there will be no stranded costs for such customers during the period during which they remain bundled service customers. Stating the same point differently, stranded cost recovery will be automatic from such customers.

Notwithstanding this fact, several regulatory authorities have chosen explicitly to assess stranded cost charges for non-leaving customers. Such assessment is useful, even necessary, under either of two circumstances and is not necessary when they do not apply. First, if the year-to-year time profile of stranded cost recovery during the transition period is different from the profile of cost-based recovery in the bundled rates, equity would require customizing stranded cost recovery for customers who left bundled service at some future point during transition. A separate and explicit charge for stranded cost for non-leaving customers that is identical to that paid by leavers eliminates the need for this complex customization. A second and related reason is that many regulatory commissions have accelerated recovery of post-transition stranded costs into the transition period. Equity requires that non-leavers pay their fair share of these post-transition charges; otherwise they could evade them by delaying leaving until after transition. For example, if APS's proposal is rejected or modified in a manner that brings post-transition stranded costs into the recovery, then an explicit recognition of such stranded cost will be required for non-leaving customers.

Of course, if stranded costs are collected from non-leavers, it is necessary to reduce the remaining elements of bundled service rates to avoid double counting.

Q. How should stranded cost charges be assessed to individual customers?

A. At the customer level, stranded costs are the difference between what they would have paid under unchanged regulation versus what they would pay if they bought retail service from non-APS sources based on market costs for bulk power.[2] At least approximately, the customer's allocation of stranded cost charges should reflect this difference.

This means that stranded cost billing elements should reflect the way in which the generation portion of rates is determined today. Since, ultimately, the capacity and energy-related costs of generation are converted into kW and kWh charges (with the latter time-differentiated for some classes of customers), the non-disturbance of rates means that these same billing elements should be used for cost recovery.

Non-disturbance also means that contract rates should not be impacted by stranded cost recovery for the remaining period of the contracts.

While non-disturbance of rates should be the main guiding principle for developing stranded cost charges, the ACC may wish to determine the extent to which the movement to competition will change relative rate levels and use the allocation of stranded cost recovery responsibility to somewhat smooth the transition. Otherwise, at the end of the transition period, customers will see a large sudden movement in rates, upward in some cases. To give a concrete example, in the UK the movement of generation to a market

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[2] This is similar to FERC's concept of "direct assignment" used to calculate the stranded cost responsibility of departing customers.

basis caused rates for some types of customers to go up by as much as 20 percent and rates for others to decline by similar amounts. Note that the potential problem is not limited to past cross-subsidy among customer classes or customers within a class. Competition can change the cost of serving different types of customers in a way that means that formerly equitable rate structures will now include cross-subsidies.

4. <u>Issue 9: What factors should be considered for "mitigation" of stranded costs?</u>

Q. What mitigation ought be taken into account in calculating stranded costs?

A. Fundamentally, stranded cost calculation should be premised on the expectation that over the transition period the utility's generation will come to be run as efficiently and effectively as can be expected of competitive producers. In some cases, this may mean cost reductions or performance improvements. If a generation unit cannot cover its avoidable cost, the utility can be expected to close it. Utilities also can be held accountable for selling output at market prices.

Beyond simply operating at high levels of competence, it is unclear what is meant by "mitigation". Mitigation means "to make less severe, to moderate". Hence, mitigation actions are those that reduce stranded cost. A commonly intended meaning of the term is that where utilities have bad contracts that can be cost effectively renegotiated, that those renegotiations should take place. This genuinely is mitigation. Conversely, a redistribution of an undiminished stranded cost by, for example, requiring that shareholders bear some portion of it is not mitigation.

In Order No. 888, FERC concluded that mitigation was automatic under its version of the lost revenues method of stranded cost calculation on the grounds that the utility would have an obligation and incentives to market the capacity and energy that is released by the loss of the customer at market rates:

> "Contrary to the objections of some commentaries that the revenues lost approach creates no incentive to mitigate stranded costs, the formula automatically encompasses mitigation by reducing the departing generation customer's stranded cost obligation by the competitive market value of the released capacity and associated energy." (slip Opinion at p. 599).

FERC then went on to explicitly decline to "impose a separate mitigation obligation on the utility above that which is already subsumed in the revenues lost approach." It did, however, note that, "In addition, a utility will continue to be subject to an ongoing prudence obligation to sell excess capacity off-system and/or to dispose of uneconomic assets." FERC's reference to an ongoing, or continuing "prudence" obligation fairly raises the question of whether the calculation of stranded cost does, or should, create any obligation to "mitigate" that the utility did not have already. Utilities have long had the obligation to take those actions available to a prudent management to minimize their cost of service. The events of stranded cost calculation and/or of making power markets competitive, does not give utilities any material new means of "mitigating", or reducing costs that they did not have previously. Hence, "mitigation" does not impose any new or higher requirement than has existed in the past. All that is new is the requirement to effectively market the energy and capacity that was previously dedicated to native load customers.

Q. Do the ACC's regulations reflect a definition of mitigation that is consistent with your or FERC's definition?

A. They do not appear to, though it is not clear whether this is merely a semantic difference. For example, R14-2-1607(B) states: "The Commission shall allow recovery of <u>unmitigated</u>

Stranded Cost by Affected Utilities", and R-14-2-1607(G) states, in relevant part, that: "The Affected Utilities shall file estimates of unmitigated Stranded Cost" (emphasis added). Since mitigation includes, and indeed consists primarily of, selling the freed-up energy and capacity at market prices, an "unmitigated" estimate of stranded cost would be the gross cost of serving departing customers. The definition of unmitigated stranded cost implicit in these subsections is not consistent with the ACC's own definition of stranded cost, cited above, which defines them as the net difference between asset values under regulation versus competition.

Another potential difference is found in R14-2-1607(A) which is the sub-section of the regulations that comes closest to defining mitigation. This section reads:

> "The Affected Utilities shall take every feasible, cost-effective measure to mitigate or offset Stranded Cost by means such as expanding wholesale or retail markets, or offering a wider scope of services for profit, among others."

I agree that mitigation should include maximizing the value of released capacity by expanding sales where it is possible and cost-effective to do so. However, it is less clear what the ACC means by "offering a wider scope of services for profit." There are no "services" available from regulatory assets and obligations and no non-power services of any consequence available from generation. Thus, the subsection raises a concern in my mind that the ACC intends that Affected Utilities engage in unregulated, non-utility businesses and that the profits from those businesses be used to offset stranded cost. Confiscating profits from unregulated businesses to cover stranded costs, even if lawful, is not "mitigation" and is simply a ruse to avoid the payment of stranded costs. The ACC should clarify that it is not its intent to confiscate the profits of unregulated affiliates of

Affected Utilities as an offset to stranded costs. It also should make it clear that "mitigation" does not require that Affected Utilities enter into non-utility businesses for any reason. Such a requirement would carry with it a ratepayer responsibility to cover any losses of such businesses. Forcing the state's utilities into non-utility businesses is not merely bad public policy but also is quite likely to be a bad business decision, at least based on the lessons learned from the experience of utilities generally, and southwestern utilities in particular, in profitably operating non-utility businesses.

Q. Does this complete your testimony?

A. Yes.

William Hieronymus has consulted extensively to managements of electricity and gas companies, their counsel, regulators and policy makers. His principal areas of concentration are the structure and regulation of network utilities and associated management, policy and regulatory issues. He has spent the last several years working on restructuring and privatization of utility systems internationally and on changing regulatory systems and management strategies in mature electricity systems. In his twenty-plus years of consulting to this sector he also has performed a number of more specific functional tasks including the selection of investments, determining procedures for contracting with independent power producers, assistance in contract negotiation, tariff formation, demand forecasting and fuels market forecasting. Dr. Hieronymus has testified frequently on behalf of utility clients before regulatory bodies, federal courts and legislative bodies in the United States and United Kingdom. Since joining Putnam, Hayes & Bartlett, Inc. (PHB) he has contributed to numerous projects, including the following:

ELECTRICITY SECTOR STRUCTURE, REGULATION AND RELATED MANAGEMENT AND PLANNING ISSUES

U.S. Assignments

- Dr. Hieronymus served as an advisor to a western electric utility on restructuring and related regulatory issues and has worked with senior management in developing strategies for shaping and adapting to the emerging competitive market in electricity. As a part of this general assignment he helped develop, and testified respecting, a settlement with the state regulatory commission staff that provides, among other things, for accelerated recovery of strandable assets. He also prepared numerous briefings for the senior management group on various topics related to restructuring.

- For several utilities seeking merger approval he has prepared and testified to market power analyses at FERC and before state commissions. He also has assisted in discussions with the Antitrust Division of the Department of Justice and in responding to information requests. The analyses he has sponsored cover the destination market-oriented traditional FERC tests, Justice Department-oriented market structure tests similar to the Order 592 required analyses, behavioral tests of the ability to raise prices and examination of vertical market power arising from ownership of transmission and generation and from ownership of distribution facilities in the context of retail access. The mergers on which he has testified include both electricity mergers and combination mergers involving electricity and gas companies.

- For utilities and power pools preparing structural reforms, he has assisted in examining various facets of proposed reforms. This analysis has included both features of the proposals affecting market efficiency and those that have potential consequences for market power. Where relevant, the analysis also has examined the effects of alternative reforms on the client's financial performance and achievement of other objectives.

- For the New England Power Pool he examined the issue of market power in connection with its movement to market-based pricing for energy, capacity and ancillary services. He also assisted the New England utilities in preparing their market power mitigation proposal. The main results of his analysis were incorporated in NEPOOL's market power filing before FERC.

- As part of a large PHB team he assisted a midwest utility in developing an innovative proposal for electricity industry restructuring. This work formed the basis for that utility's proposals in its state's restructuring proceeding.

- Dr. Hieronymus has contributed substantially to PHB's activities in the restructuring of the California electricity industry. In this context he also is a witness in California and FERC proceedings on the subject of market power and mitigation.

- He has testified in state securitization and stranded cost quantification proceedings, primarily in forecasting the level of market prices that should be used in assessing the future revenues and the operating contribution earned by the owner of the utilities' assets in energy and capacity markets. The market price analyses are tailored to the specific features of the market in which the utility will operate and reflect transmission-constrained trading over a wide geographic area. He also has testified in rebuttal to other parties' testimony concerning stranded costs and assisted companies in internal stranded cost and asset valuation studies.

- He has contributed to the development of benchmarking analyses for U.S. utilities. These have been used in work with PHB's clients to develop regulatory proposals, set cost reduction targets, restructure internal operations and assess merger savings.

- Dr. Hieronymus was a co-developer of a market simulation package that PHB has tailored to region-specific applications. He and other PHB personnel have provided numerous multi-day training sessions using the package to help our utility clients in educating management personnel in the consequences of wholesale and retail deregulation and in developing the skills necessary to succeed in this environment.

- Dr. Hieronymus has made numerous presentations to U.S. utility managements on the U.K. electricity system and has arranged meetings with senior executives and regulators in the U.K. for the senior managements of U.S. utilities.

- For a task force of utilities, regulators, legislators and other interested parties created by the Governor's office of a northeastern state he prepared background and briefing papers as part of a PHB assignment to assist in developing a consensus proposal for electricity industry restructuring.

- For an East Coast electricity holding company, he prepared and testified to an analysis of the logic and implementation issues concerning utility-sponsored conservation and demand management programs.

- In connection with nuclear generating plants nearing completion, he has testified in Pennsylvania, Louisiana, Arizona, Illinois, Missouri, New York, Texas, Arkansas, New Mexico and before the Federal Energy Regulatory Commission in plant-in-service rate cases on the issues of equitable and economically efficient treatment of plant cost for tariff setting purposes, regulatory treatment of new plants in other jurisdictions, the prudence of past system planning decisions and assumptions, performance incentives and the life-cycle costs and benefits of the units. In these and other utility regulatory proceedings, Dr. Hieronymus and his colleagues have provided extensive support to counsel, including preparation of interrogatories, cross-examination support and assistance in writing briefs.

- On behalf of utilities in the states of Michigan, Massachusetts, New York, Maine, Indiana, Pennsylvania, New Hampshire and Illinois, he has submitted testimony in regulatory proceedings on the economics of completing nuclear generating plants that are currently under construction. His testimony has covered the likely cost of plant completion, forecasts of operating performance and extensive analyses of ratepayer and shareholder impacts of completion, deferral and cancellation.

- For utilities engaged in nuclear plant construction, Dr. Hieronymus has performed a number of highly confidential assignments to support strategic decisions concerning continuing the construction projects. Areas of inquiry included plant cost, financial feasibility, power marketing opportunities, the impact of potential regulatory treatments of plant cost on shareholders and customers and evaluation of offers to purchase partially completed facilities.

- For an eastern Pennsylvania utility that suffered a nuclear plant shutdown due to NRC sanctions relating to plant management, he filed testimony regarding the extent to which replacement power cost exceeded the costs that would have occurred but for the shutdown.

- For a major midwestern utility, he headed a team that assisted senior management in devising its strategic plans including examination of such issues as plant refurbishment/life extension strategies, impacts of increased competition and diversification opportunities.

- On behalf of two West Coast utilities, he testified in a needs certification hearing for a major coal-fired generation complex concerning the economics of the facility relative to competing sources of power, particularly unconventional sources and demand reductions.

- For a large western combination utility, Dr. Hieronymus participated in a major 18-month effort to provide it with an integrated planning and rate case management system. His specific responsibilities included assisting the client in design and integration of electric and gas energy demand forecasts, peak load and load shape forecasts and forecasts of the impacts of conservation and load management programs.

- For two midwestern utilities, he prepared an analysis of intervenor-proposed modifications to the utilities' resource plans. He then testified on their behalf before a legislative committee..

- For a major combination electric and gas utility, he directed the adaptation of a PHB-developed financial simulation model for use in resource planning and evaluation of conservation programs.

U.K. Assignments

- Following promulgation of the White Paper setting out the general framework for privatization of the electricity industry in the United Kingdom, Dr. Hieronymus participated extensively in the task forces charged with developing the new market system and regulatory regime. His work on behalf of the Electricity Council and the twelve regional electricity councils focused on the proposed regulatory regime, including the price cap and regulatory formulas, and distribution and transmission use of system tariffs. He was an active participant in industry-government task forces charged with creating the legislation, regulatory framework, initial contracts and rules of the pooling and settlements system. He also assisted the regional companies in the valuation of initial contract offers from the generators, including supporting their successful refusal to contract for the proposed nuclear power plants that subsequently were canceled as being non-commercial.

- During the preparation for privatization, he assisted several of the U.K. individual electricity companies in understanding the evolving system, in development of use of system tariffs, and in developing strategic plans and management and technical capabilities in power purchasing and contracting. He continued to advise a number of clients, including regional companies, power developers, large industrial customers and financial institutions on the U.K. power system for a number of years after privatization.

- Dr. Hieronymus assisted four of the regional electricity companies in negotiating equity ownership positions and developing the power purchase contracts for an 1,825 megawatt combined cycle gas station. He also assisted clients in evaluating other potential generating investments including cogeneration and non-conventional resources.

- He also has consulted on the separate reorganization and privatization of the Scottish electricity sector. PHB's role in that privatization included advising the larger of the two Scottish companies and, through it, the Secretary of State on all phases of the restructuring and privatization, including the drafting of regulations, asset valuation and company strategy.

- He has assisted one of the Regional Electricity Companies in England and Wales in the 1993 through 1995 regulatory proceedings that reset the price caps for its retailing and distribution businesses. Included in this assignment have been policy issues such as incentives for economic purchasing of power, the scope of the price control, and the use of comparisons among companies as a basis for price regulation. His model for determining network refurbishment needs was used by the regulator in determining revenue allowances for capital investments.

- He assisted this same utility in its defense against a hostile takeover, including preparation of its submission to the Cabinet Minister who had the responsibility for determining whether the merger should be referred to the competition authority.

Assignments Outside the U.S. and U.K.

- Dr. Hieronymus has assisted a large state-owned European electricity company in evaluating the impacts of the 1997 EU directive on electricity that *inter alia* requires retail access and competitive markets for generation. The assignment includes advice on the organizational solution to elements of the directive requiring a separate transmission system operator and the business need to create a competitive marketing function.

- For the European Bank for Reconstruction and Development he performed analyses of least cost power options, evaluation of the return on a major plant investment that the Bank was considering and forecasts of electricity prices in support of assessment of a major investment in an electricity intensive industrial plant.

- For the OECD he performed a study of energy subsidies worldwide and the impact of subsidy elimination on the environment, particularly on greenhouse gases.

- For the Magyar Villamos Muvek Troszt, the electricity company of Hungary, he developed a contract framework to link the operations of the different entities of an electricity sector in the process of moving from a centralized command and control system to a decentralized, corporatized system.

- For Iberdrola, the largest investor-owned Spanish electricity company, he assisted in development of their proposal for a fundamental reorganization of the electricity sector, its means of compensating generation and distribution companies, its regulation and the phasing out of subsidies. He also has assisted the company in evaluating generation expansion options and in valuing offers for imported power.

- Dr. Hieronymus contributed extensively to a project for the Ukrainian Electricity Ministry, the goal of which is to reorganize the Ukrainian electricity sector and prepare it for transfer to the private sector and the attraction of foreign capital. The proposed reorganization will be based on regional electricity companies, linked by a unified central market, with market-based prices for electricity.

- At the request of the Ministry of Power of the USSR, Dr. Hieronymus participated in the creation of a seminar on electricity restructuring and privatization. The seminar was given for 200 invited Ministerial staff and senior managers for the USSR power system. His specific role was to introduce the requirements and methods of privatization. Subsequent to the breakup of the Soviet Union, he continued to advise the Russian energy and power ministry and government-owned generation and transmission company on restructuring and market development issues.

- On behalf of a large continental electricity company he analyzed the proposed directives from the European Commission on gas and electricity transit (open access regimes) and on the internal market for electricity. The purpose of this assignment was to forecast likely developments in the structure and regulation of the electricity sector in the common market and assist the client in understanding their implications.

- For the electric utility company of the Republic of Ireland, he assessed the likely economic benefit of building an interconnector between Eire and Wales for the sharing of reserves and the interchange of power.

- For a task force representing the Treasury, electric generating and electricity distribution industries in New Zealand, he undertook an analysis of industry structure and regulatory alternatives for achieving economically efficient generation of electricity. The analysis explored how the industry likely would operate under alternative regimes and their implications for asset valuation, electricity pricing, competition and regulatory requirements.

TARIFF DESIGN METHODOLOGIES AND POLICY ISSUES

- Dr. Hieronymus participated in a series of studies for the National Grid Company of the United Kingdom and for ScottishPower on appropriate pricing methodologies for transmission, including incentives for efficient investment and location decisions.

- For a U.S. utility client, he directed an analysis of time-differentiated costs based on accounting concepts. The study required selection of rating periods and allocation of costs to time periods and within time periods to rate classes.

- For EPRI, he directed a study that examined the effects of time-of-day rates on the level and pattern of residential electricity consumption.

- For the EPRI-NARUC Rate Design Study, Dr. Hieronymus developed a methodology for designing optimum cost-tracking block rate structures.

- On behalf of a group of cogenerators, he filed testimony before the Energy Select Committee of the UK Parliament on the effects of prices on cogeneration development.

- For the Edison Electric Institute (EEI), he prepared a statement of the industry's position on proposed federal guidelines on fuel adjustment clauses. He also assisted EEI in responding to the U.S. Department of Energy (DOE) guideline on cost-of-service standards.

- For private utility clients, he assisted in the preparation of comments on draft Federal Energy Regulatory Commission (FERC) regulations and in preparing their compliance plans for PURPA Section l33.

- For the EEI Utility Regulatory Analysis Program, he co-authored an analysis of the DOE position on the purposes of the Public Utilities Regulatory Policies Act of 1978. The report focused on the relationship between those purposes and cost-of-service and ratemaking positions under consideration in the generic hearings required by PURPA.

- For a state utilities commission, Dr. Hieronymus assessed its utilities' existing automatic adjustment clauses to determine their compliance with PURPA and recommended modifications.

- For the DOE, he developed an analysis of automatic adjustment clauses currently employed by electric utilities. The focus of this analysis was on efficiency incentive effects.

- For the commissioners of a public utility commission, he assisted in preparation of briefing papers, lines of questioning and proposed findings of fact in a generic rate design proceeding.

SALES FORECASTING METHODOLOGIES FOR GAS AND ELECTRIC UTILITIES

- For the White House Sub-Cabinet Task Force on the future of the electric utility industry, Dr. Hieronymus co-directed a major analysis of "least-cost planning studies" and "low-growth energy futures." That analysis was the sole demand-side study commissioned by the task force and formed an important basis for the task force's conclusions concerning the need for new facilities and the relative roles of new construction and customer side-of-the-meter programs in utility planning.

- For a large eastern utility, he developed a load forecasting model designed to interface with the utility's revenue forecasting system- planning functions. The model forecasts detailed monthly sales and seasonal peaks for a 10-year period.

- For the DOE, he directed the development of an independent needs assessment model for use by state public utility commissions. This major study developed the capabilities required for independent forecasting by state commissions and constructed a forecasting model for their interim use.

- For several state regulatory commissions, Dr. Hieronymus has consulted in the development of service area level forecasting models of electric utility companies.

- For EPRI, he authored a study of electricity demand and load forecasting models. The study surveyed state-of-the-art models of electricity demand and subjected the most promising models to empirical testing to determine their potential for use in long-term forecasting.

- For a midwestern electric utility, he has provided consulting assistance in improving its load forecast and has testified in defense of the revised forecasting models.

- For an East Coast gas utility, he testified with respect to sales forecasts and provided consulting assistance in improving the models used to forecast residential and commercial sales.

OTHER STUDIES PERTAINING TO REGULATED AND ENERGY COMPANIES

- In a number of antitrust and regulatory matters, Dr. Hieronymus has performed analyses and litigation support tasks. These include both Sherman Act Section One and Two cases, contract negotiations, generic rate hearings, ITC hearings and a major asset valuation suit. In a major antitrust case, he testified with respect to the demand for business telecommunications services and the impact of various practices on demand and on the market share of a new entrant. For a major electrical equipment vendor he has testified on damages with respect to alleged defects and associated fraud and warranty claims. In connection with mergers for which he is the market power expert, he is assisting clients in responding to the Antitrust Division of the U.S. Department of Justice's Hart-Scott-Rodino requests.

- For a private client, he headed a project that examined the feasibility and value of a major synthetic natural gas project. The study analyzed both the future supply costs of alternative natural gas sources and the effects of potential changes in FPC rate regulations on project viability. The analysis was used in preparing contract negotiation strategies.

- For a industrial client considering development and marketing of a total energy system for cogeneration of electricity and low-grade heat, he developed an estimate of the potential market for the system by geographic area.

- For the U.S. Environmental Protection Agency (EPA), Dr. Hieronymus was the principal investigator in a series of studies for forecasting future supply availability and production costs for various grades of steam and metallurgical coal to be consumed in process heat and utility uses.

Dr. Hieronymus has addressed a number of conferences on such issues as market power, industry restructuring, utility pricing in competitive markets, international developments in utility structure and regulation, risk analysis for regulated investments, price squeezes, rate design, forecasting customer response to innovative rates, intervenor strategies in utility regulatory proceedings, utility deregulation and utility-related opportunities for investment bankers.

Before joining PHB, Dr. Hieronymus was program manager for Energy Market Analysis at Charles River Associates. Previously, he served as a project director at Systems Technology Corporation and as an economist while serving in the U.S. Army. He is a present or past member of the American Economics Association and the International Association of Energy Economists, and a past member of the Task Force on Coal Supply of the New England Energy Policy Commission. He is the author of a number of reports in the field of energy economics and has been an invited speaker at numerous conferences.

Dr. Hieronymus received a B.A. from the University of Iowa and M.A. and Ph.D. degrees in economics from the University of Michigan.

BEFORE THE ARIZONA CORPORATION COMMISSION

REBUTTAL TESTIMONY

OF

WILLIAM H. HIERONYMUS

On Behalf of

Arizona Public Service Company

Docket No. RE-00000C-94-0165

February 4, 1998

EXHIBIT
Admitted
APS-3

TABLE OF CONTENTS

Rebuttal Testimony of William H. Hieronymus

Introduction and Summary

Q. Please state your name and business address.

A. My name is William H. Hieronymus. My business address is Putnam, Hayes & Bartlett, Inc., One Memorial Drive, Cambridge MA 01778.

Q. Are you the same William H. Hieronymus who filed Direct Testimony on behalf of the Arizona Public Service Company (APS) earlier in this proceeding?

A. Yes.

Q. What is the purpose of your Rebuttal Testimony?

A. I am responding on behalf of APS to various aspects of the written testimony of other witnesses in this proceeding.

Q. How have you organized this rebuttal?

A. Because of the large number of witnesses, I generally have sought to organize my rebuttal around topics, rather than the testimony of a specific witness, though the testimony of individual witnesses is referenced where necessary. I will deal first with the issue of the appropriateness of recovery of stranded costs. I next will respond to testimony on the question of the mechanism for cost measurement. Last, I will comment briefly on Dr. Rosen's specific estimates of the stranded generating costs for APS and other Arizona utilities.

Q. Please summarize the main points of your rebuttal.

A. First, while many witnesses argue that APS's investors should "share" stranded costs, none presents a valid basis for not affording APS a reasonable opportunity to fully recover the costs that are stranded by the movement to competition. This is particularly, but non-uniquely, true of regulatory assets. Regulatory assets are ignored by many witnesses; however, some witnesses explicitly would allow less than full recovery of the value of even these assets. In addition to proposing sharing, some witnesses propose asymmetric recovery, in which any stranded cost is shared, but negative stranded cost (sometimes referred to as stranded benefit) goes entirely to ratepayers.

Turning to the issue of stranded cost calculation methods, while some witnesses concur that some variant of the revenues lost method is preferable, others propose different methods. I explain why the replacement cost method turns into the revenues lost method, if it is done properly, or is invalid and biased if done in the simple manner discussed by some witnesses. The divestiture method merely masks, rather than avoids, the difficulties of the revenues lost method and is, in any event, impractical for APS's main strandable generating asset. Further, it is improper to forcibly restructure Arizona utilities merely to simplify stranded cost calculations, in the unlikely event that it is in fact simplified. Other approaches that are suggested range from intriguing but impractical to biased and confiscatory.

Finally, RUCO witness Rosen's calculation of stranded cost for the three major Arizona utilities is functionally irrelevant to this proceeding, and creates an absolutely misleading impression of the magnitude of the problem. I am bemused that RUCO supports the introduction of competition given its witness's finding that prices actually will be less under regulation than competition. Unfortunately, that finding is the result of an analysis that is so obviously invalid in terms of methodology and numbers that it constitutes misinformation rather than information.

The Recovery of Stranded Costs

Q. What is RUCO Witness Rosen's recommendation concerning stranded cost recovery?

A. Dr. Rosen recommends that stranded costs be "shared" between ratepayers and shareholders. I believe his position to be that shareholders should recover no more than 50 percent of stranded costs. As a practical matter, the constraints that he proposes on recovery, and the treatment he would accord to earnings on stranded costs, mean that the maximum he would allow is considerably less than 50 percent.

Q. What is the basis for his sharing proposal?

A. He provides no basis whatsoever, except the bare assertion that it is required by "equity". Why "equity" is served by disallowing 50 percent or more of stranded cost is not explained at all, except that at page 69 he seems to regard lower retail rates in the near term as somehow being a requirement of "equity." Some clue to his thinking may be found in the issues that he suggests be investigated in determining the specific amount to be recovered. He suggests that these should include the ratemaking treatment of plants giving rise to stranded costs in the past and the "causes" of stranded costs.

Q. Do you agree that equity requires that stranded costs be shared, and not fully recovered from customers?

A No The present rates of ACC jurisdictional utilities have been found to be just and reasonable by the Commission It is nonsense to now assert to the ACC that the very rates it has approved are somehow inequitable and that a reduction in them should be financed from the pockets of investors by disallowing recovery of or on ratebase.

In the present rule, the ACC has, quite correctly, determined that its jurisdictional utilities should have a reasonable opportunity to recovery costs that become stranded in the shift from the previous regulatory regime to one in which the value of generation is determined in the market. The strandable costs of the utilities are, by definition, prudent costs that would have been recovered in just and reasonable rates had regulation continued without change. All that stranded cost recovery allows is the same opportunity to recover those already incurred costs that the utilities have today.

Conversely, an arbitrary "sharing" of these costs confiscates value that the utility had under the existing regime and takes away the revenue that the utilities properly anticipated that they would earn on the investments that they made in fulfilling their obligation to serve.

Q. Do you see any useful purpose being served by investigating the "cause" of how stranded costs came to occur and the past ratemaking treatment of assets whose costs are partly stranded?

A. No Dr. Rosen does not even assert a reason for why this inquiry would be relevant, or even what he means by it. In APS's case, its stranded generating costs are likely to be wholly or primarily associated with Palo Verde. The history of that investment, the prudence of it, the prudence of the construction of the plant and the extent to which it was "used and useful" have been thoroughly investigated by the Commission. The past ratemaking treatment of it has been in accordance with the Commission's rules. I can think of no relevant fact that such an inquiry could bring to this discussion.

Q. **You indicated that, under Dr. Rosen's proposed treatment of stranded costs, it would be unlikely that 50 percent of costs would be recovered even if the Commission were to allow this amount of recovery. Why is that?**

A. Dr. Rosen recommends that the timeframe of cost recovery be no more than 4 years, ending at the close of 2002. He also recommends that rates be reduced to below the levels that the Commission would have allowed under its current regulations during that period. Clearly, this creates little opportunity to recover stranded costs.

Q, **Dr. Rosen also proposes that if, toward the end of the recovery period, it appears that future stranded costs are negative, stranded cost recovery should be extended for the life of the utility's generating assets to assure that ratepayers receive the full value of any negative stranded costs. Do you agree with this proposal?**

A. No. The proposal is clearly inequitable, in that he would allow shareholders to recover only half (at most) of any strandable revenue requirement in the years of the transition period, but would require that any negative stranded cost, arising from market prices above revenue requirements, be 100% retained by ratepayers. There is no logic or equity to the asymmetric treatment of the difference between gains and losses. Further, he recommends truncating stranded cost calculation and recovery at the end of 2002 unless it is found in 2002 that future stranded costs are likely to be negative. This is another unfair asymmetry, since recovery (refund) of only negative stranded cost (but not positive stranded cost) will continue.

Indeed, the combination is even more asymmetric than the individual elements of it. If Dr. Rosen's quantitative analysis of APS's stranded cost is taken seriously (only for the purpose of analyzing his proposal), it would result in APS receiving only half of its stranded cost in the negative stranded cost years. APS would give up nearly all of its offsetting stranded benefits, since under Dr. Rosen's analysis essentially all stranded costs appear in the years prior to 2003 and all of the stranded benefits in years after 2003.

Q. Please turn now to Mr. Higgins's testimony. What is his proposal concerning stranded cost recovery?

A. Mr. Higgins recommends that stranded cost recovery be limited to the lesser of a fraction of the stranded revenues for a three to five year period or the expected net present value of life cycle strandable costs. The fraction is proposed to be below the mid-point of a 25-50 percent recovery (he suggests 35 percent) unless generation is sold at auction, in which case he proposes that the recovery percentage be increased somewhat (e.g. to closer to 50 percent).

Q. What basis does Mr. Higgins give for limiting recovery to 50 percent or less?

A. He discusses two bases briefly. His first theory is that utilities may actually benefit from competition in that they will, in the future, be able to sell generation from their generation plant without regulatory limits on prices, so that there is the opportunity to make more money than regulation would have allowed. His second theory is that, in projecting stranded revenue requirements, utility costs may be over-estimated since (he asserts) they will be capable of running their business more efficiently than in the past.

Q. Do you agree that either of these theories motivates disallowing more than 50 percent of near term stranded cost?

A. No. Nor are they justified even by his own reasoning. This is best illustrated by his proposal that even if a utility sells all of its generating capacity, it still would be entitled to less than half of its stranded cost. Clearly a utility that has sold its generation cannot achieve the future benefits from deregulation of prices that is the "pot of gold" asserted by Mr. Higgins. Nor can stranded cost have been set on the basis of a utility's alleged inflated assumptions about operating costs. Since stranded cost is the difference between book value and sale price, no administrative assumption about stranded revenues – inflated or otherwise --is even made. Even if assets are not sold, Mr. Higgins second limitation on stranded cost, that recovery cannot exceed lifecycle stranded costs, is intended to assure that the utility cannot over-recover. Hence, while Mr. Higgins argues that the change in regulation will provide "long term opportunities for some [utility] companies", his second test is designed to make sure that this can never happen.

Q. Doesn't Mr. Higgins also state that disallowing a substantial fraction of stranded cost recovery is a means of motivating the utility to mitigate stranded cost by efficient operation?

A Yes, he does. However, this simply is incorrect. The element of Mr. Higgins' proposal that motivates maximum efforts to reduce costs is the absence of a true up. Without a true up, all savings achieved go directly to the utility's pre-tax income. However, this is identically true if 100 percent of expected stranded cost is allowed in rates. The incentive to reduce costs in order to increase profits is identical in either case.

Q. Does Mr. Higgins also propose that regulatory, as opposed to generation-related stranded costs be shared?

A. This is my interpretation of his testimony. This "sharing" of regulatory asset recovery through shareholder losses also belies his supposed motivation for allowing only the partial recovery of other stranded assets. Regulatory assets are accounting entries that can be "mitigated" only by writing them down and shifting their costs to investors. There also is no issue concerning their over-estimation, nor their future value in an unregulated market. Quite plainly, "sharing" of these stranded costs has no motivation beyond some unstated belief that investors should bear a major part of the cost of a change in regulatory policy from price regulation to competition.

Q. Please turn now to Dr. Rosenberg's testimony. Does Dr. Rosenberg advocate that less than 100 percent of stranded cost be recovered?

A. Yes. However, he makes no specific proposal.

Q. What basis does he give for "sharing"?

A. He first notes that unregulated businesses do not get stranded cost recovery from their customers. While mostly true, this is simply irrelevant. Companies that are and always have been unregulated lacked the special obligations of regulated utilities and are seeing no change in their rights and responsibilities. In fairness to Dr Rosenberg, I believe that he at least partly recognizes this, since he emphasizes that non-recovery of stranded cost would be appropriate only from a purely theoretical perspective.

Second, he asserts that utility investors have known for some time that competition was coming, and asserts that investors must believe that "the rewards of competition for this company outweigh the risks", simply because they have remained as shareholders.

Of course, shareholders as a group can not avoid any loss arising from the non-recovery of stranded costs, so the fact that a particular shareholder can sell or could have sold its shares is irrelevant. Further, Dr. Rosenberg seeks to imply that the current shareholders must believe that competition is a net benefit to the company since they otherwise would have sold out. All that can actually be inferred from their continuing status as shareholders, however, is that they believe that holding the company's shares is beneficial *given their expectations concerning stranded cost recovery*, as well as their expectations concerning other aspects of the company's economic future.

Regarding the idea that utilities have been placed on notice and should therefore (for some unstated reason) not be entitled to stranded cost recovery, it is ironic that the two pieces of legislation cited are PURPA and the Energy Policy Act of 1992. As Dr. Rosenberg notes, PURPA was enacted nearly 20 years ago; if it presaged the loss of ratebase status for utility generation, the signal was well disguised and long in bearing fruit. In fact, all that PURPA did that was relevant was mandate that utilities buy energy from the narrowly defined class of qualifying facilities (QFs) and include the cost in their *regulated* revenue requirements. Clearly, in requiring that utilities involuntarily purchase energy from QFs, Congress anticipated that utilities would remain regulated companies imbued with the public interest for the foreseeable future. The Energy Policy Act was, of course, enacted well after all the potentially stranded investments were made. APS' last generating station was completed about 5 years before the Energy Policy Act and had been begun a decade before that. Moreover, rather than presaging retail access, the Act specifically *forbade* the FERC from imposing retail access.

Q. Does Dr. Rosenberg cite any other reasons for disallowing some or all stranded cost recovery?

A. Yes. Other issues raised are the effects of stranded cost recovery on efficiency and the effects of recovery on competition. I will deal with these issues in responding to other witnesses.

Q. Dr. Rose, an ACC Staff witness, testifies at some length about his opinion that the ACC is not obligated to allow recovery of stranded costs and concerning various reasons to minimize stranded cost recovery. Beginning first with the issue of the obligation to allow recovery, what is your response?

A. Much of this section of Dr. Rose's testimony goes to legal issues that are better addressed in briefs by lawyers and therefore I will not comment. However, I would like to respond to one question and answer at page 7 of his testimony, in which Dr. Rose seeks to rebut Dr. Gordon's testimony on behalf of TEP that the uncompensated movement from regulation to competition would be opportunism.

The essence of his position is that any policy change that is an improvement in policy is not opportunism. This simply evades the issue. The question is not whether it is good public policy to introduce greater competition, but whether the utilities should recover costs that are stranded thereby. An *uncompensated* movement between systems of regulation that would have a systematic shifting of cost responsibility between ratepayers and shareholders can easily be characterized as opportunistic and needing correction. Such is the case here. Studies by various disinterested parties indicate that most utilities have stranded costs, with the aggregate estimate being well in excess of $100 billion. Dr. Rose contends that "there will be winners and losers", but, *in all likelihood*, the losers will far outweigh the winners. A policy change that creates systematic losers is, indeed, opportunistic. A fair test of whether the movement to competition really is an improvement, as opposed to mere cost shifting, is whether consumers would be better off *even after* fully compensating incumbent utilities for stranded costs.

Q. **Dr. Rose, at pages 9 through 17, discusses the effects of stranded cost recovery on the development of a competitive market, contending that the effects are adverse. Other witnesses also discuss the effects of stranded cost recovery on competition. Is stranded cost recovery adverse to the development of a competitive market?**

A. No. The argument made by these witnesses has several components, and it is important to separate them. Therefore, let me divide the components into the uneconomic bypass issue, the unfair competition issue and the retail rate issue. By uneconomic bypass, I mean the shifting of a customer to a supplier that has higher economic costs than the utility's. By unfair competition, I mean the alleged potential for "predatory" pricing by a utility that is receiving stranded cost recovery. By the retail rate issue, I mean the issue of whether competitors' retail costs, as distinct from the price of wholesale power, need to be used in setting the CTC and/or computing stranded costs.

Q. Please begin with the question of uneconomic bypass. What is the debate on this issue?

A. Dr. Rose seeks to rebut Dr. Gordon on this issue. However, his testimony is so confused that I think it best to recast the issue entirely.

The issue of uneconomic bypass arises in the context of customers having an opportunity to bypass a utility service that, for whatever reason, has above market cost *without* paying for stranded costs. Contrary to Dr. Rose's testimony at page 11, it has nothing whatsoever to do with vertically integrated bundled service.

Bypassing the high cost service is uneconomic if, and only if, the *avoidable* cost of the alternative supplier is higher than the utility's *avoidable cost*. An example would be taking service from a newly built generator, the cost of which is 4 cents per kWh in order to avoid a utility generation cost of, say, 5 cents. The 5 cents is composed of 3 cents of avoidable cost (e.g. the cost of keeping existing capacity open and burning fuel to produce power) and 2 cents worth of fixed (sunk) cost recovery. Bypassing the utility to avoid paying for sunk cost would, indeed, be uneconomic albeit in the interest of the bypassing customer. Uneconomic bypass would be avoided if the customer paid the 2 cents of fixed cost irrespective of whether it chose the alternative supplier or not.

In Dr. Rose's example at page 11, he assumes that the utility's marginal cost is higher than the marginal cost of the alternate supplier. He observes, rightly, that under these circumstances bypass would be economic and should not be discouraged. However, if the fixed cost is paid irrespective of which supplier is chosen, and the alternate supplier indeed has a lower marginal cost, then the customer will in fact have the right incentive to chose the lowest cost supplier.

This concern can easily be rendered academic in any event. The uneconomic bypass issue is well understood and, indeed, is the reason why regulators are imposing stranded cost charges (CTCs) on a basis that is neutral in terms of the choice of suppliers. As long as this is done properly, there is no incentive for uneconomic bypass or disincentive for economic bypass.

At page 16, after a long digression, Dr. Rose returns to this topic to face squarely the question of whether a non-distortive CTC, charged equally irrespective of the supplier disturbs the competitive market. His only response appears to be that since the market price will be higher than if stranded cost were wholly disallowed, the outcome is different (less is consumed overall). However, he does not assert any distortion of competition or, (excepting that demand will grow somewhat less than if stranded costs were wholly disallowed) that there would be an adverse effect on either competitors or competition itself.

Q. The second issue in this set of issues that you identified had to do with the relationship between stranded cost recovery and "predatory" pricing. Can you explain this issue?

A. Yes. It is sometimes asserted, including by witnesses in this proceeding, that a utility's ability to recover stranded costs in rates or non-bypassable surcharges allows it to engage in predatory pricing, disadvantaging competition, competitors and (to use the term adopted by Dr. Rose) dynamic efficiency.

This assertion is simply untrue if proper standards are used to determine stranded costs. Stranded cost is the difference between the regulated rate that the utility would have received for the now-competitive service and the market price. If the market price of generation is, say 3 cents, and the utility generator's total cost is 5 cents, then a 2 cent CTC will not make it profitable for the utility to sell at or below the 3 cent market price.

A narrower problem, about which some of these same witnesses seem to worry, is that if stranded cost is somehow over-estimated, the utility would be able to compete unfairly. As a general matter, that concern is misplaced. Suppose, first, that out of a 5 cent generating cost, the utility I have been using as an example is allowed CTC recovery of 3 cents. Does this mean that it will sell its power (which has a three cent variable cost) at a price of 2 cents, thereby competing unfairly with a lower cost supplier? No. Indeed, it the market price is, for example, 2.5 cents, it will not sell its 3 cent energy at all, much less at 2 cents. If the price is 3 cents, it will sell at 3 cents. This will mean that stranded cost is over-recovered, an undesirable outcome, but one that does not affect competition adversely since its behavior would have been exactly the same as without stranded cost recovery.

Q. Can you think of any circumstances where stranded cost recovery could result in an injury to competition?

A. Yes, but only if the method for stranded cost recovery is particularly badly designed. One bad design that would lead to unfair competition is one where the generator could only get the CTC payment if it in fact generated. If, in our example, the market price is only 2.5 cents, the utility would prefer to do the efficient thing: shut the unit down and instead buy power at 2.5 cents. However, if a badly designed stranded cost recovery method requires that the unit be run in order for the utility to earn its stranded costs, it will have a positive incentive to run the unit, displacing a more efficient competitor. However, there is no reason to assume that the ACC will implement such a badly designed stranded cost recovery program.

Q. How does competitive injury relate to the question of whether stranded cost can be recovered for costs that have not yet been incurred?

A. This is somewhat similar to the "bad design" scenario I just discussed. If I can recover the difference between my unreviewed total costs and market prices, then I have no profit disincentive that keeps me from *continuing* to operate a unit that should be shut down or, more generally, producing electricity that it would be cheaper to buy. Note that I also have no incentive to do so, but the absence of an incentive to behave efficiently would be a bad feature of such a purely cost plus method of estimating and recovering stranded costs

Q. In your direct testimony, didn't you say that some future costs should be considered to be recoverable stranded costs?

A. Yes. However, I was making a much narrower point. First, I testified that some costs that the utility is still required to incur may become strandable in the future. I gave the example of metering costs insofar as the utility is still required, post-December 1996, to hook up all new customers. I also stated that if, in estimating future stranded costs, the ACC is assuming that the utility's generating plant continues to have high availability and efficiency, it cannot validly ignore the costs of the capital expenditures required to achieve that status.

I recognize that is not a trivial exercise to guard against uneconomic behavior by the utility under some forms of stranded cost recovery. However, regulatory mechanisms that yield the right incentives are not at all difficult to design.

Q. Please turn now to what you have termed the retail rate issue. Please explain this issue.

A. This issue arises in two contexts. The first is the argument that paying stranded generating costs will inhibit competition to provide electricity to retail customers. The second made by Dr. Rosen and Mr. Rose among others, is that in measuring stranded cost the appropriate market price comparison is to the retail price.

Both arguments are absolutely wrong. They are wrong because of a failure to ask the simplest of all questions: what is the product or service that we are talking about when discussing or measuring stranded generating costs? *The competitive service at issue is the production of wholesale electricity, not the sale of electricity to retail consumers.* Most of the erroneous, even silly, arguments about predation miss this simple fact. To repeat, generation produces only bulk power, not retail sales. If a CTC fully compensates for the difference between the generation-related costs that the utility would have recovered under continued regulation and the *wholesale* market price, this does not give the utility an unfair advantage in competing for retail load.

The error made by some of these witnesses may arise from a failure to distinguish between the calculation of stranded cost and the setting of the "allowance" or "buy-through rate" that reduces the bundled service rate of a customer that elects service from a competitive retailer. I agree that the buy-through rate should be sufficient to cover not only the retailers' costs of buying at the wholesale market price, but also the competitive costs of the retailing function itself A buy-through rate that fails to do this could conceivably affect the pace of retail competition

However, a utility generator *does not and cannot* earn retail margins. The ACC has determined, quite correctly, that generation and retailing are separate businesses and has required unbundled accounts. Arizona utilities may, or may not, make money as retailers. The fortunes of the retailing business have absolutely nothing whatsoever to do with the stranded cost of generation, nor with the effect of generation stranded cost recovery on retail competition.

Q. At pages 31 and 32, Dr. Rosen cites that other states "have endorsed the concept of retail generation services." Does this mean that these states use retail prices for stranded cost calculation?

A. No. It is clear from the very quotations contained in this section of Dr. Rosen's testimony that the retailing component of costs was, as Dr. Rosen acknowledges, "for the purpose of establishing generation credits [buy-through rates] for pilot programs". It is precisely my point that retail costs properly are used for this purpose but not for the purpose of measuring stranded generating costs.

Q. Can you illustrate the importance of not confusing retail and wholesale activities in measuring stranded costs?

A. Yes. RUCO witness Rosen at page 80 of his testimony states: "In pricing its standard offer service, the utility should use the retail price of generation as a baseline. If the utility offers standard offer service at rates below the retail price of generation, competition among generation service providers will not occur." At least at a conceptual level, I agree that competitors in retailing will require a margin above the wholesale price of bulk electricity in order to compete.

However, on page 7 he states, "Developing estimates of the market price of power [for purposes of stranded cost calculation] should include the wholesale price, but should be based on the total retail price for generation services to the customer." And on page 31 he states, "Many parties have used wholesale market prices to calculate a utility's strandable costs, but by doing so, they have significantly over-estimated strandable costs." These statements are wholly untrue.

APS's generation business will not earn retail margins when it generates a kilowatthour of electricity at Palo Verde or Four Corners. Its revenues will be the price that it can sell that electricity for at *wholesale*, whether to a traditional wholesale customer, a power marketer or APS's own regulated entity providing standard offer service. In turn, these other entities that buy the power will earn the retail price of electricity. However, they also will incur the additional *costs* of retailing. If the retail margin – the difference between the wholesale price paid for electricity plus the cost of transmission and distribution on the one hand and the price received from the customer on the other – exceeds the retailer's costs, the *retailer* will make money.

In his stranded cost quantification, Dr. Rosen spends several pages developing an estimate of retailing costs. His estimate includes such costs as advertising, customer services costs for retail billing and collections, call centers, and so forth. It also includes profit and related taxes. He computes the sum of these costs is in the range of one cent per kWh. *Yet in estimating its stranded costs, Dr. Rosen assumes that APS incurs <u>none</u> of these same expenses.* That is, in estimating stranded generating costs, he has assumed that APS's *generation* business can earn the entire retail margin *without incurring any of the expenses of retailing.*

Obviously, it is wrong to assume that the value of APS's generation benefits from a retail margin that the generation business does not earn and for which no costs have been included. Contrary to Dr. Rosen's assertion, the "parties who have used wholesale market prices to calculate strandable costs" are 100 percent correct. His analysis that uses phantom profits from a non-existent and costless retail business to offset generation costs is 100 percent wrong.

<u>Methods for Calculating Stranded Costs</u>

Q. Many witnesses in this proceeding oppose the net revenues lost method that you have recommended that the ACC use in calculating stranded cost. Before discussing the specifics of their criticisms and preferred alternatives, can you clarify what is meant by net revenues lost?

A. Yes. It has become clear that the revenues lost method being discussed actually is two different methods, each of which has its advantages. In addition, there are blends between the two; however, it is useful to set out the two polar methods.

Method one I will term the net present value method. This is the method I was referring to in my direct testimony and is, at least in concept, the method proposed by RUCO witness Rosen, among others. This method determines the net present value of earnings or cash flows under competition versus regulation: the difference being stranded costs. This method requires that earnings or cash flows, and hence expenses and revenues, be forecasted for the whole period over which stranded cost is calculated – potentially, the life of the assets. Estimated stranded costs may, or may not, be trued up under this method.

Method two compares actual market prices to actual revenue requirements on a year by year basis as they occur. The difference is the stranded revenue requirement for that year and it is that difference that forms the basis for the CTC. This can be done on a one year forecast basis, with or without a true-up or, as in the APS proposal discussed by Mr. Davis, on a one year lagged basis. ACC staff witness Rose appears to favor the "top-down" year by year revenue requirements method. Mr. Higgins proposes using this form of revenues lost to calculate the year by year stranded cost to be shared, subject to a cap based on a longer term replacement cost-based estimate of stranded cost.

Q. You mentioned replacement cost methods, which are favored by several witnesses. How do these differ from revenues lost?

A. There is no difference *if replacement cost is done properly.* Indeed, the only difference arises from errors in applying the replacement cost method.

Q. Why do the two methods differ only because of errors?

A. Let me begin with Mr. Higgins example at page 16 of his testimony. In it, he asks us to assume that the replacement facility is a new, gas-fired combined-cycle unit and that the existing generation has the same operating cost and remaining life as the replacement unit. In this case, stranded cost is merely the difference between the book value of the existing unit and the cost of the replacement.

Even this "simple" example hides a good deal of analysis. What is the cost (capital and operating) of the new unit? How do we know that the operating cost of the existing unit is the same as the new unit, except in the wholly irrelevant case where the existing unit is itself a new combined cycle unit? Even if the existing unit is a gas-fired unit, its value depends on the relative heat rates and on the future price of gas. If it is not gas fired, what will be the future relative cost of the existing generation's fuel versus the replacement unit? How will the higher fixed operating cost of the coal unit change over time? When we say that the two units have the same life expectancy, what capital additions are needed to achieve that expectancy, since their costs must be taken into account in achieving comparability?

Moreover, relaxing the simplicity of the example raises the question of what the comparable unit is and when it becomes comparable. At present, capacity has little value. Since WSCC prices are below the cost of new capacity, it would be wrong to compute prices on the assumption that new capacity is setting the market price.

The marginal price of energy is set at different times by coal, gas stream, hydro power or peaking power, not simply by a hypothetical new unit. This price could be above or below the long run cost of the new unit and the price realized by the existing unit will differ depending on its characteristics that govern when it is dispatched.

To summarize, using the replacement cost method begs the question: how many megawatts of a new combined cycle is Ocotillo (or Four Corners, or Palo Verde, or West Phoenix) equal to? While the results of an analysis could be strait-jacketed into this framework, it is a pointless exercise. The only way to answer the equivalence question is to compare the costs and revenues of each unit and compute their net present values. Done properly, this is exactly the same analysis required by what I have termed the net present value variant of the revenues lost method.

Q. **Dr. Coyle, a City of Tucson witness, favors using replacement cost but also suggests, at pages 15 and 16, that the ACC also make no allowance for the effect of the current glut of capacity on prices. Do you agree?**

A. No. Dr. Coyle's position simply demonstrates how artificial and biased the replacement cost method can be. On page 15 he acknowledges that there will be a price decrease following deregulation due to excess capacity. On page 16 he acknowledges that the replacement capacity that he would use to value existing plant will not be built for several years, precisely because excess capacity yields low prices. Yet he urges the ACC to ignore these facts, and even suggests comparing existing capacity to a cost *above* the cost of the replacement unit, on the grounds that the current low electricity market also depresses the price of new generating units. In short, he proposes that the value of present capacity be compared to the cost of new capacity that even he agrees is not presently economic. Clearly, this will understate stranded costs.

Curiously, Dr. Coyle does not seem to be able to make up his mind as to whether prices will be above or below replacement costs. While he accepts in this section that prices will be too low to justify building new replacement capacity, he also argues that prices will be above the cost of replacement capacity, set by as of yet unformed oligopolies (pages 21 through 23). Since his position in either event is that market prices will not equal replacement costs, his advocacy of a replacement cost methodology is difficult to fathom.

Q. Several witnesses favor divestiture of utility generation as the best way of determining stranded costs. Do you agree?

A. No. Divestiture – in whole or part – may or may not be good public policy depending on a variety of circumstances. However, as I discussed in my direct testimony, there is no reason to presume that divestiture will produce a more accurate or less subjective estimate of stranded cost than an administrative proceeding based on a lost revenues method.

Divestiture has been the preferred policy of some commissions in some circumstances – for example, to solve perceived market power concerns in transmission constrained areas. Some companies have chosen to divest in order to focus their businesses. However, other regulators and companies have not chosen divestiture for a variety of reasons including the advantages of integration, concerns over the cost of divestiture and whether divestiture will achieve full value, as well as tax and legal issues. My general belief is that companies should be free to divest but, under most circumstances, should not be compelled to divest.

The issue here is not, however, whether divestiture is a good thing or not. It is whether divestiture should be required in order to value stranded costs. This is a case of the tail wagging the dog. The market structure of the utility industry in Arizona should not be decided based on stranded cost measurement methodologies or visa versa.

Setting aside legal issues, it is not even clear that divestiture is feasible. APS's largest generating investment and, by most expectations, its major source of stranded generating costs, is Palo Verde. There are numerous market and regulatory barriers to selling a nuclear plant. Thus far, there have been no sales at a positive price. Surely, witnesses who favor divestiture as a cost measurement method would not support valuing Palo Verde at zero for stranded cost purposes. Any other valuation would require administrative determination of costs using some variant of lost revenues methods.

Q. **Wouldn't it be possible to divest everything except Palo Verde?**

A I don't know whether or not there are insuperable practical or legal problems. However, the end result would be that APS would be a very undiversified and far more risky company. I see no public purpose served by that result. A lost revenues analysis still would be required for Palo Verde. There is no reduction in the administrative burden of stranded cost calculation, but rather an increase due to the need to oversee a generation sales program *as well as* performing the forecast of future costs and revenues required to value Palo Verde.

Q. Apart from revenues lost, replacement cost, and market valuation, are there any other methods of stranded cost measurement suggested by witnesses?

A. Yes. The Goldwater Institute proposes a stock market valuation method, involving splitting the utility into two classes of stock, one of which would own the assets of the company but receive no stranded cost payment and the other (the "B" shares) would receive all stranded cost payments.

On the basis of the description of this method in the Goldwater Institute testimony, the methodology makes no sense. The value of the B shares appears to depend wholly on investors expectations concerning the stranded cost payments that the ACC will allow, yet it is the value of the B shares that appear to dictate the amount of stranded cost on which recovery amounts are determined. Thus, the method is circular and pointless.

However, a similar scheme described by Mr. Lopezlira, a witness for the Attorney General's office, is not circular. Actually it appears that it is a more fully described version of the Goldwater Institute proposal. As described in this testimony, the value of the B shares is not indeterminate, but rather is set on the basis of the difference between the value of the A shares – the remaining APS – set soon after the stock split and the pre-competition market value of the total company. This (or a share thereof) is paid to the holder of the B share over a period of no more than 5 years.

This proposal has some theoretical appeal, in that it removes the need for administrative valuation of the post-competition company. However, there appear to be serious implementation problems. The main problems (apart from indenture restrictions, the fact that APS is itself not publicly traded, and other issues that I have not examined) are that paying off stranded costs as a 100 percent equity stream over a 5 year period (or any other short period) would: a) impose a potentially undesirable near term stranded cost payment burden on ratepayers and b) result in a probably infeasible burden on the financial viability of the remaining company. The former problem is caused by accelerating stranded cost recovery into a 5 year period; this might not be feasible, given political and other constraints on rate levels. The latter problem arises from the fact that APS (the "A" share company) would retain all existing debt and preferred stock and associated dividend, interest and repayment obligations. While I have not performed the analysis, I would be very surprised if it were to turn out that there would be enough left over after paying the B securities holders to service APS's financial obligations, let alone restore its capital structure to a reasonable balance.

Hence, while I commend the Goldwater Institute and Attorney General for developing and sponsoring a creative approach, I seriously doubt that the proposal is workable in its present form. Further, it may not be desirable.

Q. **Are there any other innovative proposals?**

A Yes. Mr. Rosenberg makes an "innovative" proposal. He proposes that, assuming divestiture is not a feasible method, the utility should be required to choose the expected level of market price. A share of the difference between this price and its total cost of production would become the stranded cost eligible for recovery in the CTC. The customer would have to pay only the CTC (plus transmission and distribution) and buy power elsewhere. Alternatively, the customer could purchase power from the utility at the utility's estimate of the market price. Mr. Rosenberg demonstrates that the utility has an incentive to pick the correct market price. If it picks too low of a price, it will retain its customers, but sell to them at below actual market prices. If it picks too high a price, it will reduce its stranded cost recovery. Moreover, it will lose customers and not receive the off-setting benefit of the higher wholesale price that it had estimated. Of course, given Mr. Rosenberg's sharing proposal, even perfect foresight will not permit the utility to recover all of its stranded cost, but merely not increase its losses still further.

Apart from the unfair "sharing" element of his proposal, Mr. Rosenberg's scheme appears at first glance to be a version of the classic "you slice, he chooses" means of mediating children's disputes. However, the analogy breaks down when one considers that the object being "sliced" – the future market price – does not yet exist and will change size and shape over the years. Further, while the older sister's dividing line is set once and for all, little brother gets to re-choose as the treat slides around on the plate. Moreover, the outcome is, by design, asymmetric. Indeed, its virtue (to Mr. Rosenberg) is precisely that the utility loses by forecasting a market price that is *either* too high or too low. Since any forecast is bound to be off in one or the other direction (and over time, perhaps both) the proposal is simply another way of reducing the stranded cost recovery that the utility would receive.

Dr. Rosen's Estimate of Arizona Utilities' Stranded Costs

Q. Have you reviewed RUCO witness Rosen's estimate of strandable costs?

A. Yes, but only in a cursory fashion.

Q. Why haven't you reviewed these estimates more fully?

A. First, these estimates serve no useful purpose in this current proceeding. The Order establishing the proceeding does not invite an estimate of the magnitude of stranded costs. Even Dr. Rosen acknowledges that his estimate is "generic" and that utility-specific investigation would be required.

Second, Dr. Rosen's estimate is so badly flawed that no purpose is served by a detailed review. Because its flaws are so serious, it cannot even be used to determine the order of magnitude of stranded costs for Arizona utilities.

Q. Based on the review that you have performed, can you indicate what are the largest flaws in Dr. Rosen's analysis?

A. Yes. There are several major flaws. While I will refer to his estimate of APS's stranded cost in this discussion, these flaws are generic and apply to all three estimates.

First, he compares APS's generation costs to the retail prices that he projects in Arizona. APS will not serve the entire retail load in its historic service area, and APS generation will not serve *any* of it. By including the full retail margin of the retailers serving that load, but none of the retailing costs, in his calculation, he has vastly understated stranded costs.

Second, in determining the stranded cost of APS's generation, it clearly is not appropriate to attribute to it the profits earned by non-APS generators, nor to assume that APS potentially strandable generation can produce more output than is technically feasible, much less economic. Dr. Rosen asserts in a footnote to Exhibit __(RAR-4), Page 1, that he is multiplying stranded cost per kWh by system generation excluding purchased power. Yet by 2020, he assumes that generation will grow from 18 TWh to 30 TWh. (For SRP he assumes even greater growth from 19 TWh to 49 TWh.) In order to be included properly in the analysis, this *entire* output would have to be produced by APS's existing generating facilities. Yet the production capability of those facilities will not grow magically over the next 20 years. Rather, it will fall due to aging and retirements. It is the inflated profits on this purely phantom generation that are a major cause of his faulty conclusion that APS's generation will produce massive profits in later years.

Third, the base year estimate of APS's generation cost is grounded on a cost allocation that even Dr. Rosen characterizes as "a few simple allocation methods". He accepts that it would require refinement in order to be useful.

Fourth, he assumes that the price received by APS generation will reach full long run marginal cost, or "replacement" cost by the year 2000. This is wholly unreasonable. Again, by materially overstating APS generation revenues, he understates its stranded costs. As I described previously, the inability of replacement cost methods to determine prices in transition periods is a major drawback of such methods. While Dr. Rosen is supposedly using a net revenues lost method, he in fact assumes that market prices will reach replacement cost levels during all hours of the year by 2000. This is several years earlier than is likely to be the case

Fifth, his forecast of escalation in the regulated cost of generation – negative 3 percent in real terms through 2004 and negative 2 percent thereafter – is merely a guess and lacks any valid foundation.

Sixth, his forecast of escalation in the market price, plus 5 percent per year in real terms in the near term and slightly positive in real terms in the next century, similarly lacks any valid basis. Likely errors include the assumption that market prices will reach full replacement cost by 2000, discussed above, and the assumption that there will be no technological change that reduces generating cost in real terms over the 25 year period of his study.

Seventh, stranded regulatory assets seem to have fallen entirely through the cracks of his study.

Q. One of your criticisms, number 4, was that his assumption that market prices will reach replacement cost levels by 2000 is in error. Please explain why this is an error.

A. In general, the wholesale price of power in the western US is a net-back price from southern California. While delivered prices differ across the area due to line losses, transmission charges and the effects of transmission constraints, the generation price itself is set over this very large area.

The WSCC has very substantial excess capacity, even relative to historic reserve margin requirements. The fact that APS itself does not have excess capacity is entirely irrelevant to the impact of this regional excess capacity on market prices. Moreover, most observers believe that these historic, administratively set, reserve margins are higher than those that a competitive market will support. This is particularly the case in California, where there now is no installed reserve requirement whatsoever. Mr. Davis's testimony, which is based on a 12 percent reserve for the WSCC, projects excess capacity until 2006. There is certainly no reason to believe market prices will reach replacement cost prior to that date.

Excess capacity reduces what customers will pay for capacity. A surplus energy with low variable costs also reduces the value of energy. In today's WSCC market, in times of high water flow (for hydro), coal generation and even nuclear generation is shut in because the market clearing energy price is below even their low variable costs. This disequilibrium in energy markets may persist even after capacity is needed.

Q. Dr. Rosen at page 45 cites an EIA study as demonstrating that by 2000 incremental load will be based on a replacement mix of combined cycle and combustion turbine plants. Please comment.

A. This appears to be a purely theoretical study. Indeed, Dr. Rosen cites that it assumes *unplanned* generation additions starting in 1996, then projects a small number of other additions. The total additions cited, less than 3000 MW, are a miniscule fraction of total WSCC generation. Dr. Rosen leverages this tiny amount of plant (for which no substantial basis exists) to assume that all kWh in the WSCC will be priced at replacement cost.

There probably will be new generating plant built in the WSCC in the fairly near future, despite excess capacity. I am aware of two projects that have been proposed, though neither is under construction. However, both are in transmission constrained areas (the San Diego Basin and Southern Nevada). Capacity and energy are more valuable in these areas than elsewhere, precisely because the areas are constrained. Even if prices in constrained areas rise high enough to justify building new plant – and there is as yet no evidence that they will – this does not mean that prices in the unconstrained areas of the WSCC will rise to those same levels.

Q. What do you conclude based on this review of Dr. Rosen's estimates of the stranded cost of Arizona utilities?

A. His estimates of stranded cost are strongly biased downward and are wholly unreliable. His conclusions do not inform the debate over generic policy issues that are the proper subject of this proceeding, and Dr. Rosen's estimates should be completely discounted.

Q. Does this compete your rebuttal testimony?

A. Yes.

EXHIBIT
DOD-3
admitted

Docket No: U-0000-94-165
Exhibit No: [redacted] DOD - 3
Witness: R.C. Smith

BEFORE THE
ARIZONA CORPORATION COMMISSION

In the Matter of the Competition
In the Provision of Electric Services
Throughout the State of Arizona

TESTIMONY AND EXHIBITS

OF

RALPH C. SMITH

ON BEHALF OF THE DEPARTMENT OF DEFENSE
AND ALL OTHER FEDERAL EXECUTIVE AGENCIES

Filed
January 21, 1998

DIRECT TESTIMONY OF FEA WITNESS RALPH C. SMITH

TABLE OF CONTENTS

Page

Introduction

Q. Please state your name and business address.

A. Ralph C. Smith, 15728 Farmington Road, Livonia, Michigan 48154.

Q. What is your occupation?

A. I am a certified public accountant and a senior regulatory utility consultant with the firm of Larkin & Associates, a firm of certified public accountants and regulatory consultants.

Q. What is your educational background and professional experience?

A. Appendix I, attached hereto, is a summary of my experience and qualifications.

Q. Have you appeared previously before this Commission?

A. Yes. I have appeared before this Commission on several occasions. A listing of the cases in which I have appeared before this Commission is included in my qualifications, attached as Appendix I.

Q. On whose behalf are you appearing?

A. My firm is under contract with the Navy Rate Intervention Office of the United States Department of the Navy to perform utility revenue requirement studies. In this proceeding, I am testifying for the Navy on behalf of the Department of Defense and all other Federal Executive Agencies (FEA).

Q. Please describe the tasks you performed related to your testimony in this case.

A. I reviewed the Arizona Electric Competition Rules (ECR) and the Stranded Cost Working Group's Report that was filed with the Commission on October 1, 1997.

Q. Have you participated in electric utility industry restructuring and stranded cost proceedings in other jurisdictions?

A. Yes. I have submitted testimony in electric utility industry restructuring and stranded cost proceedings in California and Pennsylvania.

Discussion of Issues

Q. What issues will you be addressing in your direct testimony?

A. My testimony addresses the following issues:

1. Should the Electric Competition Rules be modified regarding stranded costs, and, if so, how?
2. When should "Affected Utilities" be required to make a "stranded cost" filing pursuant to A.A.C. R14-2-1607?
3. What costs should be included as part of "stranded costs" and how should those costs be calculated?
4. Should there be a limitation on the time frame over which "stranded costs" are calculated?
5. Should there be a limitation on the recovery time frame for "stranded costs"?
6. How and who should pay for "stranded costs" and who, if anyone, should be excluded from paying for stranded costs?
7. Should there be a true-up mechanism and, if so, how would it operate?
8. Should there be price caps or a rate freeze imposed as part of the development of a stranded cost recovery program and, if so, how should it be calculated?
9. What factors should be considered for "mitigation" of stranded costs?

Q. How is the remainder of your testimony organized?

A. It is organized by issue. In each section, I discuss one of the above-identified issues.

1. <u>Should the Electric Competition Rules be modified regarding stranded costs, and, if so, how?</u>

Q. Should the Electric Competition Rules be modified regarding stranded costs, and, if so, how?

A. Yes. The Rules should be modified, consistent with the Commission's findings in this proceeding. I specifically recommend that the Rules should be modified to explicitly link "stranded cost" recovery to the introduction of retail electric generation competition. I suggest this be accomplished by adjusting R14-2-1607(B) to read as follows:

> *As an integral part of the introduction of retail electric generation competition in Arizona*, the Commission shall allow the Affected Utilities an opportunity to recover unmitigated Stranded Cost.

Q. At this time, do you have any other specific modifications to the Rules?

A. Yes. Consistent with the discussion below under issue no. 2, R14-2-1607(G) should be modified to provide for an explicit date in the near future to indicate when the estimates from the Affected Utilities of their unmitigated Stranded Costs are required to be filed. Accordingly, I propose the following language for R14-2-1607(G):

> The Affected Utilities shall file estimates of unmitigated Stranded Cost *no later than April 30, 1998*. Such estimates shall be fully supported by analyses and by records of market transactions undertaken by willing buyers and sellers.

The April 30, 1998 date will have allowed the Affected Utilities sixteen months in which to compile their information since the Commission's issuance of Decision No. 59943 on December 26, 1996. While the Commission may decide upon a different date, it should be stressed that this information is needed and should be provided by the Affected Utilities as soon as possible.

2. <u>When should "Affected Utilities" be required to make a "stranded cost" filing pursuant to A.A.C. R14-2-1607?</u>

Q. When should "Affected Utilities" be required to make a "stranded cost" filing pursuant to A.A.C. R14-2-1607?

A. The Affected Utilities should be required to make a stranded cost filing pursuant to A.A.C. R14-2-1607 as soon as possible. A.A.C. R14-2-1607(C), (D) and (E) provided for the establishment of the Stranded Cost Working Group, and identified the issues it was supposed to address and the time frame for reporting. Many of the factors identified in R14-2-1607(D), such as the impact of stranded cost recovery on prices paid by consumers who participate in a competitive market and the degree to which some assets have values in excess of their book values, cannot be addressed without estimates from the Affected Utilities of their unmitigated stranded costs. R14-2-1607(G) specifies that: "The Affected Utilities shall file estimates of unmitigated Stranded Costs. Such estimates shall be fully supported by analyses and by records of market transactions undertaken by willing buyers and willing sellers." Ideally, the Affected Utilities would have provided their estimates of unmitigated stranded costs for consideration by the Stranded Cost Working Group so that all of the factors identified in R14-2-1607(D) could have been addressed, at least in some preliminary manner, by that Group. However, the Affected Utilities' estimates were not provided, and the Group's report indicates that a number of these factors were, therefore, effectively not considered. In R14-2-1604, the Commission has established a fairly aggressive schedule for the introduction of electric competition in Arizona, with the first phase to begin in 1999 and with full competition to begin in 2003. Customers and the utilities should have information on the amounts of stranded cost charges from the Affected Utilities at the earliest date possible. Such information will be influential in customers' decisions in the purchase of electricity. All of this argues in favor of having the Affected Utilities file their estimates of unmitigated stranded costs as soon as possible. As noted above, under the discussion of issue no. 1, I recommend that the Affected Utilities be required to make these filings by April 30, 1998.

<u>3. What costs should be included as part of "stranded costs" and how should those costs be calculated?</u>

Q. What costs should be included as part of "stranded costs"?

A. R14-2-1601(8) provides that "stranded cost" means the verifiable net difference between:

> a. The value of all the prudent jurisdictional assets and obligations necessary to furnish electricity (such as generating plants, purchased power contracts, fuel contracts, and regulatory assets), acquired or entered into prior to the adoption of this Article, under transition regulation of Affected Utilities, and
>
> b. The market value of those assets and obligations directly attributable to the introduction of competition under this Article.

In my opinion, this is a reasonable definition of stranded costs, and provides guidance as to what should be included. Unmitigated costs associated with electric generating plants, purchased power contracts, fuel contracts, and regulatory assets that are in excess of their corresponding market value represent stranded costs that would be recoverable as such by the Affected Utilities.

Q. How should those costs be calculated?

A. The amount of stranded costs should be calculated based upon the difference between (a) book or embedded cost and (b) market value.

To determine the book or embedded cost for balance sheet items, such as generating plant and regulatory assets, the Affected Utility's accounting records should provide the relevant information. For example, the net book value of an Affected Utility's generating plant should be ascertainable from an examination of its accounting records. Similarly, the book value of an Affected Utility's regulatory assets, should also be ascertainable from its accounting records. The relevant amounts for generating plant and regulatory assets are found in the utility's balance sheet accounts. Some amounts, such as those for generating plant in service and regulatory assets should be identifiable with relative ease. Depending upon the level of detail maintained by the utility, it is possible that the accumulated depreciation related to the generating plant will also be easy to identify. This will be the case if the utility has maintained details for its accumulated depreciation balance by plant account.

Identifying the Affected Utilities' embedded costs associated with purchased power and fuel contracts will likely involve an examination of the terms of those contracts. A long-term contract for purchased power or fuel will typically involve a series of payments over time, but may also include terms that can vary, such as the quantity purchased, or price terms that can vary, depending upon a number of factors, such as an inflation index or pre-specified benchmark. Because such contracts involve a stream of future payments, the application of a discounted cash flow type of analysis could be applied to produce an equivalent present value. Under such analysis, the present value is dependent not only upon the amounts and timing of the cash payments, but also upon the discount rate selected. Therefore, the selection of an appropriate discount factor will need to be addressed.

Q. Please discuss methods for determining the market value of those assets and obligations.

A. Perhaps the best indication of market value is the sales price resulting from a transaction between independent and willing buyers and sellers not acting in haste or under duress, i.e., free market sales. Another fundamental valuation approach, particularly where comparable sales are not available, is appraisal. California's electric restructuring statute (AB 1890), for example, provides for both forms of valuation: divestiture of generation assets (i.e., sales), and appraisals of the value of retained assets. A sale is one method of determining the valuation. However, whereas a sale in an arms' length transaction between unrelated parties may constitute a good indication of fair market value, a sale between related parties at less than arms' length may not represent a reliable valuation. Additionally, different appraisers are likely to derive different appraised values.

Q. Does the Arizona ratemaking process typically result in a determination of the "fair value" of the utility's rate base?

A. Yes, it does, although the term "fair value" as it has been used in Arizona rate proceedings does not appear to be synonymous with the term "market value" as used in R14-2-1601(8)(b). It has been my experience that, in rate proceedings, the "fair value" rate base has typically been determined by applying some type of plant inflation index (e.g., the Handy-Whitman index) to book plant values to determine a Reconstruction Cost New Depreciated (RCND) value. Then, an averaging process of the original cost and RCND information has been employed to derive the "fair value" rate base. Therefore, while the RCND information that has historically been used by utilities in their rate cases may provide one source of information concerning the value of their utility plant, it does not seem that undue reliance should be placed upon this type of information to determine "market value" for stranded cost identification purposes.

Q. What standards and principles do you suggest should be used to determine whether the market valuations are fair and equitable?

A. I suggest standards and principles such as the following be considered in assessing valuation issues:

1) Whether the sale is between independent parties who are not acting under duress.
2) Whether the valuation reasonably compares with prices received for similar assets in other sales.
3) Whether the appraisals are independently prepared and based upon reasonable assumptions.
4) In establishing the value of a multi-year contract of a long-lived asset, whether the valuation should consider data for a comparative period.
5) If the transaction involves a series of cash receipts or cash payments, whether the valuation amount compares to the net present value result produced by a discounted cash flow analysis.
6) Whether the asset being valued (e.g., land, buildings, vehicles) is subject to other uses.
7) Whether long-lived assets should be subject to different valuation measures than short-term assets.
8) Whether the valuations occurring at the Affected Utilities for similar assets are reasonably consistent with each other.
9) Whether the competitive market prices for generation are subject to significant variability over time, and, if so, whether an average rate should be employed for

valuation purposes, and how to select the period for applying an average market rate.

10) Whether the valuation appropriately took the tax effects into consideration.

Q. Of the methods for the determination of "stranded costs" discussed in the Stranded Cost Working Group's Report, do you have a preference?

A. Yes. I recommend that the Commission use the Replacement Cost Valuation method, which the Report (p.22) indicates is being advocated by industrial consumers and others. I also believe that there is substantial merit to the Auction and Divestiture approach; however, that approach may not be feasible for use in Arizona if, as noted in the Report (p.25), the Commission lacks authority to order asset sales and divestitures.

Q. What costs should <u>not</u> be included as part of "stranded costs"?

A. This issue will have to be addressed specifically by the Commission once the Affected Utilities file their claims for stranded costs. However, as general principles which may help define the issue of what is and is not properly included as a "stranded cost" I offer the following guidance for items that should <u>not</u> be accorded recovery by the Affected Utilities as "stranded costs":

- Costs that could have, or should have, been mitigated should not be permitted for "stranded cost" recovery.

- Costs that have traditionally been disallowed by this Commission in rate proceedings should not be eligible for stranded cost recovery.

- Costs for generation added by the Affected Utilities after they were made aware that the market for electric generation would become competitive should not be eligible for stranded cost recovery unless the Affected Utilities can prove that such costs represented unavoidable commitments made prior to the date they became aware of the oncoming competition, or that such additions are cost-justified based upon reasonable expectations of competitive market prices.

- Stranded cost recovery should not be permitted for costs that are not appropriately related to the Affected Utilities' generation function.

- Stranded cost recovery can include accelerated depreciation for uneconomic generation-related assets, but should not include any depreciation associated with the write-down of these assets below fair market value.

- To preserve and promote competitive neutrality, the Affected Utilities should not receive stranded cost recovery for their current variable costs where competitive generators are required to recover similar costs only from the market price of electricity.

4. Should there be a limitation on the time frame over which "stranded costs" are calculated?

Q. Should there be a limitation on the time frame over which "stranded costs" are calculated?

A. Yes. There should be a limitation on the time frame over which "stranded costs" are calculated. For example, the stranded cost calculation should not extend beyond the current remaining lives of the generating plants that are being stranded, other than perhaps to consider the cost of removal and decommissioning. Similarly, the time frame over which "stranded costs" are calculated for purchased power and fuel contracts should not extend beyond the terms of those contracts. Nor should the currently applicable recovery periods for regulatory assets be extended.

5. Should there be a limitation on the recovery time frame for "stranded costs"?

Q. Should there be a limitation on the recovery time frame for "stranded costs"?

A. Yes. R14-2-1604 provides for full competition for electric generation to begin in 2003, with the first phase of such competition beginning in 1999. This represents a four-year "transition" period. Depending upon the size of each Affected Utility's stranded costs that are found appropriate by this Commission, I would recommend a recovery period in the range of four to six years. At the expiration of this recovery period, the "stranded cost" charge would terminate, and the Affected Utilities would recover their generation-related costs solely through the market price for generation. This recovery period would occur in conjunction with having the rates of the Affected Utilities capped at current levels, as discussed below under issue no. 8.

6. <u>How and who should pay for "stranded costs" and who, if anyone, should be excluded from paying for stranded costs?</u>

Q. How and who should pay for "stranded costs" and who should be excluded from paying?

A. This issue is being addressed by Mr. Dan L. Neidlinger in an accompanying testimony.

7. <u>Should there be a true-up mechanism and, if so, how would it operate?</u>

Q. Should there be a true-up mechanism and, if so, how would it operate?

A. There is merit in a true-up mechanism. However, whether there is a need for some type of true-up mechanism would appear to be dependent upon the particular method selected by the Commission for stranded cost quantification and recovery. It is unlikely that reasonably accurate estimates of stranded costs would be available until reliable market price information exists. Because the valuation will, of necessity, be based upon estimates which could vary substantially from actual market prices, without some form of true-up, there is a danger that some of the affected parties could be either unjustly benefitted or hurt from the use of inaccurate estimates.

On the other hand, the potential for a later true-up introduces an element of price uncertainty into the electricity purchasing plans of customers, and could therefore interfere with the development of competition. Because of the potential for "true-up" adjustments, customers are uncertain as to the price of electricity. Therefore, any true-ups should be limited to correcting for significant mis-estimates of stranded costs during the period that the Commission finds appropriate for "stranded cost" recovery. After that period expires, i.e., once there is effective competition, the price for electric generation should be based upon the market price, without the imposition of surcharges for true-ups of "stranded cost" recovery.

<u>8. Should there be price caps or a rate freeze imposed as part of the development of a stranded cost recovery program and, if so, how should it be calculated?</u>

Q. Should there be price caps or a rate freeze imposed as part of the development of a stranded cost recovery program and, if so, how should it be calculated?

A. Yes. The basic purpose of introducing retail competition for electric generation into this jurisdiction is to benefit consumers and give them the opportunity to save on their electric bills as the result of having available alternative suppliers operating in the market. Therefore, the introduction of competition should produce cost savings for consumers, and should not result in their rates for electric service being increased. To assure that all customers have an opportunity to benefit from electric competition, and to assure that no direct harm in the form of price increases occurs to any rate class, it would be appropriate and necessary to impose a price cap or rate freeze upon the Affected Utilities in conjunction with allowing them an opportunity for recovering stranded costs. Provided that it is recognized that the Affected Utilities should be in a declining cost situation during the next several years, the difference between their current rates — which would be capped at present levels — and their decreasing costs would represent the opportunity for their recovery of "stranded costs" resulting from the introduction of competition.

Q. How should this be accomplished?

A. The current rates being charged by the Affected Utilities should be unbundled into their component parts. One of those components would be a charge for "stranded cost" recovery. However, the overall rate being paid by each customer class would not increase, but rather would be capped at its present level under the rate freeze. This rate freeze should apply for the duration of the stranded cost recovery period.

9. <u>What factors should be considered for "mitigation" of stranded costs?</u>

Q. What factors should be considered for "mitigation" of stranded costs?

A. There is a wide range of factors to consider for mitigation of stranded cost. As provided in R14-2-1607: "The Affected Utilities shall take every feasible, cost-effective measure to mitigate or offset Stranded Cost by means such as expanding wholesale or retail markets, or offering a wider scope of services for profit, among others." Therefore, a review of the Affected Utilities' mitigation efforts is an important part of the stranded cost recovery process. As provided in the above-quoted rule, the mitigation measures must be cost-effective. I interpret this to mean that the mitigation measures undertaken by a utility must actually reduce its stranded costs. While it is not possible at this stage to identify all possible sources of stranded cost mitigation, the following list contains a number of examples. If feasible and cost-effective, the Affected Utility can attempt to:

- Renegotiate uneconomic purchase power and fuel contracts;
- Where uneconomic purchased power and fuel contracts contain cancellation or termination clauses, exercise such clauses to avoid incurrence of additional

uneconomic costs;

- Find other uses for assets;
- Retire uneconomic plant;
- Reduce overhead;
- Find new markets for its power;
- Explore other opportunities for services provided by its power generation work force;
- Spread overhead and administrative costs over a wider range of services;
- If authorized, securitize a portion of its "stranded costs" that are eventually authorized by the Commission for recovery, to reduce the net financial cost of such recovery;
- Structure the recovery of "stranded costs" to maximize tax deductions and result in the least cost to ratepayers;
- Accelerate depreciation on uneconomic plant;
- Accelerate the amortization of regulatory assets;
- Extend the life of economic plant;
- Sell assets that are of less value to the Affected Utility than to potential buyers;
- Accept a reduced return on common equity for the uneconomic generation-related assets that are being recovered through a "stranded cost" charge.

Q. Should incentives for the Affected Utilities to mitigate stranded costs be built into the stranded cost recovery mechanism?

A. Yes. It would be appropriate to provide the Affected Utilities with incentives to reduce their stranded costs. Making the Affected Utilities responsible for some portion of their stranded costs would provide a direct financial incentive to them to reduce such costs. Another method of providing an incentive to the Affected Utilities to reduce stranded costs could involve allowing them to retain a portion of the cost savings, e.g., allowing the shareholders of the Affected Utilities to retain 10% of the cost savings produced by their renegotiation of fuel and purchased power contracts. A combination of these two forms of incentives could be employed to help motivate the Affected Utilities in their stranded cost mitigation efforts.

Q. Does that conclude your testimony?

A. Yes, it does.

APPENDIX I

RALPH C. SMITH

SUMMARY STATEMENT OF QUALIFICATIONS

- Mr. Smith's professional credentials include being a certified financial planner, a licensed certified public accountant and attorney. He functions as project manager on consulting projects involving utility regulation, regulatory policy and ratemaking and utility management. His involvement in public utility regulation has included project management and in-depth analyses of numerous issues involving telephone, electric, gas, and water and sewer utilities.

- Since 1979, as a regulatory consultant with Larkin & Associates (and its predecessor firm), Mr. Smith has been performing work in the field of utility regulation on behalf of industry, public service commission staffs, state attorney generals, municipalities, and consumer groups concerning regulatory matters before regulatory agencies in Alabama, Alaska, Arizona, California, Connecticut, Delaware, Florida, Georgia, Hawaii, Illinois, Kentucky, Louisiana, Maine, Michigan, Minnesota, Mississippi, Missouri, New Jersey, New York, Nevada, North Carolina, Ohio, North Dakota, Pennsylvania, South Carolina, South Dakota, Texas, Canada, Federal Energy Regulatory Commission and various state and federal courts of law. He has presented expert testimony in regulatory hearings on behalf of utility commission staffs and intervenors on several occasions.

Previous Positions

- With Larkin, Chapski and Co., the predecessor firm to Larkin & Associates, was involved primarily in utility regulatory consulting, and also in tax planning and tax research for businesses and individuals, tax return preparation and review, and independent audit, review and preparation of financial statements.

- Installed computerized accounting system for a realty management firm.

Education

- Bachelor of Science in Administration in Accounting, with distinction, University of Michigan, Dearborn, 1979.

- Master of Science in Taxation, Walsh College, Michigan, 1981. Master's thesis dealt with investment tax credit and property tax on various assets.

- Juris Doctor, cum laude, Wayne State University Law School, Detroit, Michigan, 1986. Recipient of American Jurisprudence Award for academic excellence.

- Continuing education required to maintain CPA license and CFP certificate.

- Passed all parts of CPA examination in first sitting, 1979. Received CPA certificate in 1981 and certified Financial Planning certificate in 1983. Admitted to Michigan and Federal bars in 1986.

- Michigan Association of Certified Public Accountants.

- Michigan Bar Association.

- American Bar Association, sections on public utility law and taxation.

ARIZONA CORPORATION COMMISSION

In the Matter of Competition in the Provision of Electric Services
Throughout Arizona

Docket No. U-0000-94-165

Summary of the Testimony of Ralph C. Smith
On Behalf of the Department of Defense and All Other Federal Executive Agencies

Mr. Smith's testimony addresses Issues 1-5 and 7-9 of the Chief Hearing Officer's Original Procedural Order, dated December 1, 1997. Mr. Smith's overall recommendations are:

- The Electric Competition Rules should be modified to reflect the Commission's findings in this proceeding. Mr. Smith also recommends two specific modifications: (a) one to explicitly link the recovery of stranded costs to the introduction of competition, and (b) one to provide for an explicit date by which Affected Utilities must file estimates of unmitigated stranded costs.
- The Affected Utilities should be required to make a stranded cost filing by April 30, 1998.
- R14-2-1601(8) provides a reasonable definition of stranded costs, and the amount of stranded costs should be calculated based upon the difference between (a) book or embedded cost and (b) market value. Certain items should be specifically excluded from stranded costs.
- Certain standards should be considered in assessing market valuation.
- A limitation should be placed on the time frame over which stranded costs are calculated.
- The recovery time frame for stranded costs should be limited to a range of four to six years.
- True-ups, if allowed, should be limited to correcting for significant mis-estimates of stranded costs during the period the Commission finds appropriate for recovery.
- A price cap or rate freeze should be imposed on the Affected Utilities.
- The current rates being charged by the affected utilities should be unbundled into component parts, with a component for stranded costs.
- Mr. Smith provides a number of examples of sources of stranded cost mitigation.
- Incentives for the Affected Utilities to mitigate stranded costs should be built into the recovery mechanism.