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Arizona Corporation Commission
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Re: Docket No. U-0000-94-165

Dear Sir or Madam:

Pursuant to Arizona Corporation Commission's Fifth Amended Procedural Order, dated January 29, 1998, it states all Parties shall file rebuttal testimony and associated exhibits on or before 4:00 P.M. on February 4, 1998.

Enclosed is rebuttal testimony of Jack E. Davis, Executive Vice President, Arizona Public Service Company, William H. Hieronymus, John H. Landon and Benjamin A. McKnight.

If you have any questions, please contact me at 250-2031.

Sincerely,

Barbara A. Klemstine

Barbara A. Klemstine
Manager
Regulatory Affairs

BAK/JKD/pb

Enclosure

For Parties of Record in Docket No. U-0000-94-165

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BEFORE THE ARIZONA CORPORATION COMMISSION

REBUTTAL TESTIMONY

OF

JACK E. DAVIS

On Behalf of

Arizona Public Service Company

Docket No. RE-00000C-94-0165

February 4, 1998

TABLE OF CONTENTS

I. INTRODUCTION

Q. WOULD YOU PLEASE STATE YOUR NAME AND BUSINESS ADDRESS?

A. My name is Jack E. Davis, and my business address is 400 North Fifth Street, Phoenix, Arizona 85004.

Q. ARE YOU THE SAME JACK E. DAVIS WHO FILED DIRECT TESTIMONY IN THIS PROCEEDING ON JANUARY 9, 1998?

A. Yes.

Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY IN THIS PROCEEDING?

A. I will briefly respond to comments made by witnesses Rosenberg, Rose, Rosen, Cooper and the Goldwater Institute to the effect that the regulatory compact, under which public service corporations have operated since the beginning of regulation in this State, is somehow a fiction created by the utilities, and that in the interest of these witnesses' vision of a competitive electric market, is a concept that should be ignored in this proceeding.

II. SUMMARY

Q. WOULD YOU PLEASE SUMMARIZE YOUR TESTIMONY?

A. A fair review of the Commission's involvement in Palo Verde shows that the agency (1) certificated the plant before it was constructed, (2) continually and contemporaneously reviewed the Company's resource planning process during its construction both internally and through nationally recognized outside consultants, (3) granted rate increases and financing approvals necessary to fund construction, (4) adopted an incentive program to encourage the Company to complete the plant as soon as possible, (5) conducted a muti-million dollar retrospective "prudence" audit of construction costs and planning decisions that found APS acted reasonably in virtually all respects, and (6) adopted final ratemaking treatment for the facility. Given this "step-by-step" partnership, I do not see how any witness can reasonably claim that the Commission has no obligation to the Company to provide for recovery of prudently incurred Palo Verde costs during the transition to a fully competitive retail generation market.

III. REGULATORY COMPACT

Q. WITNESSES ROSENBERG AND ROSE CHALLENGE THE RECOVERY OF *ANY* STRANDED COSTS BASED ON THEIR PERCEPTION AND APPLICATION OF ECONOMIC PRINCIPLES. OTHER WITNESSES PROPOSE THAT UTILITIES BE PERMITTED TO RECOVER SIGNIFICANTLY LESS THAN THE FULL AMOUNT OF NARROWLY DEFINED "STRANDED COSTS." HAVE ANY OF THESE WITNESSES MEANINGFULLY ADDRESSED THE PRACTICAL CONSEQUENCES OF THEIR POSITIONS?

A. Not in my opinion. Their recommendations, if adopted by the Commission, would give new meaning to the characterization of economics as the "dismal science." Aside from the question of basic fairness and equity, the financial consequences of such an approach would indeed be dismal for the State of Arizona, its electric utilities, and utility financial markets.

Q. THE GOLDWATER INSTITUTE SUMMARIZES THE REASONS WHY UTILITIES SHOULD BE PERMITTED TO RECOVER THEIR STRANDED COSTS, BUT SUGGESTS THAT THESE REASONS MAY BE BASED ON "THE NAÏVE ASSUMPTION THAT NONE OF THE PARTIES INVOLVED BEHAVE STRATEGICALLY (A EUPHEMISM THAT ROUGHLY MEANS 'TAKING ADVANTAGE OF THE SYSTEM')...," AND THEREFORE PROFITED BEYOND OTHERWISE REASONABLE RATES OF RETURN. IN YOUR EXPERIENCE, HAVE APS AND OTHER PUBLIC SERVICE CORPORATIONS IN ARIZONA BEEN ABLE TO "TAKE ADVANTAGE OF THE SYSTEM?"

A. I can't speak specifically for other public service corporations, but during the 25 years I've been with APS, I've seen no evidence that APS has been able to "game" the system to earn unreasonable profits. In fact, excluding Allowances for Funds Used During Construction ("AFUDC"), much of which would be disallowed under these witnesses proposals, APS has earned less than its allowed rate of return on a cash basis in 15 of the last 18 years.

I don't know what time period was addressed or what regions of the country were included in the *Business Strategy Review* study the Institute describes, but I strongly suspect the data is based on electric utility earnings in regions where there was little or no growth, which certainly has not been the case in Arizona. In addition, I seriously doubt that the study corrected any utility profits above the allowed rates of return to remove the effects of AFUDC, an accounting anomaly unique to regulated public utilities. These allowances are known within the industry and in financial circles as "funny money," because no cash is actually received by the utility, yet the allowance is reflected in its income statement. This concept was designed by regulatory bodies to amortize a return to the utility for funds advanced for the construction of new facilities over the life of the asset, rather than permit the utilities to include construction work in progress ("CWIP") in rate base. Depending on the amount of these allowances, they can result in a significant overstatement of returns both in years when such returns were less than the rate allowed by the regulatory agencies and when they exceed the allowed rate, thereby understating actual under-recoveries and inflating years of over-recoveries.

Q. WITNESS ROSENBERG AND ROSE DENY THE EXISTENCE OF A REGULATORY COMPACT THAT JUSTIFIES THE RECOVERY OF STRANDED COSTS BY ARIZONA PUBLIC SERVICE CORPORATIONS. DO YOU AGREE WITH THEIR POSITION?

A. Not at all. Their position conflicts with everything I have observed in Arizona for the last 25 years. Throughout its existence, APS has recognized and honored its duty to serve all of its customers, profitable or otherwise.

In return for performing this duty, APS has been allowed an *opportunity* to earn a reasonable rate of return for its shareholders, subject to continuing Commission oversight. This is the so-called "regulatory compact" or "regulatory bargain" to which the utilities continually allude (and witnesses Rosenberg, Rose, and Cooper continually choose to disparage), for it represents the very essence of the utilities' reason for existence since regulated electric service began in Arizona early this century.

Q. HAS THE COMMISSION SHARED APS' VISION OF ITS REGULATORY OBLIGATION TO SERVE?

A. Yes. Throughout my years with APS, the Commission has continually expressed a strong interest in our load and resource projections and the basis and methods used to calculate those projections. This interest could not have arisen solely from the Commission's concerns regarding APS' need for future rate increases, since it always has had the power to exclude from rates those facilities that were imprudently constructed. Its interest was presumably based on its concern that the Company's generation and other supply plans might be insufficient to provide its customers with a reliable source of power at reasonable cost – an interest that would be totally immaterial in absence of the regulatory compact and APS' duty to serve. For example, in its Decision No. 48139 (August 1, 1977), the Commission stated:

> One of the areas of great concern to this Commission has been the load forecasting methodology of APS. The Company, as mentioned above, proposes to quadruple in size within the next ten years. This is the result of their load projections forecasting a tremendous growth in power usage within the certificated area. We have reviewed and will continue to review the load forecasting methodology of the Company. After reviewing the same we conclude that historically it has been quite sophisticated and accurate.

Q. WHAT IS THE SOURCE OF APS STRANDED COSTS?

A. Leaving aside APS' regulatory assets, which have already been addressed by the Commission, APS' stranded costs result almost exclusively from its interest in the Palo Verde Nuclear Generating Station ("Palo Verde".) If ever there was a plant that was planned, constructed, and operated under the Commission's regulatory microscope, this is it. Starting even before the Commission's decision to grant the Company a certificate of environmental compatability to build the facility, the Commission's participation in decisions that affected the ultimate costs of Palo Verde, including its stranded costs, was deep and far-reaching.

Q. WILL YOU PLEASE GIVE US A BRIEF DISCRIPTION OF THAT PARTICIPATION?

A. Certainly. On May 5, 1972, APS and Salt River Project entered into a Memorandum of Understanding that initiated the Palo Verde project (then known as the Arizona Nuclear Power Project or "ANPP"). In that same year, a nuclear resource appeared in our planned loads and resources reports that we are required to file annually with the Commission. It is my understanding that these reports were first required by the Commission in order to assure that the generation planning of public service corporations was sufficient to fulfill their legal obligation to serve their projected loads over a specified span of years.

Let me paint a brief picture of the prevalent atmosphere in the early seventies. During that period, when APS was facing double-digit demand growth, Company planners were working in a stable regulatory environment in which commitments to large, base-load power stations were welcomed. Customers, regulators, and Company officials were accustomed to investments in new technology bringing lower costs. Regulators generally focused on determining the size of rate decreases.

While it was not generally recognized at the time, economies of scale in generation actually began to level off about 1970. During the seventies, a period of high inflation and stagnant economic growth, electric utilities were shaken by a succession of events -- the oil crises of 1973 and 1979, and stringent environmental regulations on coal burning, among others. Fuel prices rose rapidly. Coal prices nearly doubled from 1968 to 1975, and that fuel was under increasing scrutiny from environmentalists. Plans for new hydro projects, such as the Bridge Canyon Dam, also faced tremendous environmental opposition. In Arizona, natural gas shortages resulted in a 1974 gas moratorium. Subsequently, wellhead prices increased by nearly a factor of ten. Oil prices tripled twice during the decade.

Accordingly, it is not surprising that nuclear generation was all the rage during the early seventies. Meetings were held throughout the Southwest to give utilities an opportunity to participate in ANPP in order to avoid future charges of a conspiracy to monopolize the Southwest's electric market through the use of this cheap electric power resource with which it was feared no outsider could complete. Even the Sierra Club did not oppose Palo Verde.

Subsequently, however, as the construction costs of Palo Verde rose and schedules slipped with each new licensing requirement of the Nuclear Regulatory Commission, the plant came under ever-increasing scrutiny by this Commission.

Q. PLEASE PROVIDE A DISCRIPTION OF SOME OF THE PROCEEDINGS BEFORE THIS COMMISSION RELATED TO PALO VERDE AND THE CONCLUSIONS THAT WERE REACHED.

A. Although the Commission and its independent consultants (Ebasco, Peat Marwick, Decision Focus) had previously reviewed and approved Palo Verde on at least three prior occasions, and had approved numerous financings and at least one interim rate increase to allow Palo Verde construction to continue, perhaps the most significant of the proceedings was the audit of Palo Verde initiated by the Commission on January 30, 1984, in Decision No. 53909. In addition to authorizing an interim rate increase to allow the continuance of Palo Verde construction, the Commission ordered Staff to obtain assistance in drafting a RFP to hire independent experts to investigate APS' management of the Palo Verde project, as well as the past, present, and future economic vitality of the project. A Four-State Monitoring Committee was created to represent the regulatory bodies of the home states of the participating utilities, and Ernst & Whinney was hired as the Project Manager.

The audit was conducted in three phases beginning in December 1984, with Phase I being an overview study and a preparation for a diagnostic report of areas requiring further detailed analysis. Phase II involved hiring of additional consultants to perform detailed studies. Phase III prepared and compiled the results of the studies into a final report.

Phase I was completed in November 1985, and APS produced 947,286 pages of documents for review. Both the ACC Utilities and Legal Divisions participated in the selection of Ernst & Whinney and the review of documentation. Phase II ended in February 1986 with the hiring of additional consultants.

The Commission was independently involved and met with Ernst & Whinney in March 1986 to finalize details for Phase III. At that time it became an Arizona-only audit, beginning in October 1986, and ended with a final report on March 24, 1989, over five years after the RFP was issued. This audit required APS to provide about 4 million pages of documents, and respond to 606 sets of data requests and over 260 direct interviews.

The Commission's auditor found that APS reasonably decided to build and to continue building Palo Verde. The audit found net cost savings. While the auditor quantified unreasonable project costs at $60 million, about 1% of total project costs, it also quantified over $5.8 billion in reasonable costs. Additionally, the auditor quantified costs saved (above reasonable) totaling between $278.6 to $306.9 million due to the project's exceptional management. The final report also confirmed that Palo Verde was well conceived and well constructed.

Finally, on January 11, 1990, APS filed an application for a permanent increase in electric rates related to placing Palo Verde Unit 3 in service. This resulted in Decision No. 57649, dated December 6, 1991, wherein the Commission concluded the prudence audit and approved a settlement between Staff and the Company pursuant to which APS agreed to an after-tax write off of the carrying value of certain PaloVerde-related assets totaling $407 million, thereby closing the books on the issues involving the prudence of the Company's Palo Verde investment and whether a portion of the plant represented excess capacity.

Of course, the prudence audit was not the only forum where the Commission addressed Palo Verde issues. On July 5, 1983, APS filed an application seeking a rate increase, which included a request to include Palo Verde CWIP in rate base. Previously, the Commission had refused CWIP inclusion for Palo Verde as an incentive to more rapidly complete its construction. In Decision No. 54204, issued October 11, 1984, the Commission reversed its position on Palo Verde CWIP, recognizing that APS' service territory "has been among the fastest growing areas in the United States."

Phase II of the same proceeding, which required ten days of hearings, resulted in Decision No. 54247, dated November 28, 1984, in which an incentive program was developed to hasten the completion of Palo Verde and the inclusion of some $200 million of CWIP in rate base was authorized.

On September 12, 1984, APS filed an application with the Commission requesting an order to implement various proposed financings during 1984 and subsequent years with which to fund the construction of Palo Verde, among other things. The financings were approved by the Commission in Decision No. 54230, dated November 8, 1984.

On December 18, 1985, APS filed an application for a rate increase (the "Palo Verde 2 case"). During a three-month long hearing, the Palo Verde project was again re-examined from every conceivable angle by a number of witnesses, including Dr. Rosen. I cannot help but note the Commission's comments on his testimony in Decision No. 55931, dated April 1, 1988. In rejecting Dr. Rosen's proposed "economic excess capacity adjustment, the Commission stated:

> In 1982, Mr. Rosen testified before the FERC that a combination of conservation and a sell-off of Palo Verde 3 would result in substantial net savings over the life of that Unit, but a sell-off of Palo Verde 2 would result in a cumulative net loss of about $100 million by the year 2000.... Therefore, at that time Mr. Rosen recommended that "while proceeding with the basic conservation/Palo Verde 3 sell-off plan, APS should continue to construct and retain its ownership share in units 1 and 2. However, continued consideration should be directed towards a possible sell-off of at least part of unit 2."
>
> Five years later, in this proceeding, Mr. Rosen testified that APS should not have continued with Unit 2, but should have stopped construction or sold its ownership share in that Unit during the first-half of 1981. According to Mr. Rosen, the regression analysis he made for his December, 1982 testimony before the FERC was only "preliminary", and in 1982 he was not in a position to thoroughly evaluate the economics of Palo Verde on the basis of the data available through 1980.

> APS presented extensive rebuttal evidence by a number of witnesses concerning Mr. Rosen's presentation, including his "retrospective regression analysis"…. Mr. Rosen's opinion is not sufficient support for a finding that construction of and retaining the ownership interest in Palo Verde 2 was imprudent….

Decision No. 55931, pages 67-68.

Q DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?

A Yes it does.

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

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Rebuttal Testimony of William H. Hieronymus

<u>Introduction and Summary</u>

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.

Methods for Calculating Stranded Costs

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.

<u>Dr. Rosen's Estimate of Arizona Utilities' Stranded Costs</u>

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.

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BEFORE THE ARIZONA CORPORATION COMMISSION

REBUTTAL TESTIMONY OF

JOHN H. LANDON

ON BEHALF OF
ARIZONA PUBLIC SERVICE COMPANY
DOCKET NO. RE-00000C-94-0165

FEBRUARY 4, 1998

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I. QUALIFICATIONS

Q. Please state your name and business address.

A. My name is John H. Landon, and my business address is Two Embarcadero Center, Suite 1160, San Francisco, California, 94111.

Q. What is your current position?

A. I am a principal and director of the utility practice of Analysis Group Economics, an economic consulting firm.

Q. Please outline your educational background.

A. I received a B.A. degree with highest honors from Michigan State University with a major in economics in 1964. I subsequently attended graduate school at Cornell University, where I was awarded an M.A. in economics in 1967 and a Ph.D. in the same field in 1969.

Q. Where were you employed after leaving Cornell university?

A. I served on the faculty of Case Western Reserve University from 1968 to 1973, rising from the rank of assistant professor to associate professor, and on the faculty of the University of Delaware from 1973 to June 1977 as an associate professor.

Q. What subjects did you teach during this period?

A. I taught microeconomics, industrial organization, antitrust economics, regulatory economics and economic forecasting.

Q. Where were you employed after leaving the University of Delaware?

A. I was employed by National Economic Research Associates from 1977 to 1997 as a Senior Consultant, a Vice President and Senior Vice President and member of the Board of Directors.

Q. What was the nature of your assignments at NERA?

A. Much of my work at NERA was on issues relating to the application of economic principles to the electric utility industry. I participated in numerous projects addressing economic and related antitrust issues before the Federal Energy Regulatory Commission (FERC), the Nuclear Regulatory Commission (NRC), the

Securities and Exchange Commission (SEC), state regulatory commissions, and federal and state district courts.

Q. When did you join Analysis Group?

A. I joined Analysis Group in March of 1997.

Q. Have you previously testified?

A. Yes. I have testified on many occasions before state and federal courts and regulatory agencies on a variety of matters.

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

A. Yes. I have submitted testimony before this Commission on a variety of rate and regulatory matters, including incentive pricing and electric restructuring issues.

Q. Have you participated in retail access or electric restructuring in jurisdictions other than Arizona?

A. Yes. I have been involved extensively with retail access or restructuring issues in Texas, New York, Michigan, Nevada, Ohio, Iowa, Florida, Louisiana, Oregon and in the Province of Alberta. Outside North America, I have participated in teams working on these issues in the U.K., Chile and Colombia. I have testified in Arizona, Michigan, Texas, Pennsylvania, Iowa and Florida on these issues. A copy of my resume is attached as Exhibit 1 to this testimony.

Q. Have you testified on the subject of stranded investment?

A. Yes. I have testified on stranded investment issues in Michigan, Iowa, Texas, Arizona and before the Federal Energy Regulatory Commission. I have also assisted utilities in negotiating with large customers on issues relating to stranded investment recovery.

II. PURPOSE OF TESTIMONY

Q. What is the nature of your assignment in connection with this proceeding?

A. At the request of Arizona Public Service ("APS" or "the Company"), I have reviewed the testimonies filed by parties in this proceeding. I will address issues that have been raised relating to: 1) the importance of stranded investment recovery; 2) mitigation of stranded investment; 3) the means of calculating stranded investment; and 4) the means of recovering stranded investment.

III. EXECUTIVE SUMMARY AND ORGANIZATION OF TESTIMONY

Q. Why are stranded cost issues important?

A. Utilities have invested substantially in generation, transmission and distribution capacity to satisfy existing and future electric power requirements of Arizona consumers. The ongoing restructuring that is occurring in the electricity industry is expected to enable all customers to enjoy the benefits of a more competitive market, including lower rates and the introduction of more innovative products and services. A key restructuring issue concerns how to deal with so-called uncompetitive or potentially stranded costs. Stranded costs are prudently incurred costs that a utility will be unable to recover from competitive market prices in the transition from traditional cost-of-service ratemaking to a deregulated, market-driven environment. These costs include costs currently on the books, as well as any of the costs of the systems required to introduce open access which will not be recovered in market prices. Estimated in the billions of dollars nationally, stranded costs are probably the most daunting regulatory issue facing electric utilities today, as well as the most significant impediment to restructuring. There are, however, numerous other impediments. I discussed many of them in my testimony of November 27, 1996, in the Commission's rulemaking Docket No. R–0000-94-165. They include maintaining system reliability, real-time pricing for settlements among suppliers, developing metering, billing and load profiling systems, developing settlement and reconciliation processes, developing a means to supply and market ancillary services, and developing rules for entry of suppliers and reciprocity between states.

Q. How is your testimony organized?

A. The paper is organized as follows. Section IV discusses the definition and causes of stranded costs. Section V discusses why full recovery of stranded costs is in the best interests of both customers and shareholders. Section VI outlines mitigation issues involved with stranded cost recovery. Section VII discusses alternative mechanisms for calculating stranded costs. Section VIII discusses alternative methods to recover stranded costs. Section IX explains why rate freezes and price caps are inconsistent with competitive markets. Section X resummarizes my conclusions.

Q. Would you please summarize your conclusions?

A. Yes. I have concluded that:

1. Stranded costs arise out of a breach in the regulatory compact that has historically governed the relationship between regulators and utilities;
2. Providing full recovery of stranded costs is consistent with:
   a. The regulatory compact,
   b. The economic concept of governmental takings,
   c. Efficiency,
   d. Good price signals,
   e. Competitive markets,
   f. Lack of timely warning,
   g. Lack of past compensation for risk,
   h. Not imposing consumer costs on stockholders;
3. Reasonable mitigation of potentially stranded costs should be expected, but only through the regulated activities of the utility. Past cost cutting should also be factored into what can be reasonably expected in the future;
4. The net revenue lost calculation method has substantial advantages over a forced auction in the valuation of stranded investments. Properly implemented, a net revenue approach can avoid the need for a true-up mechanism. Valuation of stranded costs by issuing a special class of stock would not be sound and has severe economic and practical defects;
5. Rate freezes and caps are generally inconsistent with a competitive market and should be discouraged.

IV. ORIGIN OF STRANDED COSTS

Q. What are stranded costs and how did they arise?

A. Stranded costs can be defined as the excess of utility costs over revenues associated with the move to a competitive marketplace. They include both the reduction in the utility's expected revenues available to pay existing costs as well as any direct costs associated with the transition to open access which will not be recovered in market prices. In other words, stranded costs will arise if market prices will not enable the incumbent utility to recover sunk costs or additional prudent expenses incurred during the transition from a fully regulated market to a competitive one. The implicit assumption is that the utility would have had a reasonable opportunity to recover its existing and ongoing costs under traditional cost-of-service ratemaking and will not willingly undertake further investments without assurances of recovery. Stranded costs generally fall into the following four categories:

- **Above Market Generation Assets:** This cost category reflects the "above market" portion of generation assets—unrecoverable prudent investments made during the regulatory regime.
- **Regulatory Assets:** The term regulatory assets includes deferred expenses, such as unrecovered costs of energy efficiency programs (e.g., demand-side management), low-income programs, and the unamortized costs of other deferred expenses. These are expenses already incurred from which ratepayers have already benefited. They have not been collected only because the Commission elected to require that the utility defer them.
- **Purchased Power Contracts:** This component represents the above-market portion of long-term purchased power contracts.
- **Costs Required to Implement Open Access:** This category includes unrecovered costs prudently incurred during the transition to open access. These may include costs incurred in meeting existing utility obligations or new expenses such as those related to skills required in an open access environment (e.g., retraining programs). This category also includes the costs of adapting

auxiliary services to an open access environment. Examples include installing new metering or billing systems, developing an independent system operator, and installing new computer systems required to accommodate changes in bulk power settlements, metering and bill processing. The costs associated with developing the computer systems required for open access can be substantial. For example, the cost of the computer systems for the California independent system operator and the power exchange is estimated to be over $200 million. There may also be costs associated with obligations the incumbent utility is asked to take on in the transition to competition.

Q. Are there ongoing costs that should be included with stranded costs?

A. Yes. Any prudent investment made or cost incurred during the regulatory regime must be considered when evaluating stranded costs. Regardless of when the decision to make the transition is made or when the transition to competition is initiated, all prudently incurred costs of the regulated utility should be collectable. For example, incumbent utilities may continue to bear the obligation to serve some or all consumers for some period after the introduction of retail access. This may cause additional stranded costs if prices in effect during the transition period are insufficient to recover these costs. Incumbents may also be obliged to provide system reliability services. Their provision may or may not be fully compensated by rates in effect. Furthermore, many incumbent utilities face unavoidable (and potentially unrecoverable) costs on an ongoing basis to meet their obligations under existing regulation. Although the burden of demonstrating what costs should be eligible for recovery lies with the utility, regulators must be careful to ensure that the process of identifying and recovering stranded costs includes not only those costs incurred prior to the decision to introduce competition, but also those prudent costs incurred as a result of existing regulatory obligations or as part of the transition to competition.

Q. How does your definition of stranded cost relate to the ACC's definition?

A. My definition is similar to the ACC's definition, except that the ACC's definition appears to limit recovery to expenditures that were made "prior to the adoption of this Article." For the reasons stated above, I do not believe it is appropriate to ignore expenditures that were made after December 31, 1996.

V. FULL STRANDED COST RECOVERY IS APPROPRIATE

Q. Several witnesses have argued against full stranded cost recovery. Why should utilities be allowed to recover their stranded costs?

A. A number of legal and economic arguments justify compensating a utility for its stranded costs, including 1) the promotion of economic efficiency; 2) the regulatory compact and the unique nature of regulated industries; 3) fairness and capital cost concerns about the lack of advance warning or investor compensation; and 4) the hastening of retail competition.

1. Economic Efficiency Issues

Q. Do you agree with the assertions, made by witnesses Cooper, Coyle, Rose, and Rosenberg, that there are no efficiency reasons supporting the recovery of stranded investments?

A. No. Uncompensated stranded costs will create an opportunity for "uneconomic bypass" by inefficient entrants. Utility costs that are not offset by revenue are often called incumbent burdens, or uncompensated transition costs. Entrants, who do not face these costs, would be able to compete successfully with incumbents even if they did not have lower production costs. As a result, inefficient firms may end up providing services. Incumbent burdens can relate to costs incurred in the past which have not been recovered or to additional costs the incumbent may undertake related to the transition to competition. Developing a method to ensure recovery of past prudent costs, whether through a nonbypassable charge to all customers or charging entrants a fee so that transition costs are shared equitably among competing utilities, will allow for a level playing field so that all firms may compete on the basis of production costs.

Q. Can you provide an example illustrating how uncompensated stranded costs can create an opportunity for uneconomic bypass by inefficient entrants?

A. Certainly. Assume that the marginal cost of generation is 2 cents per kWh for the incumbent and 4 cents per kWh for entrants. Assume further that there are incumbent burdens of 4 cents per kWh. Hence, the entrant will be able to undercut the incumbent's total cost by 2 cents per kWh, even though the incumbent has a lower marginal generation cost than the entrant. This, of course, is inefficient because more scarce resources are consumed if the entrant generates the electricity instead of the incumbent. This problem can be dealt with by charging incumbent burdens to all customers or assessing them equally across all suppliers.

Q. Why is it important for generation companies to compete on the basis of relative production costs?

A. A fundamental tenet of economics is that the price of a good should reflect the relative value of the inputs used to produce it. Information on the value of inputs is transmitted through the market price, which is determined by the marginal cost of the last unit produced. However, if fixed costs are allowed to enter asymmetrically into the price determination mechanism, this will create a wedge between the good's true cost to society and its market price. In the case of electricity, if incumbent utilities are saddled with stranded costs, this will create a wedge that may allow generation companies with higher marginal costs of production than the incumbent to enter the market. The entry of high-cost generation would result in a welfare loss to society.

Q. Are there any other inefficiencies created by disallowance of stranded cost recovery?

A. Yes. Failure to allow the opportunity for stranded cost recovery will also create capital cost related inefficiencies. Saddling incumbent firms with stranded costs creates financial weakness and increases the return that will be required by future investors, making it more costly for incumbents to maintain and modernize their facilities. High capital costs caused by regulatory uncertainty will also tend to raise costs for those services that remain regulated.

Q. Witness Rose dismisses the importance of uneconomic bypass. Do you agree with his analysis?

A. No. Uneconomic bypass can be a significant problem. Dr. Rose correctly notes that uneconomic bypass will occur when "the alternative supply option has a marginal cost less than the utility's rate but greater than the utility's marginal cost." (p. 11) However, he assumes that this will only occur in "very limited circumstances." It is unclear how Dr. Rose arrives at this conclusion. Incumbents will frequently have lower marginal cost than potential entrants. In addition, the greater the stranded cost burden of incumbent utilities, the larger the potential wedge between price and marginal cost and, therefore, the greater the opportunity for uneconomic bypass by inefficient producers.

In addition to questioning the likelihood of uneconomic bypass, Dr. Rose dismisses its importance for two other reasons. First, Dr. Rose argues that unbundling of rates will avoid this problem. However, he overlooks the fact that the Commission will establish a provider of last resort and set bundled generation rates that include a contribution to fixed costs. If competitive service providers or their customers do not bear any responsibility for recovering stranded costs, it is not hard to imagine a situation in which a firm with marginal costs above those of the incumbent, but below the bundled default rate, would be able to enter the market successfully. This would harm both consumers and other producers.

Second, Dr. Rose asserts that uneconomic bypass, "even if it does occur, [would have] a minor effect on overall efficiency when compared to the gain in dynamic efficiency induced by a competitive market." (p. 12) Dr. Rose fails to substantiate his conclusion. But, more importantly, he completely misses the fact that proper price signals and properly designed stranded cost recovery are required for dynamic efficiency. Correctly designed stranded cost recovery will ensure that producers compete on the basis of relative marginal costs, causing the dynamic competitive market in Arizona to flourish, to the benefit of all consumers. Ignoring stranded cost or improperly designing the recovery mechanism will impair competition and limit its benefits.

Q. Will allowing recovery of stranded cost hasten the transition to competition?

A. Yes. Allowing recovery of stranded costs hastens the transition from a fully regulated regime to a more competitive environment by lowering legal barriers and allowing incumbent firms to cooperate actively in facilitating a rapid transition to competition. Absent resolution of the issue, fiduciary duties to protect financial rights of stockholders, and concerns that incumbent disadvantages may greatly handicap their ability to succeed, will limit the ability of utilities to cooperate with a rapid movement toward competition. Stranded cost recovery "settles up" the remaining costs associated with the regulatory period and allows all parties to focus on competition.

Q. Could the nature of the transition to competition affect the magnitude of stranded costs?

A. Yes. If the transition is not properly done, there is a real likelihood of further stranded costs. Under regulation, an incumbent firm has an obligation to supply all customers and to supply other mandated programs (e.g., low-income and energy efficiency programs). If the transition to competition leaves the costs of providing expensive money-losing programs and services with the utility but takes the most profitable businesses, the utility will be hurt. Entrants that can choose their customer base and service offerings will naturally choose only profitable areas of entry. Continuing service obligations for incumbents, if improperly done, can result in an adverse selection process whereby profitable customers and services are drawn away by competitors, leaving the incumbent with a high-cost customer base and providing uneconomical services. One solution to the adverse selection problem is to require that all suppliers contribute to any remaining social programs. By spreading the burden of social programs across all market participants, regulators will ensure that firms enter the market only if they are more efficient than the incumbent utility.

Q. Staff witness Rose argues that the utility should not be allowed to recover its stranded costs because this will impede the development of a competitive market. Do you agree?

A. No. It is fairly straightforward to design rates that will both recover stranded costs and avoid distorting the price signal. In his example on page 11, Dr. Rose fails to apply a fundamental principle of economics – that to be nondistortionary, any cost recovery charge (*e.g.*, a CTC) must be applied uniformly to all participants. If Dr. Rose had applied the transition charge to all producers in his example, the hypothetical customer would have chosen the supply option with the lowest marginal cost.

Q. Dr. Rose argues that allowing stranded cost recovery will create barriers to entry and exit. Do you agree?

A. No. Dr. Rose's definition of barriers to entry seems to suggest that any cost associated with entering a market should be considered as a barrier to entry. This definition, however, is not useful. There are always costs and delays associated with entering a market. To distinguish as a barrier to entry anything that prevents a firm from instantaneously entering a new market at no cost is so overly restrictive that it has little substantive meaning.

A barrier to entry that merits concern is one that artificially creates a substantial cost asymmetry between incumbent and entrant. This is quite different from a concern with all costs associated with entry, as Dr. Rose suggests.

An example of a barrier to entry is a legal limit on the number of taxicabs or taxicab providers in a city. Such restrictions can make it impossible for new firms to enter the market, to the benefit of incumbent firms and the detriment of consumers. However, in the retail electricity market, there will be no limit on the number of participants, nor will there be any other substantial barrier to entry.

Since a properly designed stranded cost recovery mechanism will be applied symmetrically to all customers or all sellers, not just new entrants or their customers, new entrants would not bear any asymmetric costs to enter the market which might advantage established firms. Furthermore, an efficient collection mechanism will only recover transition costs or unavoidable costs that are stranded as a result of retail access or the transition. Sunk costs and their recovery do not affect the marginal cost or revenues associated with gaining or losing customers. Thus, stranded cost recovery will have no significant impact on the ability of firms to compete over time. Market prices will be determined by the costs required to meet the last unit of demand in each hour of each day.

Q. Witness Rose also argues that stranded cost recovery will create barriers to exit. Do you agree?

A. No. Dr. Rose is mistaken in his contention that stranded cost recovery would encourage inefficient producers to continue supplying the market. Under a properly designed recovery mechanism, incumbents will have the opportunity, but not the assurance, of recovering the investments left on their books from the prior regulated regime and all energy service providers will compete on the basis of marginal costs. Inefficient producers will be forced to either improve operations or shut down and exit the market. Consequently, stranded cost recovery will not create barriers to exit in the electric generation business. Moreover, incumbent utilities and other producers will make investments required to remain in the electric business in their service areas only if they expect that profits from doing so will be comparable with other investment opportunities.

Q. Several witnesses (Rose, p. 9; Rosenberg, p. 7-8) argue that stranded cost recovery will afford incumbents an unfair competitive advantage. Do you agree?

A. No. Dr. Rosenberg's assertion that stranded cost recovery "allows a supplier with above market costs to compete unfairly with potential or actual competitors because some of its costs are subsidized by strandable cost recovery" is unfounded and incorrect. In fact, correctly designed and implemented stranded cost compensation will ensure that competition based on production costs can take place effectively. Dr. Rosenberg's conclusion is based on the "sunk cost fallacy." It is a fundamental truth of competitive markets that firms will make production decisions based on avoidable or marginal costs, not sunk or unavoidable costs.

To see this more clearly, assume sunk cost or unavoidable costs for the incumbent utility are $500 million, and marginal or avoidable generation costs are 2 cents per kWh for the utility, and 4 cents per kWh for the entrants, respectively. Marginal costs will correctly signal customers in the market that the incumbent has the lowest marginal cost. The sunk cost of $500 million should have no bearing on either the choice of supplier or the amount that a supplier should generate. The purpose of stranded cost recovery is to allow firms to recover those previously incurred (sunk) investments that are unrecoverable due to the onset of competition. Stranded cost recovery does not subsidize operating costs or incremental capital costs.

By recovering stranded costs through a competitively neutral mechanism, such as non-bypassable wires charge, no firm will have a competitive advantage. A competitively neutral charge will help ensure that stranded costs are recovered and that lowest-cost firms provide the generation service.

Q. **Will stranded cost recovery charges result in incumbent over-recovery of stranded costs and create a competitive disadvantage for entrants?**

A. No. A properly designed mechanism will leave the incumbent with assets valued at market prices. Moreover, since all incumbents and entrants will pay the same CTC charge, new entrants are not disadvantaged. Furthermore, recovery of stranded costs will not affect marginal costs or marginal revenues and thus will not affect the incumbent utility's competitive position.

Q. **Is the value of incumbency anti-competitive, as Dr. Rose claims (p. 9), blocking equally qualified or superior entrants and preventing competition from occurring?**

A. No. Quite the opposite is true. It is a defining feature of competitive markets that the top incumbent's position is perpetually challenged by rivals and new entrants. Those firms with differential advantages are able to overcome the advantages of incumbents and provide benefits to consumers by offering new products and services, at lower prices. If entrants prove superior to incumbents in some way, they will gain customers at the expense of the incumbents. If the competitive advantages of superior firms are eliminated, the competitive process is subverted, allowing inferior firms to survive and eliminating benefits to consumers. This would misallocate resources and harm consumers. Regulators should be concerned about abuse of market power and anti-competitive behavior. However, a properly designed stranded cost recovery will be symmetric for all market participants and, consequently, will have no bearing on the potential for anti-competitive behavior. Therefore, concern about market power abuses does not justify the denial of full stranded cost recovery.

Q. In a competitive market, are not all firms relatively equal in terms of name recognition, marketing costs, reputation, and goodwill?

A. No. In competitive markets, firms generally differ widely in their abilities, reputations, and performance. Competition brings out this diversity. Firms differentiate their products and service in order to attract sales from their rivals. Competition drives firms to improve their products and service and to lower costs and prices to gain and retain customers. New entrants are forced to overcome existing firms' reputation advantages and customer loyalty by offering competitive or superior products, service, and prices. Unless new entrants can succeed on their merits, they do not belong in the business. Penalizing incumbents for their superiority over rival firms serves only to harm consumers.

Q. Does name identification via incumbency necessarily bestow a competitive advantage on incumbent electric utilities?

A. It is possible but by no means automatic. A utility may be well known in terms of name recognition but have a poor reputation for service and pricing. Some utilities have invested heavily in providing high quality customer service while others have allowed service to deteriorate. The reputation of a utility and thus the loyalty of consumers in remaining with the incumbent varies across utilities depending on their historic record of service and value to customers. Customers who believe they have received poor service, excessive prices, or both are highly motivated to consider alternative suppliers. Name identification in that case is a negative, associated with consumer ill will. There is nothing about incumbency per se that guarantees strong consumer loyalty in the face of new competition. Indeed, name recognition may be a handicap, aiding new entrants in their quest for customers. It is not surprising that some utilities choose to market competitive services under a separate name.

Q. **But what of Dr. Rose's assertion that consumers will not investigate alternatives?**

A. Dr. Rose provides no evidence to support this view. He writes as though it is obvious that consumers are either too lazy to make a choice or too stupid to choose in their own best interest. Consumer behavior in actual markets overwhelmingly refutes this view. Consumers make choices in their own best interest. At times this means remaining with their current supplier, since the benefits of switching do not outweigh the costs. This is just as much of a "choice" as a decision to switch suppliers. Consumers dissatisfied with current service will consider the alternatives and switch if, in their judgment, the benefits justify the cost of switching. In an analogous situation, millions of long-distance customers have switched from AT&T over the years to its rivals, as well as between non-AT&T rivals, when given the opportunity to save on various products and to obtain better service. Others have elected not to switch or have switched and come back. There is no reason to believe that electric power consumers will behave any differently. Consumers act in their own best interest, so if rivals can provide superior service and prices to those offered by APS, consumers will readily switch to them. Additionally there is, at the outset, a much lower level of national concentration among electric suppliers than there was in the telephone business.

Failing to choose a rival over APS does not mean that consumers suffer from inertia or have merely relied on APS's name identification and good will. Consumers are not stupid, especially when it comes to shopping for products and services. They select goods and suppliers according to what best serves their interest as reflected in the benefits and costs of the alternatives available. If APS has invested in providing good service, creating a positive reputation and strong customer good will, then remaining with APS is a perfectly rational decision and not based on mindless inertia or an unwillingness to consider the alternatives. Additional consumers remain with their existing supplier because they are risk averse and choose not to take a chance with the uncertainty of new firms. Once new firms prove to consumers that they offer high-quality service at competitive prices for the long term, then risk averse consumers will consider switching.

In competitive markets, consumers are free to choose among rival offers. Whatever the basis for their choices, be it price, service quality, products, risk aversion, or an unwillingness to invest time in investigating alternative suppliers, the sanctity of consumer choice must be protected. Forcing consumers to abandon their preferences by handicapping incumbents only harms consumer welfare.

Q. **Are new entrants necessarily disadvantaged by an incumbent's strong business reputation and name recognition?**

A. No. Entrants may have a strong business reputation and name recognition as well as the incumbent. Both existing electric utilities and non-electric utilities, such as water, gas and telephone companies, are all extremely well-known to the electric utilities' customers and are potential entrants since they are well established and highly experienced in providing consumer utility service. In addition, other potential entrants, such as Enron, have invested millions of dollars in establishing their own reputation and name recognition.

Q. **Dr. Rose argues that allowing stranded cost recovery will harm dynamic efficiency. Do you agree?**

A. No. An appropriate stranded cost recovery mechanism will encourage competition and promote dynamic efficiency. This competition will induce innovation and the development of new goods and services, thereby improving the long-run or dynamic efficiency of the market. Stranded cost recovery is consistent with achieving the potential gains in dynamic efficiency.

Q. **How does Dr. Rose arrive at this conclusion regarding dynamic efficiency?**

A. Dr. Rose suggests that allowing even inefficient producers to enter the market would lead to improvements in dynamic efficiency and that these improvements would outweigh any short-run or static losses due to pricing above marginal cost. He makes this point by misinterpreting the analysis of respected economist Alfred Kahn. In the passage Dr. Rose cites, Kahn was discussing AT&T's ability to, at its long-run marginal cost, price below most of its rivals. Thus, the context in which Kahn was making this argument is a market where the incumbent is assumed to be the lowest-cost producer, and all potential entrants have higher marginal costs. This is a scenario that does **not** describe the generation market in Arizona. It is extraordinary to suggest that other firms cannot compete with incumbent utilities and that uneconomic bypass is the only way entry will occur in a newly competitive retail market in Arizona. Requiring incumbents to price above their marginal costs would be antithetical to economic efficiency in both the short and long run. Indeed, in a January 30, 1998, letter to the Wall Street Journal, Alfred Kahn argues eloquently that regulators must distinguish between promoting competition by ensuring efficient producers the opportunity to enter markets, and protecting competitors from genuine efficiency advantages of their rivals, which would significantly harm consumer welfare.

Stranded cost recovery, far from being an obstacle to dynamic efficiency, is important to the long-run viability of competition in Arizona. All parties to the process expect entry to occur once a competitive market is established.

2. Comparison with Competitive Firms

Q. How does your view of the origin of stranded costs differ from Dr. Rosenberg's?

A. Dr. Rosenberg attributes stranded costs to "managerial decisions and engineering innovations." (p. 6) As I indicated earlier in my testimony, stranded costs arise from the introduction of competition in an industry in which past decisions were based on a regulatory compact.

Q. Does Dr. Rosenberg's view of stranded costs' origins agree with the Commission's?

A. No. In R14-2-1601, the Commission defines stranded costs as the following:

"Stranded Cost" means the verifiable net difference between:

a. The value of all prudent jurisdictional assets and obligations necessary to furnish electricity (such as generating plants, purchased power compacts, fuel compacts, 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*. (emphasis added)

Q. Dr. Rosenberg argues that electric utilities should be denied stranded cost recovery because firms in competitive markets typically cannot recover uneconomic investments. Do you agree with this view?

A. No. A regulated firm operates and invests under a different set of rules and constraints than does a competitive firm. Unlike a company in the free market, a regulated firm faces regulatory obligations as well as limits on both potential risk and potential return on its investments. Therefore, the comparison Dr. Rosenberg makes is not valid.

Utilities, such as APS, have been required to meet an obligation to supply power and energy to all customers who locate in their service areas. This obligation required long-lived investments made well in advance of actual growth in demand. The quid pro quo was the limitation of competitive entry that would allow the recovery of prudently incurred investments over their life. Some investments may result in stranded costs because the regulatory compact under which they were made will be breached. Specifically, entry by other firms means that, in some cases, the utility may no longer be able to earn its agreed-upon rate of return. Without this change in regime, the utility would continue to have the opportunity to recover its investments along with a reasonable return, and there would be no stranded costs. Losses from the investments occur because the incumbent bears prudently incurred continuing costs that will not be compensated through competitive markets.

Equating stranded costs with investment losses of competitive firms ignores the regulatory obligations of an incumbent utility which required large long-term investments to meet service obligations. These past investments have generally been reviewed for prudence and placed in rate base. These costs were based on a regulatory compact that is now being altered.

While the shareholders of competitive firms face no obligations to serve and can earn unlimited returns on their investments, regulated firms face public service obligations and limited returns.

3. Advance Warning of Competition

Q. Some witnesses argue that incumbent utilities have had advance warning about increased competition and should have been able to minimize stranded costs. Do you agree?

A. No. Recognition of increased competition has been of recent origin. In fact, early regulatory pronouncements suggested that retail open access would not occur. PURPA certainly did nothing to promote retail competition. The Energy Policy Act of 1992 allowed only wholesale wheeling. To my knowledge, the issue of retail open access was not significantly addressed in Arizona until 1996.

Q. Do incumbent obligations limit the extent to which utilities can reduce stranded costs or prepare for competition?

A. Yes. In a competitive market, firms face constant pressure to operate efficiently and only engage in those activities in which they are low-cost producers (and consequently can sell at a profit). However, the existing regulatory paradigm imposes significant cost burdens on incumbent utilities. These include providing service to all customers in a given service territory, offering low-income programs, planning and investing to meet future demand, and providing a host of other non-market services. Many such obligations are unprofitable and would not be provided on the same basis in a competitive market. Incumbents are limited in the extent to which they can respond to anticipated changes in the marketplace, as long as they continue to be obliged to provide these non-market services.

4. Historical Compensation for Risk

Q. Several parties have argued that APS should not be allowed to recover its stranded costs because it has already been compensated in rates for the risk of stranded costs. Do you agree with this position?

A. No. APS shareholders have not been compensated for the risk of stranded investments. For shareholders to have been compensated for the risks associated with stranded costs it must be assumed that the Commission, through a general rate case or some other mechanism, increased rates sufficiently to enable existing investors to recoup their original investment and to receive a return on invested capital that is commensurate with the risk taken.

Q. Do you believe that investors have received this compensation?

A. No. Investors have not received the required compensation for several reasons. First, the techniques used by the Commission to determine the utility's authorized equity return would have measured the return required by the marginal (new) investor, not the return required to compensate existing investors for stranded costs. These techniques measure required equity returns based on such market data as dividends, dividend growth, and stock price. Consequently, while these techniques are capable of measuring the return that would be required to compensate all investors (both existing and new) for the added business risk associated with open access, they are incapable of measuring the additional return that would be required to compensate existing shareholders for stranded costs. The return that would have been required to compensate investors for the realistic threat of having to write off billions of dollars of previously approved rate base would have been large enough to be very evident. To the best of my knowledge, there has been no such return either authorized or earned by APS.

For existing shareholders to have been compensated for the breach of regulatory compact, the Commission would have had to have authorized a special "risk premium" to compensate investors for stranded cost recovery. However, no witness has cited any decisions or provided any evidence substantiating the claim that the Commission has ever made such an adjustment. Moreover, if the

Commission did make such an adjustment, APS's authorized return would have shown a significant increase. It is clear that this has not occurred. Consequently, the evidence does not support the assertion that shareholders have been compensated for risk of significant stranded costs.

As I have indicated, the increase in return required to compensate investors for stranded costs exceeds what is consistent with actual experience. I illustrate this point with the following hypothetical example. Assume for simplicity that the Commission's estimate of stranded costs, as of the beginning of 1998, is $500 million, and that the utility's earnings are a constant $150 million per year on an equity capital base of $1,250 million. Assume further that the utility's authorized equity return (before the adjustment to compensate shareholders for stranded cost recovery) is 12 percent and that immediately following its investigation in 1996, the Commission increased the utility's authorized return sufficiently to pay off the estimated stranded costs by the beginning of 1998. Under these assumptions, the *increase* in the equity return required to compensate shareholders for stranded costs would be 19 percent (500/(1250*(1+(1+.12)), assuming that investors can reinvest funds at the utility's authorized equity return. This implies that the authorized equity return during 1997 would have been 31 percent, which is clearly contrary to actual experience.

5. Regulatory Compact

Q. Witness Coyle claims that there has never been a recognized compact between the utility and its regulatory commission that requires full recovery of stranded costs. Do you agree?

A. No. An understanding between utilities and regulators, as authorized by law, has been a fact of regulatory law and economics for decades.[1] Under the agreement, the utility cedes the right to independently price its services and accepts various service obligations. In return, it receives protection from entry by competitors, and the regulatory commission sets rates that will provide an opportunity for the utility to earn

[1] For an excellent discussion of the origins and history of the compact, see J. Gregory Sidak and Daniel F. Spulber in their new book Deregulatory Takings and the Regulatory Compact.

a return that is commensurate with the risk taken. Among the burdens unique to the regulated utility industry, the incumbent is also required to: (1) comply with various reporting requirements; (2) have its returns controlled by the commission; (3) provide service to all customers within its service territory (often termed the utility's "obligation to serve"); (4) meet quality and reliability standards; and (5) undertake social programs that are deemed by the regulatory commission to be in the best interest of society.

In addition to service obligations and pricing restrictions, the regulatory commission also approves many of the utility's investments and reviews the utility's financial performance. The fact that private investors willingly invested billions of dollars in the electric industry in the past is certainly strong evidence of a regulatory compact. It is laughable to suggest that large, long-term investments would have been made by firms, saddled as they were with service obligations and market restrictions, without some assurance of earning a reasonable return on their prudent investment. Even if they had wanted to make such investments, markets would not have supported their capital requirements at anything like historic costs of capital.

By allowing other firms to compete with the incumbent utility in the generation market, the commission has signaled a fundamental change in the regulatory compact. Entry by competitors increases risk to APS and is likely to reduce the return that the utility can expect to earn. Eliminating the security of arrangements which induced long-term investments represents a breach of the regulatory compact between the utility and the commission. To avoid confiscatory outcomes, the utility should be compensated for the reduced earnings resulting from the change in the regulatory compact. The magnitude of the reduced earnings is the value of the stranded costs that the utility should be able to recover from its customers because of the breach.

Thus, while Mr. Coyle may be correct in asserting that there exists no explicit contractual document between the utility and the regulatory commission, allowing entry by competing firms is clearly contrary to past practice, on the basis of which investments were made, and is likely to disadvantage the incumbent firm greatly.

Q. Can you explain some of the reasons why utilities have costs on their books in excess of those the market will support?

A. Yes. In the past, regulators have directed incumbent utilities to pursue many public interest programs requiring substantial investments by the utilities. Perhaps the most obvious of these mandated investments is the requirement that incumbent utilities serve all consumers in their service territories at regulated rates, regardless of the additional cost to serve them. Utilities have also been required to maintain high levels of service quality and were obligated to build facilities in advance to serve potential loads even if those loads might not materialize. While APS does not have high reserve margins, many incumbent utilities do find themselves with high reserve margins that are not economic in an open access environment. Moreover, whether or not individual utilities have excess capacity, they will be adversely affected by those that do.

A major cause of costs on the books in excess of those the market will support is regulatory assets. Regulatory assets reflect costs that have been paid by the utility and benefits that have been received by customers that, because of commission policies, have not been fully collected in rates. The regulators have required that collection be delayed. If the market will not support their recovery, they become part of stranded costs that need to be recovered during the transition to competition.

6. Sharing Stranded Costs Between Ratepayers and Shareholders

Q. Several witnesses (Higgins, Rosenberg, Malko, Coyle, Rosen, Rose, and Cooper) argue that shareholders and ratepayers should share the stranded cost burden to varying degrees. Is this a sound policy proposal?

A. No. As I have stated previously, under the regulatory compact incumbent utilities have the right to an opportunity to recover their prudent investments along with a reasonable return on them. If regulators allow only a fraction of stranded costs to be recovered, this will amount to a regulatory breach of compact. Anything less than the opportunity for full stranded cost recovery is an economic taking of utility shareholders' property.

Q. What are economic takings?

A. "Takings" is a legal and economic issue which relates to the government use, regulation or confiscation of private property without providing adequate compensation. I understand legally recognized, but uncompensated takings to be prohibited by the Fifth and Fourteenth Amendments of the U.S. Constitution and by the Arizona State Constitution. From an economist's perspective, takings are compulsory property transfers (or their regulatory equivalent) without appropriate compensation. If utility investors would be prevented from obtaining a reasonable return on their invested capital as a result of open access, there would be a taking, at least from the perspective of an economist. With open access, one of the things "taken" is the earnings that investors expect to receive from the assets. Shareholders provided funds with the expectation that they would receive, over the life of the investment, a cash flow that would both repay their original investment and provide a return commensurate with investments of similar risk. A change in regulation that prevents investors from receiving this amount may be viewed as a taking of private property without just compensation.

Also, open access itself can result in a form of physical taking, since the utility is compelled to give up the unrestricted use and control of its facilities for the wheeling of power provided by others and may be required to do so without adequate compensation.

VI. MITIGATION ISSUES

Q. Should utilities have the obligation to mitigate stranded costs in a reasonable way?

A. Yes. Stranded costs stem from the difference between assets acquired under a regulatory regime and the value of those assets in a competitive market. However, the utility may be able to take actions that reduce this difference in valuation. Such actions are frequently referred to as mitigation efforts. Reducing, or mitigating, total stranded costs lowers the total impact of the transition from regulation to competition by lowering costs or increasing the value of the utility's assets in a competitive marketplace. To increase the value of its assets, thereby lowering stranded costs, the incumbent utility will try to operate more efficiently.

Q. What is an appropriate standard for mitigation?

A. The utility should be required to make reasonable efforts to mitigate stranded generation investments by controlling generation costs and enhancing generation revenues. The amount of mitigation expected should be realistic and consider the extent to which the Company has already cut costs. Where possible, I strongly favor providing financial incentives for the utility to be aggressive in mitigation by allowing stockholders to share in the net benefits.

It would be inappropriate and counter-productive to hold the utility to a standard of achieving perfection in mitigation. It would also be unfair to assess its performance after the fact with the benefit of knowing market outcomes that utility management could not have accurately predicted.

Q. Witnesses Higgin and Rosen argue that profits from unregulated businesses owned by the utility should be considered in mitigation. Is this sound public policy?

A. No. While it is important that the stranded cost recovery process encourage mitigation efforts, the assets and costs relevant to mitigation should be limited specifically to those of the utility business. Other businesses owned by the parent company do not affect the costs of transition to competition in the electric industry and should not be considered when mitigating stranded costs. Unregulated business should be financially separated from regulated business in considering appropriate rates. Just as losses in unregulated businesses should not be subsidized by ratepayers, profits in unregulated ventures should not relieve ratepayer obligations.

New activities into which the incumbent enters after competition begins also should not figure in stranded costs, as these assets were never part of the regulatory compact. Allowing profits from non-utility activities to be applied to stranded costs will be seen by investors as a reduction in their return, thereby discouraging incumbents from engaging in new businesses (and consequently harming economic efficiency). Furthermore, such policy would increase the cost of both new debt and new and existing equity capital.

This view is entirely consistent with my understanding (as an economist) of the Supreme Court's ruling in *Brooks Scanlon Co. v. Railroad Commission of La.*, in which the Court ruled that it is not permissible to judge whether rate regulation is confiscatory by including the return to unregulated operations of the company in question. As the Court stated, "The plaintiff may be making money from its sawmill and lumber business but it no more can be compelled to spend that money than it can be compelled to spend any other money to maintain a railroad for the benefit of others who do not care to pay for it." [2]

VII. CALCULATIONS OF STRANDED COSTS

1. Auctions/Divestiture vs. The Net Revenue Lost Method

Q. Several witnesses (Rosenberg, Petrochko, Nelson and Smith) have argued that so called market-based approaches (e.g., divestiture and auctions) are superior to the revenue lost method. Do you agree?

A. No. If implemented correctly, the net revenue lost method has most, if not all, of the presumed advantages of the market-based methods without some of the drawbacks.

Q. Please describe what you believe is an appropriate implementation of the net revenue lost method.

A. I recommend, as APS is proposing, that the stranded cost recovery charge be computed year-by-year as the difference between the fixed cost recovery under regulation and under market-based prices. This method has the advantage of using market-based inputs, usually cited as one of the main virtues of market-based methods, without the forecasting errors that will occur if a longer time period is used.

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[2] 251 US 396,399 (1920).

Q. What are the main drawbacks associated with alternative market-based methods, such as auctions?

A. The main drawbacks with the auction or asset sale methods are:

1. Considerable time and expense will be required to go through the steps required to conduct the auction. Consequently, until the auction is completed, it will be necessary to use some other method to estimate stranded costs. Also, the cost of the auction will add to the magnitude of stranded costs.
2. It will be very difficult, if not impossible, to establish the value of nuclear plants through an auction process. There are substantial restrictions on the transfer of ownership and operation of nuclear generation plants. I am not aware of any that have been sold.
3. There are expected to be substantial transaction costs associated with the sale of plants such as paying taxes, transferring complex or interdependent power supply contracts, soliciting shareholder approvals, and obtaining the release of indentured property from bondholders.
4. An inefficient auction design may distort participants' valuations of an asset, thereby reducing the efficiency of this market-based mechanism. Valuation of the assets can also be affected by the timing of the auctions (i.e., whether the assets are sold all at once or across time).
5. There may be other impediments to the use of market-based methods. For example, market power could be increased if the sale results in greater regional concentration of generation units.

2. *Capping Recovery at Replacement Cost*

Q. Witnesses Higgins and Rosen recommend that total recoverable stranded costs be calculated by using replacement cost as a proxy for market prices. Do you agree with this recommendation?

A. No. Any estimate of stranded costs should reflect conditions that either exist or are expected to exist in the market. The replacement cost method, recommended by Mr. Higgins, uses the installed cost of the most efficient generation unit in the market to estimate the future price of electricity. The use of the replacement cost (a proxy for long-run marginal cost) is appropriate only when the market is in equilibrium, because any increase in demand will require new generation capacity to be built. Moreover, the industry does not have a good track record in predicting the cost or performance of future generation units.

In addition, the generation market is not in equilibrium and is not expected to be in equilibrium for some time. In fact, as discussed in the direct testimony of Jack Davis, the market is expected to have excess capacity until 2006. Consequently, until the market is in equilibrium, the market price for electricity will be lower than replacement cost. As a result, the use of replacement cost will systematically underestimate stranded costs until supply and demand are in balance. Moreover, the error occurs in the early years, where its impact on the stranded costs calculation will be the greatest.

3. *Disallowing Returns on Equity Financing*

Q. Dr. Rosenberg argues that utilities should not be allowed to earn a return on any equity used to finance stranded costs. Do you agree with this position?

A. No. This is a very thinly designed attempt to pick the shareholders' pockets. APS's cost of capital includes equity capital. Under Dr. Rosenberg's proposal, its shareholders would be denied an opportunity to earn a return on their invested capital that is commensurate with its risk. As previously discussed, this would amount to a taking without just compensation.

4. *Issuing Stock to Value Stranded Costs Would Be Ineffective and Expensive*

Q. Dr. Block and Mr. Lopezlira recommend a system in which stockholders hold a separate class of stock that gives them a claim exclusively to stranded asset recovery. What is your reaction to this recommendation?

A. Dr. Block and Mr. Lopezlira would split existing stock into 'A' shares, standard stock that provides the holder claims against the utility's future profits, and 'B' shares, claims strictly against stranded cost recovery. Purchasers would pay a price for 'B' shares based on what they believe to be the value of future stranded cost recovery, given estimates of future market prices, production costs, technological innovations, and public policy decisions. Dr. Block and Mr. Lopezlira imply that this system is an effective market-based method for determining the amount of stranded costs.

Q. Do you agree that this system is an effective method for estimating stranded costs?

A. No. The method has numerous defects. First, at best, the method reflects the value of the revenue stream associated with the regulatory process, including true-ups and the risk of future changes to the regulatory mechanism, not the difference between market and book value of the generation assets. Second, since the price of shares of stock will be affected by factors affecting all stocks (*e.g.*, financial problems in other countries and inflation announcements), the estimate of stranded costs will be erroneously influenced by factors unrelated to the value of generation assets. Third, the proposal appears to put payment of stranded cost recovery to holders of 'B' shares of stock ahead of bond holders, preferred stock holders, and holders of 'A' shares of stock. The legal or practical ability to do this is questionable. Fourth, it will be difficult, if not impossible, to apply the method if, as in the case of APS, the shares of stock are not publicly traded. All APS stock is owned by its parent company. Finally, it is expected that there will be significant transaction costs associated with issuing new shares of stock. These would increase the magnitude of stranded cost recovery.

VIII. RECOVERY MECHANISMS

1. The Recovery Period Should be As Short As Possible

Q. Mr. Coyle has suggested that the recovery period should be stretched out over a long period. Witness Rosen concurs, recommending calculating stranded costs over the period from 1998 to 2020. Do you agree?

A. No. Annual administrative calculation of the CTC would require comparing competitive costs and prices with a regulatory benchmark. As a result, these proposals would delay the onset of full competition, by keeping prices from market levels for years and requiring resources for a continuing regulatory process.

Recovering stranded costs over a shorter period of time will obviate the need for continued CTCs and will hasten the onset of a truly competitive market, bringing with it many long-term benefits to consumers and producers. Customer choice is likely to result in productive, allocative, and dynamic efficiencies that will lower costs, make prices better reflect marginal costs, stimulate technological advances, and encourage the development of new products and services. Consumers will better be able to determine what services they receive and at what prices. Further, the costs of regulation will be reduced.

Q. Dr. Rosen argues that the Commission should extend the recovery period to ensure that no consumers are made worse off by the implementation of retail access. Do you agree with this position?

A. No. While customers are likely to enjoy long-term benefits from the proper implementation of retail access, in the short run some customers may experience higher rates. Because of differences in the cost of serving customers (due to such factors as time of use, size, and load factor) and cross-subsidies inherent in the current average cost-based class rates, many customers are not charged rates that reflect the marginal or market cost of serving them. It is neither economically efficient nor desirable to guarantee that all customers will be better off under open access.

For economic efficiency, customers should pay the market price of the service they receive. Attempting to ensure that high-cost customers are no worse off under open access will mean that they pay less than the market price (marginal cost of the last unit dispatched). Charging customers a price that is less than marginal cost will cause them to over-consume and will prevent resources from being allocated to their highest-valued use. Setting rates below market levels and the marginal cost will also reduce the ability of the utility to make investments required to provide safe and reliable service and to meet load growth.

In addition, attempting to ensure that no customer is made worse off may lead to the formation of a two-tiered price system in which customers that benefit from obtaining generation services from the competitive market (generally customers whose cost to serve is low) will take the market option, whereas customers that benefit from purchasing generation on the regulated tariff (generally customers whose cost to serve is high) will pursue the regulated option. The ultimate result is that the utility will be left with customers that are, on average, more costly to serve.

Who will pay these higher costs is not clear. Customers whose cost of service is above average can be charged average rates only if someone else pays the bill or if the cost of service falls. The cost of service will not come down quickly. Initially, the same generation units are likely to continue to supply customers over the same network. Until there is sufficient time for cost savings to occur, everyone cannot be better off. Consequently, under Dr. Rosen's proposal, the financial viability of the utility would be threatened because the utility would be unable to increase rates to subsidize the high-cost customers.

Q. **Mr. Coyle raises the issue of intergenerational equity in this Docket. He asserts that stranded cost recovery assesses costs to customers now, while providing most of the benefits of competition at the end of a multi-year transition process. If true, is this a serious problem?**

A. No. While it would be desirable to closely match costs with benefits over time, there are many circumstances in which this is impractical. The lack of a close match in the timing of costs and benefits is not a valid reason not to proceed with a project which has clear long-term net benefits. The only economic issue that the difference in timing makes is whether the present value of the future benefits exceeds the current costs.

Q. **Can you provide other examples in which inter-temporal shifts of costs and benefits are routinely made to our mutual benefit?**

A. Yes. Highway construction uses federal trust funds that come largely from gasoline taxes paid in the past to fund major construction projects that often extend over long periods and result in capital improvements whose benefits will extend over many years. Likewise, the National Institutes of Health use current tax dollars to fund research which we hope will result in medical advances that will help future generations. In the electric industry, the benefits from regulatory assets accrued to customers in prior years, while the cost is spread out over future periods.

Indeed, few public projects closely match costs and benefits through time. While we now enjoy many of the benefits of truck, airline and telephone deregulation, a great many of the costs of these changes were borne in earlier periods. Matching time patterns of costs and benefits is only one issue in restructuring and it is not among the most important.

2. Lump Sum Payments or Exit Fees

Q. **Mr. Saline and Mr. Neidlinger recommend that customers be allowed to make a lump sum payment for their stranded cost obligation. Do you agree?**

A. Yes. I agree with their recommendation that customers should be able to pay for their share of the stranded costs either monthly, or as a lump sum. Paying the obligation as a lump sum would appear to have the advantages of (1) reducing the financing costs associated with the stranded assets, and (2) enabling customers to choose the option that will minimize the present value of their costs.

3. The APS Proposal Obviates the Need for a True-up Mechanism

Q. Do you agree with the argument advanced by numerous witnesses that a true-up mechanism is required to deal with forecasting errors?

A. I do not agree that a traditional true-up mechanism, complete with hearings, is required. I do agree that it is necessary to have some method of adjusting for forecast errors. I believe that the APS proposal does an excellent job of accomplishing this objective. The problem with most methods of estimating stranded costs is that they attempt to estimate stranded costs many years into the future. This leads to forecasting errors and the need for periodic true-ups. To get around this problem, the APS proposal reduces the forecasting period over which stranded costs payments are figured, eliminating the need for a true-up. As discussed in the direct testimony of Jack Davis, APS calculates annual stranded cost recovery charges as the difference between actual costs under cost-of-service ratemaking and market revenues. This calculation results in a year-by-year calculation of the margin under cost-of-service ratemaking and the margin from market sales. This mechanism obviates the need for repeated true-up proceedings and arguments concerning key inputs such as futures market prices and the appropriate discount rate to use.

4. Exclusions from Stranded Cost Responsibility Should Be Few

Q. Some people argue that certain utility customers should be exempt from paying a share of stranded costs. For example, Witness Broderick argues that public schools should not face any stranded cost burden. How do you respond to this proposal?

A. As long as exemptions do not reduce the total amount of stranded cost recovery, and as long as recovery occurs via an economically sound payment mechanism, the question of who should pay what share of the costs is ultimately a policy decision. While Mr. Broderick apparently believes that public interest dictates that public schools should not have to pay a share of these costs, the Commission should keep in mind that exempting some parties requires charging remaining customers more. Also, all parties should remember that energy deregulation will provide long-term benefits to many customers that will exceed the burden of covering stranded costs for a limited number of years.

Mr. Broderick argues that any stranded costs paid by schools will merely be passed on to residents and businesses in the form of higher taxes. However, any business or organization can make the same argument. Further, Mr. Broderick states that "schools with older facilities...stand to benefit the most from electricity price reduction," and yet, despite these benefits, he argues that schools should be exempt from transitional costs covering stranded investments.

Stranded cost recovery does not necessarily imply that all customers must share these costs equally, and the Commission may decide to charge different amounts to different parties. For example, the Commission could levy non-bypassable charges proportional to past usage or predicted future benefits. As long as the recovery mechanism promotes a competitive industry and keeps pricing distortions to a minimum, the Commission can decide how the public interest is best served by deciding on the differential impact of stranded cost recovery.

IX. RATE FREEZES VS. PRICE CAPS

Q. Several witnesses (Rosen, Higgins) recommend the use of a price cap on services after open-market access begins. Please comment.

A. The principal benefits of a competitive market are the incentives it provides for all participants to reduce cost through efficiency improvements and offer products that better meet customer needs. The Commission should not lose sight of these benefits. Any attempt to perpetuate the continuation of cost-of-service regulation through price caps, rate freezes or other mechanisms should be resisted, because they will impede the rapid development of competitive markets.

Q. Witnesses Rosen recommends continued price regulation to ensure that no consumer is made worse off by the transition to competition. Is this sound public policy?

A. No. As I mentioned previously, the principal benefits from the transition to competitive markets will accrue over the long term. Any attempt to prolong regulated ratemaking through a price cap or a rate freeze would delay the onset of competition and distort the marketplace. If it is interested in such public policy goals as shielding certain groups from the effects of a market transition, the Commission would be wise to consider direct policy options, such as subsidies to low-income consumers, rather than continued ratemaking, which would distort the price signal.

X. CONCLUSIONS

Q. What conclusions have you reached?

A. The regulatory compact, efficiency and equity all support allowing electric utilities in general, and APS in particular, to recover potentially stranded costs. This is not inconsistent with competition or competitive markets and will be a major contributor to quickly converting the electric industry to competition. Utilities should be expected to mitigate their stranded costs, but expectations should be realistic, and mitigation should not include unregulated affiliates. The net revenues method, as proposed by APS, is a reasonable way to value and collect stranded costs. Forced sale of assets or sale of a separate stranded investment stock have serious practical drawbacks. Rate freezes and caps are inconsistent with a competitive market and should be discouraged.

Q. Does this conclude your testimony?

A. Yes, it does.

JOHN H. LANDON

John Landon specializes in the application of economic and statistical principles to firms, industries and markets. Much of his work involves economic analysis for public utilities. He has managed numerous cases in the electric utility, coal, uranium, gas and computer industries, involving such issues as antitrust, competition, incentive regulation, relative firm efficiency, demand-side management, cost allocation, ratemaking, and retail and bulk power wheeling. His litigation work has involved damages assessments, forecasting, merger analysis, market definition and market power, valuation, antitrust liability, cost allocation, and pricing.

Dr. Landon has testified more than 100 times before federal district courts, state courts, the Securities and Exchange Commission, the Federal Energy Regulatory Commission, and various state commissions, and has prepared numerous expert reports and affidavits. He has authored or co-authored more than 20 articles published in academic and trade journals, two book chapters, and several monographs. His research areas include electric utilities, labor markets, vertical integration, and technological change.

Prior to joining Analysis Group Economics, Dr. Landon was Senior Vice President at NERA, Inc. Previously, he held positions as Associate Professor of Economics at the University of Delaware and Case Western Reserve University. Dr. Landon holds a Ph.D. in Economics from Cornell University.

PROFESSIONAL ACTIVITIES

Member of the Governor of Delaware's Economic Advisory Committee

Director of the Center for Policy Studies at the University of Delaware

A Director of the Delaware Econometric Model Group

Senior Research Associate in the Research Program in Industrial Economics at Case Western Reserve University

Member of the American Economic Association

Associate Member of the American Bar Association

TESTIMONY PROVIDED FOR THE FOLLOWING CLIENTS:

Silvaco Data Systems
Before the Superior Court for the State of California, November 7, 1997.

Entergy Gulf States, Inc.
Public Utility Commission of Texas, October 24, 1997.

Delmarva Power & Light Company
Before the Maryland Public Service Commission, Delaware Docket No. 79-229, August 19, 1997.

McGraw-Hill, Inc.
Before the United States District Court for the District of Colorado, Civil Action No. 94-WM-1697, July 17, 1997.

Donaldson, Lufkin & Jenrette
In the matter of the arbitration between Donaldson, Lufkin & Jenrette Securities Corporation and Lori Zager, NYSE No. 1996-005868, April 11, 1997.

Entergy Gulf States, Inc.
Public Utility Commission of Texas, April 4, 1997.

Louisiana Pacific
Superior Court of the State of California, County of Humbolt, Case No. 94DRO166, February 10, 1997.

Hoffmann-La Roche, Inc.
Superior Court of the State of California, County of Santa Clara, Case No. CV 746366, February 4, 1997.

Arizona Public Service Company
Arizona Corporation Commission, Docket No. R-0000-94-165, November 27, 1996.

MidAmerican Energy Company
Iowa State Utilities Board, Docket No. APP-96-1 and RPU-96-8 (Consolidated), October 30, 1996.

California Tennis Club
Superior Court of the State of California, County of San Francisco, Case No. 972651, September 27, 1996.

El Paso Electric Company
United States District Court, District of New Mexico, Civil Action No. 95-485-LCS, July 2 and 3, 1996.

Nevada Power Company
American Arbitration Association in the matter Saguaro Power Company, Inc. v. Nevada Power Company, AAA Case No. 79 Y 199 0054 95, May 29, 1996.

Arizona Public Service Company
Arizona Corporation Commission, Docket No. U-1345-95-491, March 1 and April 4, 1996.

Fireman's Insurance Companies
Insurance Commissioner of the State of California, Case No. RB-94-002-00, February 9, 1996.

Nevada Power Company
American Arbitration Association in the matter Nevada Cogeneration Associates #1 and Nevada Cogeneration Associates #2 v. Nevada Power Company, AAA Case No. 79 Y 199 0064 95, December 6 and 7, 1995.

Beverly Enterprises-California, Inc.
Superior Court of the State of California, County of San Francisco, Case No. 962589, November 6 and 7, 1995.

PECO Energy Company
Pennsylvania Public Utility Commission, Docket No. I-940032, November 6, 1995.

Southern California Gas Company
Private arbitration panel in the matter Marathon Oil Company v. Southern California Gas Company, May 18, 1995.

Southern Company Services, Inc.
Federal Energy Regulatory Commission, Docket Nos. ER94-1348-000 and EL94-85-000, November 7, 1994.

American Electric Power Service Corporation
Federal Energy Regulatory Commission, Docket No. ER93-540-001, August 26, 1994 and January 18, 1995.

Florida Power & Light Company
Florida Public Service Commission, Docket No. 930548-EG, May 19, May 25 and June 6, 1994.

PECO Energy Company and Susquehanna Electric Company
Federal Energy Regulatory Commission, Docket No. ER94-8-000, January 21, 1994.

El Paso Electric Company and Central & South West Services, Inc.
Federal Energy Regulatory Commission, Docket No. EC94-7-000, January 10 and December 12, 1994.

Benziger Family Ranch Associates, dba Glen Ellen Winery, *et al.*
Superior Court of California, Sonoma County, Case No. 187834, June 23, 1993.

The Montana Power Company
Montana Public Service Commission, Docket No. 93.6.24, June 21, 1993 and October 15, 1993.

Consumers Power Company
Michigan Public Service Commission, Case No. U-10335, May 10, 1993.

Detroit Edison Company
Michigan Public Service Commission, Case Nos. U-10143 and U-10176, March 1, 1993 and May 17, 1993.

Florida Power & Light Company
Florida Public Service Commission, Docket No. 920606-EG, December 15, 1992 and January 20, 1993.

Intermedics, Inc.
United States District Court, Northern District of California, Civil Action No. 90-20233 JW (WDB), December 2, 1992.

Eaton Corporation, *et al.*
Superior Court of California, Sonoma County, Case No. 179105, August 24, 1992.

Florida Power & Light Company
Florida Public Service Commission, Docket No. 920520-EQ, August 5, 1992.

Florida Power & Light Company
Florida Public Service Commission, Docket No. 891324-EU, March 12, 1991.

Iowa Public Service Company
Iowa State Utilities Board, Docket No. SPU-88-7, February 28, 1989 and September 1, 1989.

Arizona Public Service Company
Arizona Corporation Commission, Docket No. U-1345-88-180, November 7, 1988 and January 17, 1989.

Delmarva Power and Light Company
Delaware Public Service Commission, Docket No. 88-16, June 3, 1988, February 10, 1989 and April 24, 1989.

Florida Power Corporation
Florida Public Service Commission, Docket No. 860001-EI-G, Investigation Into Affiliated Cost-Plus Fuel Supply Relationships of Florida Power Corporation, May 2, 1988.

Cambridge Electric Light Company and Commonwealth Electric Company
Massachusetts Department of Public Utilities, Docket Nos. DPU87-2C and DPU87-3C, January 29, 1988.

Gulf States Utilities Company
Nineteenth Judicial District Court, State of Louisiana, Case No. 324,224, Division "I", January 28, 1988.

Utah Power and Light Company, PacifiCorp, PC/UP&L Merging Corporation
Federal Energy Regulatory Commission, Docket No. EC88-2-000, January 8, 1988 and February 24, 1988.

Illinois Power Company
Illinois Commerce Commission, Docket No. 87-0695, November 19, 1987, June 10, 1988 and July 22, 1988.

Canal Electric Company
Federal Energy Regulatory Commission, Docket No. ER86-704-001, October 15, 1987.

Minnesota Power and Light Company
Minnesota Public Utilities Commission, Docket No. E-015/GR-87-223, September 16, 1987.
Gulf States Utilities Company
Texas Public Utility Commission, Docket Nos. 6755 and 7195, April 13, 1987.

Gulf States Utilities Company
Louisiana Public Service Commission, Docket No. U-17282, March 23, 1987 and May 26, 1987.

Arizona Public Service Company
Arizona Corporation Commission, Docket No. U-1345-85-367, February 13, 1987 and March 16, 1987.

Delmarva Power and Light Company
Delaware Public Service Commission, PSC Regulation Docket No. 14 (Concerning Gas and Electric Fuel Adjustment Clauses), December 1, 1986 and December 21, 1987.

Southern California Edison Company
United States District Court, Central District of California, Civil Action No. 78-0810-MRP, August 26-28, 1986.

Florida Power and Light Company
Florida Public Service Commission, Docket No. 860786-EI, August 15, 1986 and September 5, 1986.

Jersey Central Power and Light Company
New Jersey Board of Public Utilities, BPU Docket No. 8511-1116, August 7, 1986.

Florida Power and Light Company
Florida Public Service Commission, Docket No. 850673-EU, Generic Investigation of Standby Rates, July 16, 1986 and July 30, 1986.

Commonwealth Edison Company
Federal Energy Regulatory Commission, Docket Nos. ER86-76-001 and ER86-230-001, June 23, 1986.

Gulf States Utilities Company
Federal Energy Regulatory Commission, Docket No. ER85-538-001, January 6, 1986 and April 25, 1986.

Arizona Public Service Company
Arizona Corporation Commission, Docket No. U-1345-85-156, November 15, 1985, February 3, 1986 and February 18, 1986.

Eastern Utility Associates Power Corporation
Federal Energy Regulatory Commission, Docket No. EL85-46-000, September 20, 1985.

Southern California Edison Company
Federal Energy Regulatory Commission, Docket No. ER79-150-000 (Phase II) Price Squeeze, August 20, 1985.

Baltimore Gas and Electric Company
Maryland Public Service Commission, Case No. 7871, August 1, 1985 and December 16, 1985.

Central Vermont Public Service Corporation
Vermont Public Service Board, Docket No. 5030, July 12, 1985.

Delmarva Power and Light Company
Maryland Public Service Commission, Case No. 7871, June 28, 1985 and December 16, 1985.

Florida Power and Light Company
Florida Public Service Commission, Docket No. 840399-EU, April 19, 1985 and May 1, 1985.

Central and South West Services, Inc.
Federal Energy Regulatory Commission, Docket No. ER82-545, et al., April 11, 1985.

Gulf States Utilities Company
Louisiana Public Service Commission, Docket No. U-16338, April 9, 1985.

Gulf States Utilities Company
Federal Energy Regulatory Commission, Docket No. ER84-568-000, February 22, 1985.

Gulf States Utilities Company
Texas Public Utility Commission, Docket No. 5820, October 15, 1984.

Central and South West Services, Inc.
Federal Energy Regulatory Commission, Docket No. ER84-31-000, August 6, 1984.

Delmarva Power and Light Company
Delaware Public Service Commission, Docket No. 84-21, July 3, 1984 and July 10, 1985.

Houston Lighting and Power Company
Texas Public Utility Commission, Docket No. 5779, June 7, 1984.

Gulf States Utilities Company
Louisiana Public Service Commission, Docket No. V-16038, June 7, 1984.

Gulf States Utilities Company
Texas Public Utility Commission, Docket No. 5560, April 23, 1984.

Pennsylvania Power Company
Federal Energy Regulatory Commission, Docket No. ER81-779, December 1, 1983.

American Electric Power System Companies
Federal Energy Regulatory Commission, Docket No. E-9206, November 21, 1983 and November 5, 1984.

Appalachian Power Company
Public Service Commission of West Virginia, Case No. 83-384-E-GI, November 2, 1983.
Investor-Owned Electric and Gas Utilities of Iowa
Iowa State Commerce Commission, Docket No. RMU-83-17, October 27, 1983.

Appalachian Power Company
Federal Energy Regulatory Commission, Docket Nos. ER82-853 and ER82-854, October 31, 1983.

Ohio Edison Company
Federal Energy Regulatory Commission, Docket No. ER82-79 (Phase II), April 15, 1983.

Ohio Power Company
Federal Energy Regulatory Commission, Docket Nos. ER82-553 and ER82-554, March 25, 1983, May 20, 1983 and June 27, 1983.

Pennsylvania Power Company
Pennsylvania Public Utility Commission, Docket No. R-821918C002, January 21, 1983.

Indiana and Michigan Electric Company
United States District Court, Northern District of Indiana, Civil Action No. F78-148, March 1982.

Louisiana Power and Light Company
Federal Energy Regulatory Commission, Docket Nos. EL81-13 and ER81-457, September 4, 1981 and September 13, 1981.

Philadelphia Electric Company
United States District Court, Eastern District of Pennsylvania, Civil Action No. 78-2533, July 7-9, 1981.

Appalachian Power Company
Federal Energy Regulatory Commission, Docket No. EL78-13, March 1981 and January 1982.

Arkansas Power and Light Company
Arkansas Public Service Commission, Docket No. F-007, November 1980.

Central Vermont Public Service Corporation
State of Vermont Public Service Board, PSB Docket No. 4299, November 30, 1979.

Union Electric Company
Federal Energy Regulatory Commission, Docket No. ER77-614, February 9, 1979.

Wisconsin Power and Light Company
Federal Energy Regulatory Commission, Docket No. ER77-347, May 31, 1978 and March 7, 1979.

Empire State Power Resources, Inc.
New York State Public Service Commission, Case No. 26798, October 11, 1977.

Staff of the Securities and Exchange Commission
Securities and Exchange Commission, In the Matter of Delmarva Power and Light Company, File No. 59-144, April 30, 1973.

EXPERT REPORTS AND AFFIDAVITS

"Affidavit of John H. Landon," on behalf of American Electric Power Service Corporation before the Federal Energy Regulatory Commission, Docket No. ER93-540-001, July 18, 1996.

"Rebuttal to Expert Report of Phillip Allman," expert rebuttal report of John H. Landon prepared on behalf of Family Health Foundation, Inc. in the United States District Court, Northern District of California, Case No. C95-2013, September 9, 1996.

"Rebuttal to Expert Report of Ona Schissel," expert rebuttal report of John H. Landon prepared on behalf of Family Health Foundation, Inc. in the United States District Court, Northern District of California, Case No. C95-2013, August 23, 1996.

"Expert Report of John H. Landon," prepared on behalf of Family Health Foundation, Inc. in the United States District Court, Northern District of California, Case No. C95-2013, July 16, 1996.

"Expert Report of John H. Landon on behalf of Nevada Power Company," in a private arbitration before the American Arbitration Association in the matter *Saguaro Power Company, Inc. v. Nevada Power Company*, AAA Case No. 79 Y 199 0054 95, April 4, 1996.

"An Overview of the Electric Utility Industry," expert report of John H. Landon prepared on behalf of El Paso Electric Company before the United States District Court, District of New Mexico, Civil Action No. 95-485-LCS, March 1, 1996.

"Adverse Consequences and Material Impairment Resulting from the Las Cruces Condemnation," expert report of John H. Landon prepared on behalf of El Paso Electric Company before the United States District Court, District of New Mexico, Civil Action No. 95-485-LCS, March 1, 1996.

"Statement of John H. Landon," on behalf of PECO Energy Company regarding Investigation into Electric Power Competition, before the Pennsylvania Public Utility Commission, Docket No. I-940032, January 6, 1996.

"Expert Report of John H. Landon on behalf of Nevada Power Company," in a private arbitration before the American Arbitration Association in the matter *Nevada Cogeneration Associates #1 and Nevada Cogeneration Associates #2 v. Nevada Power Company*, AAA Case No. 79 Y 199 0064 95, November 14, 1995.

"Rebuttal Expert Report of John H. Landon," prepared on behalf of Southern California Gas Company before a private arbitration panel in the matter *Marathon Oil Company v. Southern California Gas Company*, April 21, 1995.

"Expert Report of John H. Landon," prepared on behalf of Southern California Gas Company before a private arbitration panel in the matter *Marathon Oil Company v. Southern California Gas Company*, April 7, 1995.

"Initial Comments of National Economic Research Associates, Inc. on Florida DSM Employment Impacts," prepared for Florida Power & Light Company, January 1994, with Mark P. Berkman and Peter H. Griffes.

AG

"Answers to Questions Concerning the Treatment of Distribution Companies," prepared for the Chilean National Energy Commission, October 25, 1993.

"Final Report on Transmission Pricing in Chile to the Chilean National Energy Commission," prepared for the Chilean National Energy Commission, October 25, 1993.

"A Proposal for Backstop Regulation for Cable Television Prices," prepared on behalf of Time Warner Entertainment Company, L.P. before the Federal Communications Commission, August 25, 1993, with Lewis Perl, Paul Brandon and Anna Della Valle.

"Affidavit of John H. Landon on Behalf of Northeast Utilities Service Company," prepared on behalf of Northeast Utilities Service Company before the Federal Energy Regulatory Commission, Docket Nos. EC90-10-007, et al., April 27, 1993.

"Incentive Regulation in the Electric Utility Industry," a survey of state regulation programs throughout the United States, January 1993.

"Affidavit of John H. Landon in Support of Motion for Summary Judgment," prepared on behalf of Portland General Electric Company before the United States District Court, District of Oregon, Civil Action Nos. 90-524 FR and 90-592 FR, December 9, 1992.

"Affidavit of John H. Landon on Behalf of Northeast Utilities Service Company," prepared in support of Request for Rehearing of Northeast Utilities Service Company before the Federal Energy Regulatory Commission, Docket No. ER92-766-000, November 2, 1992.

"Declaration of John Landon in Support of Plaintiff's Motion for Summary Judgment or Alternatively for Summary Adjudication," prepared on behalf of Benziger Family Ranch Associates d/b/a/ Glen Ellen Winery before the Superior Court of California, Sonoma County, Case No. 187834, October 9, 1992.

"Supplemental Expert Report of John H. Landon in Response to the Expert Report of Gordon T.C. Taylor," prepared on behalf of Portland General Electric Company before the United States District Court, District of Oregon, Civil Action Nos. 90-524 FR and 90-592 FR, August 28, 1992.

"Expert Report of John H. Landon," prepared on behalf of Portland General Electric Company before the United States District Court, District of Oregon, Civil Action Nos. 90-524 FR and 90-592 FR, July 3, 1992.

"Declaration of John Landon in Opposition to Plaintiff's Motion for Permanent Injunction," an affidavit prepared on behalf of Sega of America, Inc. before the United States District Court, Central District of California, Civil Action No. CV-90 2323 RJK, April 23, 1992.

"Preliminary Report for the Colombian National Planning Department," presented to the Colombian National Planning Department, Bogotá, Colombia, November 7, 1991.
"The United States Electric Utility Industry," presented at the Seminar on Restructuring the Electric Power Subsector in Colombia, Paipa, Colombia, sponsored by The World Bank, May 31-June 1, 1991.

"Affidavit of John H. Landon," prepared on behalf J. F. Shea Company, Coast Cable Partners, *et al.* before the United States District Court, Northern District of California, San Jose Division, Civil Action No. C-90-20073 WAI, October 3, 1990.

"Incentive Regulation in the Electric Utility Industry," a survey of state regulation programs throughout the United States, July 1990.

"An Estimate of the Economic Loss Sustained by Brian Nelson as a Result of His Job Loss," an Expert Report prepared on behalf of Pacific Gas and Electric Company before the Superior Court of the State of California, City and County of San Francisco, Case No. 864961, June 20, 1990.

"Affidavit of John H. Landon on Behalf of Florida Power & Light Company," prepared on behalf of Florida Power & Light Company before the United States District Court, Middle District of Florida, Tampa Division, Civil Action No. 88-1622-CIV-T-13C, March 30, 1990.

"Declaration of John H. Landon in Support of Defendant's Motion to Exclude Plaintiff's Expert Witness on Damages or, Alternatively, to Bifurcate Trial on Liability and Damages Issues," an affidavit prepared on behalf of Clyde Robin Seed Company, Inc. before the United States District Court, Northern District of California, Civil Action No. C 88-4540 SC, February 23, 1990.

"Expert Report of John H. Landon," prepared on behalf of Florida Power and Light Company, FPL Group, Inc. and FPL Energy Service, Inc. before the United States District Court, Southern District of Florida, Civil Action No. 88-2145, December 8, 1989.

"An Evaluation of the OCC's Performance Incentive Proposal and Suggestions for a New Performance Incentive Program," a report prepared on behalf of the Ohio Electric Utility Institute, September 23, 1988, with Stephen M. St. Marie.

"Comments Responding to BPU Staff's Assessment of Cogeneration and Small Power Production," prepared on behalf of Public Service Electric and Gas Company before the New Jersey Board of Public Utilities, Docket No. 8010-687B, August 31, 1987, with Joe D. Pace.

"Incentive Regulation in the Electric Utility Industry," a survey of state regulation programs throughout the United States, July 1987.

"Comments (Initial and Reply) of National Economic Research Associates, Inc.," prepared on behalf of Illinois Power Company before the Illinois Commerce Commission, No. 86-NOI-1, Excess Capacity, December 15, 1986 and January 20, 1987.

"Incentive Regulation in the Electric Utility Industry," a survey of state regulation programs throughout the United States, October 1985.

"Utility Performance Evaluation," prepared for the Rate Research Committee of the Edison Electric Institute, September 18, 1984, with David A. Huettner.

"Comments on the Proposed Standard for Utility Construction Decision Making," prepared on behalf of the Ohio Electric Utility Institute before the Public Utilities Commission of Ohio, Case No. 84-61-AU-ORD, April 28, 1984.

"Expert Report of John H. Landon," prepared on behalf of Pennsylvania Power Company before the United States District Court, Western District of Pennsylvania, Civil Action No. 77-1145, March 1, 1984.

"Additional Comments," prepared on behalf of the Investor-Owned Electric and Gas Utilities of Iowa before the Iowa State Commerce Commission, Docket No. RMU-83-17, October 1983.

"Recommendations of the Investor-Owned Electric and Gas Utilities of Iowa in Response to the Iowa State Commerce Commission Request for Comments in Docket No. RMU-83-17," prepared in conjunction with Iowa investor-owned utilities, October 1983.

"Report to the Iowa State Commerce Commission on Measuring Productivity of Electric Utilities," prepared on behalf of Investor-Owned Electric and Gas Utilities of Iowa before the Iowa State Commerce Commission, Docket No. RMU-83-17, October 1983.

"Analysis of the Operations Review Division Proposal," prepared on behalf of the Investor-Owned Electric and Gas Utilities of Iowa before the Iowa State Commerce Commission, Docket No. RMU-83-17, October 21, 1983.

"Comment on 'Incentive Regulation in the Electric Utility Industry'," prepared on behalf of a consortium of electric utilities and submitted to the Federal Energy Regulatory Commission, March 1983.

"Expert Report on Competition and Relevant Markets," prepared on behalf of Delmarva Power and Light Company before the United States District Court, District of Delaware, Civil Action Nos. 77-254 and 77-296, December 15, 1982.

"Measuring Productivity of Electric Utilities," a report prepared for Wisconsin Electric Power Company, May 1982.

"Analysis of Chapter 14 'Competition' of the National Power Grid Study," prepared by NERA for the Edison Electric Institute, December 20, 1979.

"Short Term Economic Forecasting Techniques for Selected Atlantic Fisheries," prepared for U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Office of Fisheries Development, Economic Analysis Group, April 1978, with Lee G. Anderson.

"Economic Impact of Alternative Crude Oil Transfer Techniques in the Lower Delaware Region: A Report on a Proposed Analytic Design," prepared for the Center for the Study of Marine Policy, College of Marine Studies, University of Delaware, September 30, 1974, with William R. Latham and Mark G. Brown.

PUBLICATIONS

Retail Access Pilot Programs: Where's the Beef?," *The Electricity Journal*, Vol. 9, No. 10, December 1996, pp.19-25, with Edward P. Kahn.

"Wine Wars: An Economic Analysis of Winery/Distributor Litigation," *Practical Winery & Vineyard*, January/February 1994, pp. 40-41, with Kara T. Boatman.

"Use and Abuse of Economic Experts in Winning a Business Jury Trial," American Bar Association, National Institute, November 1990, with Lewis J. Perl. (Reprinted in *How to Win a Business Jury Trial*, copyright 1990, 1991 and 1992, American Bar Association.)

"Opportunity Costs as a Legitimate Component of the Cost of Transmission Service," *Public Utilities Fortnightly*, December 7, 1989, with Joe D. Pace and Paul L. Joskow.

"Theories of Vertical Integration and Their Application to the Electric Utility Industry," *The Antitrust Bulletin*, Spring 1983.

"Measuring Electric Utility Efficiency," *Proceedings of the Fall Industrial Engineering Conference*, American Institute of Industrial Engineers, Cincinnati, Ohio, November 14-17, 1982.

"Introducing Competition into the Electric Utility Industry: An Economic Appraisal," *Energy Law Journal*, Vol. 3, No. 1, May 1982, pp. 1-65, with Joe D. Pace.

"Regional Econometric Models: Specification and Simulation of a Quarterly Alternative for Small Regions," *Journal of Regional Science*, Vol. 19, No. 1, 1979, pp. 1-13, with William R. Latham and Kenneth A. Lewis.

"Electric Utilities: Economies and Diseconomies of Scale," *Southern Economic Journal*, Vol. 44, No. 4, April 1978, pp. 883-912, with David A. Huettner.

"Restructuring the Electric Utility Industry: A Modest Proposal," *Electric Power Reform: The Alternatives for Michigan*, William H. Shaker, Wilbert Steffy, eds. (Ann Arbor, Mich.: Institute of Science and Technology, The University of Michigan, 1976), pp. 217-229, with David A. Huettner.

"Market Structure, Nonpecuniary Factors, and Professional Salaries: Registered Nurses," *Journal of Economics and Business*, Vol. 28, 1975-1976, pp. 151-155, with Charles R. Link.

"Richard Hellman, *Government Competition in the Electric Utility Industry: A Theoretical and Empirical Study*," *The Antitrust Bulletin*, Vol. XX, No. 3, Fall 1975, pp. 681-684. [Book Review.]

"Changing Technology and Optimal Industrial Structure," *Technological Change: Economics, Management and Environment*, Bela Gold, ed. (New York, N.Y.: Pergamon Press, 1975), Chapter 4, pp. 107-127.

"Monopsony and Teachers' Salaries: Some Contrary Evidence ¾ Comment," *Industrial and Labor Relations Review*, Vol. 28, No. 4, July 1975, pp. 574-577.

"Monopsony and Union Power in the Market for Nurses," *Southern Economic Journal*, Vol. 41, No. 4, April 1975, pp. 649-659, with Charles R. Link.

"Pricing in Combined Gas and Electric Utilities: A Second Look," *The Antitrust Bulletin*, Vol. XVIII, No. 1, Spring 1973, pp. 83-98.

"Political Fragmentation, Income Distribution, and the Demand for Government Services," *Nebraska Journal of Economics and Business*, Autumn 1972, pp. 171-184, with Robert N. Baird.

"Electric and Gas Combination and Economic Performance," *Journal of Economics and Business*, Fall 1972, Vol. 25, pp. 1-13.

"Discrimination, Monopsony, and Union Power in the Building Trades: A Cross-Sectional Analysis," *Monthly Labor Review*, April 1972, pp. 24-26, with William Pierce.

"The Effects of Collective Bargaining on Public School Teachers' Salaries ¾ Comment," *Industrial and Labor Relations Review*, Vol. 25, No. 3, April 1972, pp. 410-423, with Robert N. Baird.

"An Economic Analysis of Combination Utilities," *The Antitrust Bulletin*, Vol. XVII, No. 1, Spring 1972, pp. 237-268, with John W. Wilson.

"Teacher Salaries and School Decentralization," *Education and Urban Society*, February 1972, pp. 197-210, with Robert N. Baird.

"Monopsony in the Market for Public School Teachers," *The American Economic Review*, Vol. LXI, No. 5, December 1971, pp. 965-971, with Robert N. Baird.

"The Relation of Market Concentration to Advertising Rates: The Newspaper Industry," *The Antitrust Bulletin*, Vol. XVI, No. 1, Spring 1971, pp. 53-100.

"The Effect of Product Market Concentration on Wage Levels: An Intra-Industry Approach," *Industrial and Labor Relations Review*, Vol. 23, No. 2, January 1970, pp. 237-247.

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BEFORE THE

ARIZONA CORPORATION COMMISSION

REBUTTAL TESTIMONY OF BENJAMIN A. McKNIGHT

On Behalf of

Arizona Public Service Company

Docket No. RE-00000C-94-0165

February 4, 1998

TABLE OF CONTENTS

REBUTTAL TESTIMONY

OF

BENJAMIN A. McKNIGHT

(Docket No. U-0000-94-163

I. INTRODUCTION AND PURPOSE OF TESTIMONY

Q. PLEASE PROVIDE YOUR NAME, OCCUPATION AND BUSINESS ADDRESS.

A. My name is Benjamin A. McKnight. I am a certified public accountant and a partner in the firm of Arthur Andersen LLP (Arthur Andersen), independent public accountants. My business address is 33 West Monroe Street, Chicago, Illinois 60602.

Q. PLEASE DESCRIBE THE FIRM OF ARTHUR ANDERSEN.

A. Arthur Andersen is an independent public accounting firm with more than 325 offices in over 75 countries located throughout the world. Our clients include a large number of New York Stock Exchange companies. We provide audit services to approximately one-third of the electric and gas distribution companies in the United States and to a substantial number of natural gas transmission, water and telephone companies. However, our clients are, for the most part, users of regulated utility services rather than suppliers.

Q. PLEASE STATE YOUR PROFESSIONAL BACKGROUND AND QUALIFICATIONS TO TESTIFY AS AN EXPERT WITNESS IN THIS PROCEEDING.

A. I have a Bachelor of Science degree from Florida State University and a Master's in Business Administration from Northwestern University. I have been with Arthur Andersen since 1971. A substantial portion of my career has been devoted to accounting and regulatory matters related to regulated electric, gas, telecommunications and water companies. I have performed numerous audits of these companies. I have participated in or been responsible for the determination of historical cost, working capital and cost of service, including affiliated transactions, as required by state and federal regulatory commissions, and have supervised our professional services in connection with numerous rate case proceedings and a large number of public financings. I have testified on accounting and regulatory matters before various utility commissions, including the Arizona Corporation Commission (the Commission). I have also testified in proceedings addressing accounting, regulatory and tax issues before the United States District Court, United States Treasury and Internal Revenue Service National Office officials.

I have authored a chapter on regulation and accounting for regulated enterprises published in *Accountants' Handbook,* (Eighth Edition, © 1996 by John Wiley & Sons, Inc.) and co-authored a chapter on natural gas industry accounting and financial reporting developments published in *The 1994 Natural Gas Yearbook* (© 1994 by Executive Enterprises). I am a frequent speaker on regulatory and accounting subjects before regulators, industry groups and professional organizations. I am a member of the American Institute of Certified Public Accountants (AICPA) and the Illinois CPA Society.

Q. WHAT ARE YOUR RESPONSIBILITIES?

A. I am the Accounting and Audit Technical Coordinator for Arthur Andersen's Utilities and Telecommunications Industries Program, which includes our practice with respect to electric, natural gas, telecommunications and water companies. In this capacity, I am responsible for the consistent applications of accounting principles and audit procedures relating to our clients in these industries. I am or have been the engagement partner for various electric and gas utility and telecommunications clients, including Northern Illinois Gas Company, IES Industries, Central Illinois Light Company, Kentucky Utilities Company, Commonwealth Edison Company and Telephone & Data Systems, Inc. I served a three-year term as chairman of the AICPA's Public Utilities Committee, of which I was a member from October 1986 through September 1992. The activities of the Committee include semi-annual liaison meetings with the Staff Subcommittee on Accounts of the National Association of Regulatory Utility Commissioners and the accounting staffs of various regulatory commissions, including the Securities and Exchange Commission. I have worked closely with the Financial Accounting Standards Board (FASB) and its staff on various technical and practice issues regarding regulated enterprise projects, including those addressed to its Emerging Issues Task Force (EITF). The FASB is an authoritative body, which established a common set of financial accounting concepts, standards, procedures and conventions commonly known as generally accepted accounting principles (GAAP).[1]

Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY IN THIS PROCEEDING?

A. My rebuttal testimony on behalf of Arizona Public Service Company (APS or the Company) addresses the information submitted in this proceeding regarding the implications of the Statement of Financial Accounting Standards No. 71 (FAS 71), *Accounting for the Effects of Certain Types of Regulation*, resulting from the recommended stranded cost calculation and recovery mechanism. I will also comment on the financial reporting impact resulting from various proposals presented in this proceeding.

II. SUMMARY

Q. **WOULD YOU PLEASE SUMMARIZE YOUR TESTIMONY?**

A. Direct testimony submitted in this proceeding provides an accurate overview of the financial reporting followed by rate-regulated enterprises. The direct testimony also addresses the relevant financial reporting guidance that should be applied when a previously rate-regulated entity becomes deregulated for all or a portion of its operations. Among the issues covered by that guidance is the financial reporting for regulatory assets when deregulation occurs. Future regulated cash flows determine whether regulatory assets should be recorded or written off.

[1] The phrase "generally accepted accounting principles" is a technical accounting term that encompasses the conventions, rules and procedures necessary to define accepted accounting practice at a particular time. It includes not only broad guidelines of general application, but also detailed practices and procedures. Those conventions, rules and procedures provide a standard by which to measure financial presentations. Statement on Auditing Standards No. 69, *The meaning of Present Fairly in Conformity with Generally Accepted Accounting Principles in the Independent Auditor's Report*, a pronouncement of the Auditing Standards Board, the senior technical body of the AICPA, revises the generally accepted accounting principles hierarchy for financial statements of nongovernmental entities.

APS, as a result of Decision No. 59601, currently has a regulatory plan that provides for the recovery of its existing regulatory assets. If that plan is altered, the new regulatory recovery plan should specifically identify the existing regulatory assets, along with any new regulatory assets created as a result of the transition to deregulation, that are determined to be recoverable. The plan should also include a rate mechanism that provides, with a high degree of assurance, sufficient future regulated cash flows to recover the regulatory assets. Because of the high standard for recording regulatory assets, the recovery period for regulatory assets should be relatively short.

III. RELEVANT ACCOUNTING STANDARDS

Q. MR. MCKNIGHT, HAVE YOU READ THE TESTIMONY SUBMITTED BY MS. SHERYL L. HUBBARD, ON BEHALF OF THE COMMISSION STAFF, AND MS. KAREN G. KISSINGER, ON BEHALF OF TUSCON ELECTRIC POWER COMPANY?

A. Yes, I have.

Q. WOULD YOU PLEASE COMMENT ON THAT TESTIMONY?

A. The direct testimony of Ms. Hubbard and Ms. Kissinger provide a reasonably accurate overview of the financial reporting followed by rate-regulated enterprises in the preparation of GAAP based financial statements. The focus of the testimony is the proper application of FAS 71, Statement of Financial Accounting Standards No. 101 (FAS 101), *Regulated Enterprises – Accounting for the Discontinuation of Application of FASB Statement 71,* Statement of Financial Accounting Standards No. 121 (FAS 121), *Accounting for the Impairment of Long-Lived Assets and for Long-Lived Assets to be Disposed Of.* In addition, the direct testimony also addresses the relevant financial reporting guidance that should be applied when a previously rate-regulated entity becomes deregulated for all or a portion of its operations.

Q. **WOULD YOU PLEASE SUMMARIZE THE RELEVANT PROVISION OF FAS 71, FAS 101 AND FAS 121?**

A. FAS 71 provides guidance in preparing general purpose financial statements for most rate-regulated public utilities. In general, the type of regulation covered by FAS 71 permits rates to be set at levels intended to recover the estimated costs of providing regulated services or products, including the cost of capital. The cost of capital consists of interest costs and a provision for earnings on shareholders' investments.

FAS 71 recognizes that a principal consideration introduced by rate regulation is the cause-and-effect relationship of costs and revenues – an economic dimension that, in some circumstances, should affect accounting for rate-regulated enterprises. Thus, a rate-regulated utility must capitalize a cost (as a regulatory asset) or recognize an obligation (as a regulatory liability) if it is probable that, through the ratemaking process, there will be a corresponding increase or decrease in future revenues.

FAS 101 addresses the accounting for enterprises that cease to meet the criteria for following the provisions of FAS 71. Once all or parts of a company's operations no longer are subject to FAS 71, it should discontinue application of that Statement and report the impacts associated with discontinuation.

Specifically, the balance sheet effects of any actions of regulators that had been recognized as assets and liabilities pursuant to FAS 71 (including regulatory assets and liabilities netted against the carrying amounts of plant, equipment and inventory) should be eliminated. However, the carrying amounts of plant, equipment and inventory measured and reported pursuant to FAS 71 should not be adjusted unless those assets are impaired (under FAS 121), in which case the carrying amounts of those assets should be reduced to reflect that impairment. The net effect of the above adjustments should be included in income of the period of the change and classified as an extraordinary item in the income statement.

FAS 101 specifies that, if a separable portion of a rate-regulated enterprise's operations within a regulatory jurisdiction ceases to meet the criteria for application of FAS 71, application of FAS 71 to that separable portion should be discontinued.

FAS 121 requires that long-lived assets and certain identifiable intangibles to be held and used by an entity be reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. If the sum of the expected future cash flows from the use of the asset and its eventual disposition (undiscounted and without interest charges) is less than the carrying amount of the asset, an impairment loss is recognized and a new cost basis for that asset is established. The impairment loss is measured based on the fair value of the asset.

Q. WHAT IS THE FINANCIAL REPORTING GUIDANCE CONCERNING DEREGULATION ADDRESSED BY MS. HUBBARD AND MS. KISSINGER?

A. EITF Issue 97-4 (Issue 97-4), *Deregulation of the Pricing of Electricity – Issues Related to the Application of FASB Statements No. 71, Accounting for the Effects of Regulation and No. 101, Regulated Enterprises – Accounting for the Discontinuation of Application of FASB Statement No. 71.*

Q. WOULD YOU PLEASE SUMMARIZE ISSUE 97-4.

A. Issue 97-4 provides guidance on three specific issues.

The first issue addresses when an enterprise should stop applying FAS 71 to the separable portion of its business whose product or service pricing is being deregulated. However, this issue was limited to situations in which final legislation is passed or a rate order is issued that has the affect of transitioning from cost-based to market-based rates. Issue 97-4 addressed whether FAS 71 should be discontinued at the beginning or the end of the transition period.

The EITF concluded that when deregulatory legislation or a rate order is issued that contains sufficient detail to reasonably determine how the transition plan will affect the separable portion of the business, FAS 71 should be discontinued for that separable portion. Thus, FAS 71 should be discontinued at the beginning (not the end) of the transition period.

The scope of the EITF's final consensus for Issue 97-4 was limited to a specific circumstance in which deregulatory legislation is **passed** and a **final** rate order issued. The EITF did not address the broader issue of whether the application of FAS 71 should cease **prior** to final passage of deregulatory legislation or issuance of a final rate order.

Some relevant guidance for this situation is set forth in Paragraph 69 of FAS 71, which states:

> The Board concluded that users of financial statements should be aware of the possibilities of rapid, unanticipated changes in an industry, but accounting should not be based on such possibilities unless their occurrence is considered **probable** (emphasis added).

Based on this guidance, once it becomes probable that the deregulation legislative and/or regulatory changes will occur and the effects are known in sufficient detail, FAS 101 should be adopted.

On the second issue, under Issue 97-4, regulatory assets and regulatory liabilities that originated in the separable portion of an enterprise to which FAS 101 is being applied should be evaluated on the basis of where (that is, the portion of the business in which) the regulated cash flows to realize and settle them will be derived. Regulated cash flows are rates that are charged customers and intended by regulators to be for the recovery of the specified regulatory assets and settlement of the regulatory liabilities. They can be, in certain situations, derived from a "levy" on rate-regulated goods or services provided by another separable portion of the enterprise that meets the criteria for application of FAS 71.

Accordingly, if such regulatory assets and regulatory liabilities have been specifically provided for via the collection of regulated cash flows, they are not eliminated until:

- They are recovered by or settled through regulated cash flows, or
- They are individually impaired or the regulator eliminates the obligation, or
- The separable portion of the business from which the regulated cash flows are derived no longer meets the criteria for application of FAS 71.

Finally, Issue 97-4 indicates that the "source of cash flow" approach adopted in the second issue above should be used for recoveries of all costs and settlements of all obligations for which regulated cash flows are specifically provided in the deregulatory legislation or rate order. Thus, the second consensus is not limited to regulatory assets and regulatory liabilities that are recorded at the date FAS 101 is applied.

IV. RECOVERY OF STRANDED COSTS AND REGULATORY ASSETS

Q. DOES APS PROPOSE TO INCLUDE REGULATORY ASSETS IN THE CALCULATION OF ITS STRANDED COSTS?

A. No, it does not. As discussed in the direct testimony of Jack E. Davis on behalf of APS, the Commission, in Decision No. 59601, has already provided regulated cash flows for the recovery of existing regulatory assets. In that Decision, the Commission ordered that all existing regulatory assets be amortized and collected in rates by 2004. Consistent with the Commission's 1996 order, these regulatory assets should continue to be treated as costs of the Company's regulated operations and cash flows from rates charged to customers of the regulated operations will provide for their recovery.

Q. IF THE COMMISSION WERE TO INCLUDE OTHER UTILITIES' REGULATORY ASSETS AS PART OF STRANDED COSTS FOR THEIR DEREGULATED OPERATIONS, WHAT WOULD BE THE FINANCIAL REPORTING IMPACT?

A. Such utilities would have to write-off its regulatory assets, if and when FAS 71 is discontinued and FAS 101 is adopted, unless the Commission provides for future regulated cash flows in a manner consistent with the guidance set forth under Issue 97-4.

EITF 97-4 requires that the cash flows must come from cost-based regulated revenues, and not market-based or competitive revenues related to deregulated operations. For example, the cash flows can be derived from a surcharge on, or included in base rates for, rate-regulated services provided by the portion of operations that continue to meet the criteria for application of FAS 71. There must be a high level of assurance that the mechanism selected by the Commission will provide sufficient future regulated cash flows to recover the specific regulatory asset recorded. If there is uncertainty concerning the future regulated cash flows, the regulatory assets must be written off.

Q. IN MS. KISSINGER'S TESTIMONY SHE ADDRESSES THE NEED FOR A REGULATORY RECOVERY PLAN TO SPECIFICALLY INDICATE WHICH ASSETS ARE BEING ALLOWED FOR RECOVERY AND WHICH ARE NOT. DO YOU AGREE?

A. Yes, I do, particularly as the regulatory recovery plan relates to regulatory assets.

Q. WHY SHOULD A PLAN SPECIFICALLY ADDRESS REGULATORY ASSETS?

A. Regulatory assets represent incurred or allowable costs that, under GAAP as applied by enterprises in general, would have been reflected in a prior period. Instead, based on regulatory promises that these costs will be included in future rates charged to customers, assets were recorded. FAS 71 and FAS 121 require a high level of assurance that a future revenue stream will be or has been specifically provided by the regulator, in order for a regulatory asset to be recorded. As Ms. Kissinger points out in her testimony, a stranded cost recovery methodology that "does not specifically match each cost on the balance sheet to each dollar in the recovery path," might not provide the specific assurances necessary for a regulatory asset to be recorded.

Q. TESTIMONY SUBMITTED IN THIS PROCEEDING HAS PROPOSED A SHARING MECHANISM BETWEEN RATEPAYERS AND SHAREHOLDERS THAT WOULD RESULT IN SOMETHING LESS THAN FULL RECOVERY OF STRANDED COSTS. WHAT WOULD BE THE FINANCIAL REPORTING RAMIFICATIONS OF SUCH A PROPOSAL?

A. FAS 71 requires a regulatory asset that is no longer probable of future recovery at a balance sheet date to be charged to earnings. Once the legislative and regulatory changes become probable, the requirement of FAS 71 would no longer be met. Accordingly, any regulatory asset effectively disallowed under the stranded cost sharing mechanism should be written off when the change in regulation becomes probable and the related effects are known.

Q. ARE THERE ANY OTHER FINANCIAL REPORTING IMPLICATIONS?

A. Yes. As Ms. Kissinger indicates in her testimony, when a portion of a rate-regulated enterprise's business becomes deregulated, that portion can no longer account for its activities in accordance with FAS 71, and the provisions of FAS 101 must be applied. Under FAS 101, the entity must review the carrying values of all of its long-lived assets, such as utility plant, to determine whether they are impaired.

Impairment of long-lived assets is based on the provisions of FAS 121. If under the sharing mechanism, future cash flows associated with generation plant is less than the carrying value of those assets, an impairment would be measured and recognized.

Q. MS. KISSINGER, AS WELL AS OTHERS, HAVE ADDRESSED THE NEED FOR A STRANDED COST RECOVERY PERIOD THAT APPROXIMATES THE SAME TIMEFRAME AS THE TRANSITION TO DEREGULATION. WOULD YOU PLEASE COMMENT ON THIS APPROACH?

A. From a financial reporting viewpoint, a limited or accelerated recovery period for stranded costs provides the high assurances that are needed to support regulatory assets that are currently recorded. It also would facilitate the creation of new regulatory assets that potentially might result from the transition to deregulation.

Q. HOW COULD NEW REGULATORY ASSETS BE CREATED AS A RESULT OF DEREGULATION?

A. There are various situations related to deregulation which result in costs that potentially should be recorded as regulatory assets. For example, a regulatory asset should be recorded for the loss on the sale of an electric generating plant or the loss on the buy-out of a purchased power contract that is recognized after FAS 101 is applied to the generation portion of the business, if the loss is specified for recovery in the legislation or a rate order, and a separable portion of the enterprise that meets the criteria for application of FAS 71 continues to exist. Another situation involves depreciation methods and estimates for plant assets. For example, assume a situation in which a nuclear generating unit is currently being depreciated and recovered on a straight-line basis over its 40-year license life. Facts and circumstances existing today with nuclear generation in general gives merit to continually evaluating whether the 40-year license period represents the actual economic useful life of the plant. Other factors, such as how the plant will be operated in the future, going forward capital costs and projected operating and maintenance costs, could cause significant back-end loading of cost recognition. Past depreciation studies that include the nuclear generating unit should be updated periodically in order to determine whether existing estimates and methods continue to be supportable.

A revised study could conclude that a change in depreciation policy for the generating unit from a straight-line to an accelerated method is appropriate. If it is determined that a change to an accelerated method of depreciation is preferable for the unit, that method would be required to be applied retroactively and the related effect recorded for financial reporting purposes. The regulatory treatment for the effect of the change would determine whether a regulatory asset can be created, or a change to the income statement is required.

A regulatory asset could be established under the "source of cash flow" approach adopted in EITF 97-4. As indicated previously, however, regulated cash flows must be specifically provided for the effect of the change and there must be a high degree of assurance that the related costs will be economically recovered. Recovery during a relatively limited transition period would help to provide such assurance.

Q. MR. McKNIGHT, CAN A REGULATORY ASSET BE RECORDED IF ITS RECOVERY IS CONTINGENT ON OR LIMITED TO FUTURE ACTIONS, SUCH AS COST MITIGATION?

A. No, a regulatory asset can only be recorded if a regulator provides future revenues from inclusion of the specific cost in allowable cost for ratemaking purposes. Accordingly, a regulatory asset should not be recorded based on achieving future cost savings or producing additional future sales or identifying new sources for revenue.

Q. WOULD YOU PLEASE SUMMARIZE THE MAJOR FINANCIAL REPORTING POINTS REGARDING A DEREGULATION-RELATED REGULATORY RECOVERY PLAN FOR THE COMPANY'S REGULATORY ASSETS?

A. The regulatory plan ultimately adopted by the Commission should not change the recovery mechanism established in Decision No. 59601 for the Company's existing regulatory assets. This is, existing regulatory assets should continue to be treated as costs of the regulated operations, and rates charged to customers of the regulated operations should continue to provide for their recovery.

With respect to the regulatory assets of other utilities the Commission should specifically identify the existing regulatory assets, along with any new regulatory assets created as a result of the transition to deregulation, that are determined to be recoverable. The Commission should also include a rate mechanism that provides, with a high degree of assurance, sufficient future regulated cash flows to recover the regulatory assets. Because of the high standard for recording regulatory assets, the recovery period for regulatory assets should be limited.

Q. DOES THAT CONCLUDE YOUR REBUTTAL TESTIMONY?

A. Yes.