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Arizona Corporation Commission
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Docket Control Division
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1200 West Washington Street
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RE: IN THE MATTER OF THE APPLICATION OF ARIZONA PUBLIC SERVICE COMPANY FOR APPROVAL OF ITS PLAN FOR STRANDED COST RECOVERY, DOCKET NO. E-01345A-98-0473, and

IN THE MATTER OF THE FILING OF ARIZONA PUBLIC SERVICE COMPANY OF UNBUNDLED TARIFFS PURSUANT TO A.A.C. R14-2-1601 et seq., DOCKET NO. E-01345A-97-0773, and

IN THE MATTER OF COMPETITION IN THE PROVISION OF ELECTRIC SERVICES THROUGHOUT THE STATE OF ARIZONA, DOCKET NO. RE-00000C-94-0165.

Gentlemen:

On November 20, 1998, Arizona Public Service Company filed testimony and exhibits of Jack E. Davis. As part of that filing APS also attached prior testimony of John H. Landon and William H. Hieronymus. On some pages of that prior testimony, the copies were not legible. Please substitute these copies for the ones you received earlier. APS apologies for any inconvenience.

Sincerely,

Barbara A. Klemstine

cc: Parties of Above Dockets

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BEFORE THE
ARIZONA CORPORATION COMMISSION

DOCKET NO. R-0000-94-165

TESTIMONY
OF
DR. WILLIAM H. HIERONYMUS

ON BEHALF OF
ARIZONA PUBLIC SERVICE COMPANY

January 9, 1998

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

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

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

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

Q. What is the purpose of this current testimony?

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

Q. Please summarize your conclusions.

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

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

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

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

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

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

21 ..the verifiable net difference between:

- 22 a. The value of all the prudent jurisdictional assets and obligations
23 necessary to furnish electricity (such as generating plants,

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

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

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

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

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

22 **A.** Yes. Using the bottom up method, one compares the market value of each of the utility's
23 assets and liabilities under the previous regulatory regime to their value under competition.

24 As discussed later in my testimony, their value under competition is the cash flow or

1 earnings (contribution to recovering fixed investment costs, hereafter called "contribution")
2 they will yield to an owner, present valued at the owner's after tax discount rate. Their
3 value under regulation is a similar stream of net present value of contribution, discounted
4 at the utility's after tax regulated cost of capital. Necessarily, the contribution earned by
5 the enterprise is equal to sum of the contributions earned by each of its assets under both
6 market and regulated conditions. Hence, the top down and bottom up methods are
7 equivalent. I have a mild preference for the top down method, partly because of
8 computational ease and partly because it assures that nothing is left out in calculating net
9 stranded costs.

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

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

- 14 • Stranded generating plant,
- 15 • Stranded power contracts,
- 16 • Stranded fuels contracts, and
- 17 • Stranded regulatory assets and liabilities.

18 This focus generally is appropriate since it is the commodity cost of bulk power (the
19 generation rather than the wires components) that is being shifted from a regulated cost
20 basis to a market basis. Hence, it is power costs, whether the power is produced from
21 owned generation or under the terms of purchase contracts, that is a main source of
22 stranded cost. If market prices are expected to be below the generation part of cost of

1 service rates, then generation is worth less in the new regime than it would have been
2 worth under continuation of the previous regulatory regime.

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

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

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

18 **Q. Does APS have any stranded power purchase costs?**

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

22 **Q. Does APS have any stranded fuels contracts?**

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

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

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

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

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

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

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

16 One example is metering investments made in 1997 (and that will have to be made in
17 1998 and beyond). Despite the fact that the ACC's regulations state that these will not be
18 regulated monopoly activities, APS continues to have an obligation to hook up and meter
19 all of its customers.

20 A second example is future capital investments in generating stations. Even if such
21 investments are not themselves properly eligible for inclusion in stranded cost, they still
22 must be taken into account in determining stranded cost. A simple example is, suppose

1 that environmental regulations require putting a new type of control on emissions at APS's
2 coal stations. If this is not done, the stations are valueless. Computing the contribution
3 earned by those stations under competition must take into account the cost of the controls.
4 Alternatively, such retrofits can be thought of as necessary mitigation, required to raise the
5 value of the stations from zero to a significant positive value. While this example is
6 hypothetical, there are other capital investments that are required if APS's generation is to
7 operate and earn the contributions that are offset against the regulatory value of its assets
8 in determining stranded costs. The cost of such investments must be taken into account.

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

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

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

- 16 • The revenues lost method. This method begins by calculating "stranded" or lost
17 revenues. Lost revenues are the difference between those that the utility would
18 have received under continued regulation versus those that it will receive under
19 competition. Under circumstances when costs also vary between the two regimes
20 (e.g. sales may be greater under competition, resulting in higher fuels costs), lost
21 revenues are usually computed as the reduction in the after tax contribution to
22 investors (i.e., the return "on and of" investments). This is revenues less variable

1 costs and other "going forward" costs of operation such as fixed O&M, capital
2 additions and so forth. For the reasons discussed above, costs deducted from
3 revenues include allocated A&G expense.

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

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

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

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

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

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

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

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

19 **Q. Are any of these methods always preferable?**

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

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

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

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

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

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

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

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

22 The last option, partial sale, shares the defects and advantages of outright sale but to a
23 lesser degree. The only additional point to be made uniquely about a partial sale is that it

1 has unknown, but potentially significant, defects as a means of calculating the value of the
2 remainder of the facilities. First, it may yield too high of a value. The sale is made to the
3 buyer willing to pay the most. Since the market price of any asset or product generally is
4 lower, the more of it is available, the price of the first "slice" should overstate the value of
5 the remainder. Conversely, it generally is believed that there is a "control premium": a
6 buyer that believes that it could make an asset more valuable if it controlled it will pay less
7 for a slice of assets that will still be controlled and operated by the incumbent utility.

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

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

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

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

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

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

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

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

19 A. Yes. The main candidate is nuclear decommissioning costs and the related fuel disposal
20 costs incurred prior to the end of transition. Decommissioning costs clearly relate to the
21 past operations of nuclear plants. Once a nuclear plant is thoroughly irradiated, the scope
22 of decommissioning requirements is set. Indeed, further operation, by deferring the need

1 to decommission, actually reduces the present value of decommissioning cost. Hence,
2 the full amount of decommissioning cost, which clearly is "stranded", is appropriately
3 recovered as part of any transition mechanism. However, decommissioning will not take
4 place until the distant future and costs are highly uncertain. For that reason,
5 decommissioning costs should continue to be recovered through some form of non-market
6 rate component over the remaining life of Palo Verde. Special treatment of fuel disposal
7 costs also is warranted by the considerable uncertainty concerning whether the federal
8 government will honor its commitment to dispose of spent fuel in return for the payments
9 that nuclear station owners have made. Since the regulated cost of nuclear output
10 recovered in the past has assumed that this commitment will be honored, any additional
11 costs related to that output that are incurred in the future are stranded costs not reflected
on the current balance sheet.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

6 **4. Issue 9: What factors should be considered for "mitigation" of stranded costs?**

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

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

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

21 In Order No. 888, FERC concluded that mitigation was automatic under its version of the
22 lost revenues method of stranded cost calculation on the grounds that the utility would

1 have an obligation and incentives to market the capacity and energy that is released by
2 the loss of the customer at market rates:

3 "Contrary to the objections of some commentaries that the revenues lost
4 approach creates no incentive to mitigate stranded costs, the formula
5 automatically encompasses mitigation by reducing the departing
6 generation customer's stranded cost obligation by the competitive market
7 value of the released capacity and associated energy." (slip Opinion at p.
8 599).

9 FERC then went on to explicitly decline to "impose a separate mitigation obligation on the
10 utility above that which is already subsumed in the revenues lost approach." It did,
11 however, note that, "In addition, a utility will continue to be subject to an ongoing prudence
12 obligation to sell excess capacity off-system and/or to dispose of uneconomic assets."

13 FERC's reference to an ongoing, or continuing "prudence" obligation fairly raises the
14 question of whether the calculation of stranded cost does, or should, create any obligation
15 to "mitigate" that the utility did not have already. Utilities have long had the obligation to
16 take those actions available to a prudent management to minimize their cost of service.
17 The events of stranded cost calculation and/or of making power markets competitive, does
18 not give utilities any material new means of "mitigating", or reducing costs that they did not
19 have previously. Hence, "mitigation" does not impose any new or higher requirement than
20 has existed in the past. All that is new is the requirement to effectively market the energy
21 and capacity that was previously dedicated to native load customers.

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

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

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

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

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

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

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

8 **Q. Does this complete your testimony?**

9 **A. Yes.**

WILLIAM H. HIERONYMUS

Managing Director

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

ELECTRICITY SECTOR STRUCTURE, REGULATION AND RELATED MANAGEMENT AND PLANNING ISSUES

U.S. Assignments

- Dr. Hieronymus served as an advisor to a western electric utility on restructuring and related regulatory issues and has worked with senior management in developing strategies for shaping and adapting to the emerging competitive market in electricity. As a part of this general assignment he helped develop, and testified respecting, a settlement with the state regulatory commission staff that provides, among other things, for accelerated recovery of strandable assets. He also prepared numerous briefings for the senior management group on various topics related to restructuring.
- For several utilities seeking merger approval he has prepared and testified to market power analyses at FERC and before state commissions. He also has assisted in discussions with the Antitrust Division of the Department of Justice and in responding to information requests. The analyses he has sponsored cover the destination market-oriented traditional FERC tests; Justice Department-oriented market structure tests similar to the Order 592 required analyses, behavioral tests of the ability to raise prices and examination of vertical market power arising from ownership of transmission and generation and from ownership of distribution facilities in the context of retail access. The mergers on which he has testified include both electricity mergers and combination mergers involving electricity and gas companies.
- For utilities and power pools preparing structural reforms, he has assisted in examining various facets of proposed reforms. This analysis has included both features of the proposals affecting market efficiency and those that have potential consequences for market power. Where relevant, the analysis also has examined the effects of alternative reforms on the client's financial performance and achievement of other objectives.

- For the New England Power Pool he examined the issue of market power in connection with its movement to market-based pricing for energy, capacity and ancillary services. He also assisted the New England utilities in preparing their market power mitigation proposal. The main results of his analysis were incorporated in NEPOOL's market power filing before FERC.
- As part of a large PHB team he assisted a midwest utility in developing an innovative proposal for electricity industry restructuring. This work formed the basis for that utility's proposals in its state's restructuring proceeding.
- Dr. Hieronymus has contributed substantially to PHB's activities in the restructuring of the California electricity industry. In this context he also is a witness in California and FERC proceedings on the subject of market power and mitigation.
- He has testified in state securitization and stranded cost quantification proceedings, primarily in forecasting the level of market prices that should be used in assessing the future revenues and the operating contribution earned by the owner of the utilities' assets in energy and capacity markets. The market price analyses are tailored to the specific features of the market in which the utility will operate and reflect transmission-constrained trading over a wide geographic area. He also has testified in rebuttal to other parties' testimony concerning stranded costs and assisted companies in internal stranded cost and asset valuation studies.
- He has contributed to the development of benchmarking analyses for U.S. utilities. These have been used in work with PHB's clients to develop regulatory proposals, set cost reduction targets, restructure internal operations and assess merger savings.
- Dr. Hieronymus was a co-developer of a market simulation package that PHB has tailored to region-specific applications. He and other PHB personnel have provided numerous multi-day training sessions using the package to help our utility clients in educating management personnel in the consequences of wholesale and retail deregulation and in developing the skills necessary to succeed in this environment.
- Dr. Hieronymus has made numerous presentations to U.S. utility managements on the U.K. electricity system and has arranged meetings with senior executives and regulators in the U.K. for the senior managements of U.S. utilities.
- For a task force of utilities, regulators, legislators and other interested parties created by the Governor's office of a northeastern state he prepared background and briefing papers as part of a PHB assignment to assist in developing a consensus proposal for electricity industry restructuring.

- For an East Coast electricity holding company, he prepared and testified to an analysis of the logic and implementation issues concerning utility-sponsored conservation and demand management programs.
- In connection with nuclear generating plants nearing completion, he has testified in Pennsylvania, Louisiana, Arizona, Illinois, Missouri, New York, Texas, Arkansas, New Mexico and before the Federal Energy Regulatory Commission in plant-in-service rate cases on the issues of equitable and economically efficient treatment of plant cost for tariff setting purposes, regulatory treatment of new plants in other jurisdictions, the prudence of past system planning decisions and assumptions, performance incentives and the life-cycle costs and benefits of the units. In these and other utility regulatory proceedings, Dr. Hieronymus and his colleagues have provided extensive support to counsel, including preparation of interrogatories, cross-examination support and assistance in writing briefs.
- On behalf of utilities in the states of Michigan, Massachusetts, New York, Maine, Indiana, Pennsylvania, New Hampshire and Illinois, he has submitted testimony in regulatory proceedings on the economics of completing nuclear generating plants that are currently under construction. His testimony has covered the likely cost of plant completion, forecasts of operating performance and extensive analyses of ratepayer and shareholder impacts of completion, deferral and cancellation.
- For utilities engaged in nuclear plant construction, Dr. Hieronymus has performed a number of highly confidential assignments to support strategic decisions concerning continuing the construction projects. Areas of inquiry included plant cost, financial feasibility, power marketing opportunities, the impact of potential regulatory treatments of plant cost on shareholders and customers and evaluation of offers to purchase partially completed facilities.
- For an eastern Pennsylvania utility that suffered a nuclear plant shutdown due to NRC sanctions relating to plant management, he filed testimony regarding the extent to which replacement power cost exceeded the costs that would have occurred but for the shutdown.
- For a major midwestern utility, he headed a team that assisted senior management in devising its strategic plans including examination of such issues as plant refurbishment/life extension strategies, impacts of increased competition and diversification opportunities.
- On behalf of two West Coast utilities, he testified in a needs certification hearing for a major coal-fired generation complex concerning the economics of the facility relative to competing sources of power, particularly unconventional sources and demand reductions.

- For a large western combination utility, Dr. Hieronymus participated in a major 18-month effort to provide it with an integrated planning and rate case management system. His specific responsibilities included assisting the client in design and integration of electric and gas energy demand forecasts, peak load and load shape forecasts and forecasts of the impacts of conservation and load management programs.
- For two midwestern utilities, he prepared an analysis of intervenor-proposed modifications to the utilities' resource plans. He then testified on their behalf before a legislative committee.
- For a major combination electric and gas utility, he directed the adaptation of a PHB-developed financial simulation model for use in resource planning and evaluation of conservation programs.

U.K. Assignments

- Following promulgation of the White Paper setting out the general framework for privatization of the electricity industry in the United Kingdom, Dr. Hieronymus participated extensively in the task forces charged with developing the new market system and regulatory regime. His work on behalf of the Electricity Council and the twelve regional electricity councils focused on the proposed regulatory regime, including the price cap and regulatory formulas, and distribution and transmission use of system tariffs. He was an active participant in industry-government task forces charged with creating the legislation, regulatory framework, initial contracts and rules of the pooling and settlements system. He also assisted the regional companies in the valuation of initial contract offers from the generators, including supporting their successful refusal to contract for the proposed nuclear power plants that subsequently were canceled as being non-commercial.
- During the preparation for privatization, he assisted several of the U.K. individual electricity companies in understanding the evolving system, in development of use of system tariffs, and in developing strategic plans and management and technical capabilities in power purchasing and contracting. He continued to advise a number of clients, including regional companies, power developers, large industrial customers and financial institutions on the U.K. power system for a number of years after privatization.
- Dr. Hieronymus assisted four of the regional electricity companies in negotiating equity ownership positions and developing the power purchase contracts for an 1,825 megawatt combined cycle gas station. He also assisted clients in evaluating other potential generating investments including cogeneration and non-conventional resources.

- He also has consulted on the separate reorganization and privatization of the Scottish electricity sector. PHB's role in that privatization included advising the larger of the two Scottish companies and, through it, the Secretary of State on all phases of the restructuring and privatization, including the drafting of regulations, asset valuation and company strategy.
- He has assisted one of the Regional Electricity Companies in England and Wales in the 1993 through 1995 regulatory proceedings that reset the price caps for its retailing and distribution businesses. Included in this assignment have been policy issues such as incentives for economic purchasing of power, the scope of the price control, and the use of comparisons among companies as a basis for price regulation. His model for determining network refurbishment needs was used by the regulator in determining revenue allowances for capital investments.
- He assisted this same utility in its defense against a hostile takeover, including preparation of its submission to the Cabinet Minister who had the responsibility for determining whether the merger should be referred to the competition authority.

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

- Dr. Hieronymus has assisted a large state-owned European electricity company in evaluating the impacts of the 1997 EU directive on electricity that *inter alia* requires retail access and competitive markets for generation. The assignment includes advice on the organizational solution to elements of the directive requiring a separate transmission system operator and the business need to create a competitive marketing function.
- For the European Bank for Reconstruction and Development he performed analyses of least cost power options, evaluation of the return on a major plant investment that the Bank was considering and forecasts of electricity prices in support of assessment of a major investment in an electricity intensive industrial plant.
- For the OECD he performed a study of energy subsidies worldwide and the impact of subsidy elimination on the environment, particularly on greenhouse gases.
- For the Magyar Villamos Muevek Troszt, the electricity company of Hungary, he developed a contract framework to link the operations of the different entities of an electricity sector in the process of moving from a centralized command and control system to a decentralized, corporatized system.
- For Iberdrola, the largest investor-owned Spanish electricity company, he assisted in development of their proposal for a fundamental reorganization of the electricity sector, its means of compensating generation and

distribution companies, its regulation and the phasing out of subsidies. He also has assisted the company in evaluating generation expansion options and in valuing offers for imported power.

- Dr. Hieronymus contributed extensively to a project for the Ukrainian Electricity Ministry, the goal of which is to reorganize the Ukrainian electricity sector and prepare it for transfer to the private sector and the attraction of foreign capital. The proposed reorganization will be based on regional electricity companies, linked by a unified central market, with market-based prices for electricity.
- At the request of the Ministry of Power of the USSR, Dr. Hieronymus participated in the creation of a seminar on electricity restructuring and privatization. The seminar was given for 200 invited Ministerial staff and senior managers for the USSR power system. His specific role was to introduce the requirements and methods of privatization. Subsequent to the breakup of the Soviet Union, he continued to advise the Russian energy and power ministry and government-owned generation and transmission company on restructuring and market development issues.
- On behalf of a large continental electricity company he analyzed the proposed directives from the European Commission on gas and electricity transit (open access regimes) and on the internal market for electricity. The purpose of this assignment was to forecast likely developments in the structure and regulation of the electricity sector in the common market and assist the client in understanding their implications.
- For the electric utility company of the Republic of Ireland, he assessed the likely economic benefit of building an interconnector between Eire and Wales for the sharing of reserves and the interchange of power.
- For a task force representing the Treasury, electric generating and electricity distribution industries in New Zealand, he undertook an analysis of industry structure and regulatory alternatives for achieving economically efficient generation of electricity. The analysis explored how the industry likely would operate under alternative regimes and their implications for asset valuation, electricity pricing, competition and regulatory requirements.

TARIFF DESIGN METHODOLOGIES AND POLICY ISSUES

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

- For a U.S. utility client, he directed an analysis of time-differentiated costs based on accounting concepts. The study required selection of rating periods and allocation of costs to time periods and within time periods to rate classes.
- For EPRI, he directed a study that examined the effects of time-of-day rates on the level and pattern of residential electricity consumption.
- For the EPRI-NARUC Rate Design Study, Dr. Hieronymus developed a methodology for designing optimum cost-tracking block rate structures.
- On behalf of a group of cogenerators, he filed testimony before the Energy Select Committee of the UK Parliament on the effects of prices on cogeneration development.
- For the Edison Electric Institute (EEI), he prepared a statement of the industry's position on proposed federal guidelines on fuel adjustment clauses. He also assisted EEI in responding to the U.S. Department of Energy (DOE) guideline on cost-of-service standards.
- For private utility clients, he assisted in the preparation of comments on draft Federal Energy Regulatory Commission (FERC) regulations and in preparing their compliance plans for PURPA Section 133.
- For the EEI Utility Regulatory Analysis Program, he co-authored an analysis of the DOE position on the purposes of the Public Utilities Regulatory Policies Act of 1978. The report focused on the relationship between those purposes and cost-of-service and ratemaking positions under consideration in the generic hearings required by PURPA.
- For a state utilities commission, Dr. Hieronymus assessed its utilities' existing automatic adjustment clauses to determine their compliance with PURPA and recommended modifications.
- For the DOE, he developed an analysis of automatic adjustment clauses currently employed by electric utilities. The focus of this analysis was on efficiency incentive effects.
- For the commissioners of a public utility commission, he assisted in preparation of briefing papers, lines of questioning and proposed findings of fact in a generic rate design proceeding.

SALES FORECASTING METHODOLOGIES FOR GAS AND ELECTRIC UTILITIES

- For the White House Sub-Cabinet Task Force on the future of the electric utility industry, Dr. Hieronymus co-directed a major analysis of "least-cost planning studies" and "low-growth energy futures." That analysis was the

sole demand-side study commissioned by the task force and formed an important basis for the task force's conclusions concerning the need for new facilities and the relative roles of new construction and customer side-of-the-meter programs in utility planning.

- For a large eastern utility, he developed a load forecasting model designed to interface with the utility's revenue forecasting system- planning functions. The model forecasts detailed monthly sales and seasonal peaks for a 10-year period.
- For the DOE, he directed the development of an independent needs assessment model for use by state public utility commissions. This major study developed the capabilities required for independent forecasting by state commissions and constructed a forecasting model for their interim use.
- For several state regulatory commissions, Dr. Hieronymus has consulted in the development of service area level forecasting models of electric utility companies.
- For EPRI, he authored a study of electricity demand and load forecasting models. The study surveyed state-of-the-art models of electricity demand and subjected the most promising models to empirical testing to determine their potential for use in long-term forecasting.
- For a midwestern electric utility, he has provided consulting assistance in improving its load forecast and has testified in defense of the revised forecasting models.
- For an East Coast gas utility, he testified with respect to sales forecasts and provided consulting assistance in improving the models used to forecast residential and commercial sales.

OTHER STUDIES PERTAINING TO REGULATED AND ENERGY COMPANIES

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

- For a private client, he headed a project that examined the feasibility and value of a major synthetic natural gas project. The study analyzed both the future supply costs of alternative natural gas sources and the effects of potential changes in FPC rate regulations on project viability. The analysis was used in preparing contract negotiation strategies.
- For a industrial client considering development and marketing of a total energy system for cogeneration of electricity and low-grade heat, he developed an estimate of the potential market for the system by geographic area.
- For the U.S. Environmental Protection Agency (EPA), Dr. Hieronymus was the principal investigator in a series of studies for forecasting future supply availability and production costs for various grades of steam and metallurgical coal to be consumed in process heat and utility uses.

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

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

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

BEFORE THE ARIZONA CORPORATION COMMISSION

**IN THE MATTER OF THE COMPETITION IN)
THE PROVISION OF ELECTRIC SERVICES) DOCKET No. U-0000-94-165
THROUGHOUT THE STATE OF ARIZONA)**

REBUTTAL TESTIMONY OF

JOHN H. LANDON

FEBRUARY 4, 1998

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1 **I. QUALIFICATIONS**

2

3 **Q. Please state your name and business address.**

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

6 **Q. What is your current position?**

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

9 **Q. Please outline your educational background.**

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

14 **Q. Where were you employed after leaving Cornell university?**

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

19 **Q. What subjects did you teach during this period?**

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

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

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

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

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

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

3 **Q. When did you join Analysis Group?**

4 A. I joined Analysis Group in March of 1997.

5 **Q. Have you previously testified?**

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

8 **Q. Have you testified before the Arizona Corporation before?**

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

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

13 A. Yes. I have been involved extensively with retail access or restructuring issues in

14 B. Texas, New York, Michigan, Nevada, Ohio, Iowa, Florida, Louisiana, Oregon and
15 in the Province of Alberta. Outside North America, I have participated in teams
16 working on these issues in the U.K., Chile and Colombia. I have testified in
17 Arizona, Michigan, Texas, Pennsylvania, Iowa and Florida on these issues. A
18 copy of my resume is attached as Exhibit 1 to this testimony.

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

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

24
25 **II. PURPOSE OF TESTIMONY**

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

27 A. At the request of Arizona Public Service ("APS" or "the Company"), I have
28 reviewed the testimonies filed by parties in this proceeding. I will address issues
29 that have been raised relating to: 1) the importance of stranded investment

1 recovery; 2) mitigation of stranded investment; 3) the means of calculating
2 stranded investment; and 4) the means of recovering stranded investment.

3
4 **III. EXECUTIVE SUMMARY AND ORGANIZATION OF TESTIMONY**

5 **Q. Why are stranded cost issues important?**

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

27 **Q. How is your testimony organized?**

28 A. The paper is organized as follows. Section IV discusses the definition and causes
29 of stranded costs. Section V discusses why full recovery of stranded costs is in
30 the best interests of both customers and shareholders. Section VI outlines
31 mitigation issues involved with stranded cost recovery. Section VII discusses

1 alternative mechanisms for calculating stranded costs. Section VIII discusses
2 alternative methods to recover stranded costs. Section IX explains why rate
3 freezes and price caps are inconsistent with competitive markets. Section X
4 resummarizes my conclusions.

5 **Q. Would you please summarize your conclusions?**

6 **A.** Yes. I have concluded that:

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

28

1 **IV. ORIGIN OF STRANDED COSTS**

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

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

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

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

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

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

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

30 A. My definition is similar to the ACC's definition, except that the ACC's definition
31 appears to limit recovery to expenditures that were made "prior to the adoption of

1 this Article." For the reasons stated above, I do not believe it is appropriate to
2 ignore expenditures that were made after December 31, 1996.

3
4 **V. FULL STRANDED COST RECOVERY IS APPROPRIATE**

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

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

12 ***1. Economic Efficiency Issues***

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

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

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

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

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

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

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

26 A. Yes. Failure to allow the opportunity for stranded cost recovery will also create
27 capital cost related inefficiencies. Saddling incumbent firms with stranded costs
28 creates financial weakness and increases the return that will be required by future
29 investors, making it more costly for incumbents to maintain and modernize their

1 facilities. High capital costs caused by regulatory uncertainty will also tend to
2 raise costs for those services that remain regulated.

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

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

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

23 Second, Dr. Rose asserts that uneconomic bypass, “even if it does occur,
24 [would have] a minor effect on overall efficiency when compared to the gain in
25 dynamic efficiency induced by a competitive market.” (p. 12) Dr. Rose fails to
26 substantiate his conclusion. But, more importantly, he completely misses the fact
27 that proper price signals and properly designed stranded cost recovery are required
28 for dynamic efficiency. Correctly designed stranded cost recovery will ensure
29 that producers compete on the basis of relative marginal costs, causing the
30 dynamic competitive market in Arizona to flourish, to the benefit of all

1 consumers. Ignoring stranded cost or improperly designing the recovery
2 mechanism will impair competition and limit its benefits.

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

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

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

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

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

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

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

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

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

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

27 Since a properly designed stranded cost recovery mechanism will be
28 applied symmetrically to all customers or all sellers, not just new entrants or their
29 customers, new entrants would not bear any asymmetric costs to enter the market
30 which might advantage established firms. Furthermore, an efficient collection

1 mechanism will only recover transition costs or unavoidable costs that are
2 stranded as a result of retail access or the transition. Sunk costs and their recovery
3 do not affect the marginal cost or revenues associated with gaining or losing
4 customers. Thus, stranded cost recovery will have no significant impact on the
5 ability of firms to compete over time. Market prices will be determined by the
6 costs required to meet the last unit of demand in each hour of each day.

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

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

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

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

1 To see this more clearly, assume sunk cost or unavoidable costs for the
2 incumbent utility are \$500 million, and marginal or avoidable generation costs are
3 2 cents per kWh for the utility, and 4 cents per kWh for the entrants, respectively.
4 Marginal costs will correctly signal customers in the market that the incumbent
5 has the lowest marginal cost. The sunk cost of \$500 million should have no
6 bearing on either the choice of supplier or the amount that a supplier should
7 generate. The purpose of stranded cost recovery is to allow firms to recover those
8 previously incurred (sunk) investments that are unrecoverable due to the onset of
9 competition. Stranded cost recovery does not subsidize operating costs or
10 incremental capital costs.

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

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

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

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

25 A. No. Quite the opposite is true. It is a defining feature of competitive markets that
26 the top incumbent's position is perpetually challenged by rivals and new entrants.
27 Those firms with differential advantages are able to overcome the advantages of
28 incumbents and provide benefits to consumers by offering new products and
29 services, at lower prices. If entrants prove superior to incumbents in some way,
30 they will gain customers at the expense of the incumbents. If the competitive

1 advantages of superior firms are eliminated, the competitive process is subverted,
2 allowing inferior firms to survive and eliminating benefits to consumers. This
3 would misallocate resources and harm consumers. Regulators should be
4 concerned about abuse of market power and anti-competitive behavior. However,
5 a properly designed stranded cost recovery will be symmetric for all market
6 participants and, consequently, will have no bearing on the potential for anti-
7 competitive behavior. Therefore, concern about market power abuses does not
8 justify the denial of full stranded cost recovery.

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

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

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

22 A. It is possible but by no means automatic. A utility may be well known in terms of
23 name recognition but have a poor reputation for service and pricing. Some utilities
24 have invested heavily in providing high quality customer service while others
25 have allowed service to deteriorate. The reputation of a utility and thus the
26 loyalty of consumers in remaining with the incumbent varies across utilities
27 depending on their historic record of service and value to customers. Customers
28 who believe they have received poor service, excessive prices, or both are highly
29 motivated to consider alternative suppliers. Name identification in that case is a
30 negative, associated with consumer ill will. There is nothing about incumbency

1 per se that guarantees strong consumer loyalty in the face of new competition.
2 Indeed, name recognition may be a handicap, aiding new entrants in their quest
3 for customers. It is not surprising that some utilities choose to market competitive
4 services under a separate name.

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

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

25 Failing to choose a rival over APS does not mean that consumers suffer
26 from inertia or have merely relied on APS's name identification and good will.
27 Consumers are not stupid, especially when it comes to shopping for products and
28 services. They select goods and suppliers according to what best serves their
29 interest as reflected in the benefits and costs of the alternatives available. If APS
30 has invested in providing good service, creating a positive reputation and strong
31 customer good will, then remaining with APS is a perfectly rational decision and

1 not based on mindless inertia or an unwillingness to consider the alternatives.
2 Additional consumers remain with their existing supplier because they are risk
3 averse and choose not to take a chance with the uncertainty of new firms. Once
4 new firms prove to consumers that they offer high-quality service at competitive
5 prices for the long term, then risk averse consumers will consider switching.

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

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

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

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

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

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

29 A. Dr. Rose suggests that allowing even inefficient producers to enter the market
30 would lead to improvements in dynamic efficiency and that these improvements

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

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

20 **2. Comparison with Competitive Firms**

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

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

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

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

30 "Stranded Cost" means the verifiable net difference between:

- 1 a. The value of all prudent jurisdictional assets and obligations
2 necessary to furnish electricity (such as generating plants, purchased
3 power compacts, fuel compacts, and regulatory assets), acquired or
4 entered into prior to the adoption of this Article, under traditional
5 regulation of Affected Utilities; and
6 b. The market value of those assets and obligations *directly attributable*
7 *to the introduction of competition under this Article.* (emphasis
8 added)

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

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

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

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

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

9 **3. Advance Warning of Competition**

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

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

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

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

1 **4. *Historical Compensation for Risk***

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

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

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

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

26 For existing shareholders to have been compensated for the breach of
27 regulatory compact, the Commission would have had to have authorized a special
28 “risk premium” to compensate investors for stranded cost recovery. However, no
29 witness has cited any decisions or provided any evidence substantiating the claim
30 that the Commission has ever made such an adjustment. Moreover, if the
31 Commission did make such an adjustment, APS's authorized return would have

1 shown a significant increase. It is clear that this has not occurred. Consequently,
2 the evidence does not support the assertion that shareholders have been
3 compensated for risk of significant stranded costs.

4 As I have indicated, the increase in return required to compensate
5 investors for stranded costs exceeds what is consistent with actual experience. I
6 illustrate this point with the following hypothetical example. Assume for
7 simplicity that the Commission's estimate of stranded costs, as of the beginning
8 of 1998, is \$500 million, and that the utility's earnings are a constant \$150 million
9 per year on an equity capital base of \$1,250 million. Assume further that the
10 utility's authorized equity return (before the adjustment to compensate
11 shareholders for stranded cost recovery) is 12 percent and that immediately
12 following its investigation in 1996, the Commission increased the utility's
13 authorized return sufficiently to pay off the estimated stranded costs by the
14 beginning of 1998. Under these assumptions, the *increase* in the equity return
15 required to compensate shareholders for stranded costs would be 19 percent
16 ($500/(1250*(1+(1+.12)))$), assuming that investors can reinvest funds at the utility's
17 authorized equity return. This implies that the authorized equity return during
18 1997 would have been 31 percent, which is clearly contrary to actual experience.

19 **5. *Regulatory Compact***

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

23 A. No. An understanding between utilities and regulators, as authorized by law, has
24 been a fact of regulatory law and economics for decades.¹ Under the agreement,
25 the utility cedes the right to independently price its services and accepts various
26 service obligations. In return, it receives protection from entry by competitors, and
27 the regulatory commission sets rates that will provide an opportunity for the utility
28 to earn a return that is commensurate with the risk taken. Among the burdens
29 unique to the regulated utility industry, the incumbent is also required to: (1)

1 comply with various reporting requirements; (2) have its returns controlled by the
2 commission; (3) provide service to all customers within its service territory (often
3 termed the utility's "obligation to serve"); (4) meet quality and reliability standards;
4 and (5) undertake social programs that are deemed by the regulatory commission to
5 be in the best interest of society.

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

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

26 Thus, while Mr. Coyle may be correct in asserting that there exists no
27 explicit contractual document between the utility and the regulatory commission,
28 allowing entry by competing firms is clearly contrary to past practice, on the basis

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.

1 of which investments were made, and is likely to disadvantage the incumbent firm
2 greatly.

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

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

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

23 **6. *Sharing Stranded Costs Between Ratepayers and Shareholders***

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

27 A. No. As I have stated previously, under the regulatory compact incumbent utilities
28 have the right to an opportunity to recover their prudent investments along with a
29 reasonable return on them. If regulators allow only a fraction of stranded costs to
30 be recovered, this will amount to a regulatory breach of compact. Anything less

1 than the opportunity for full stranded cost recovery is an economic taking of
2 utility shareholders' property.

3 **Q. What are economic takings?**

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

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

23
24 **VI. MITIGATION ISSUES**

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

27 A. Yes. Stranded costs stem from the difference between assets acquired under a
28 regulatory regime and the value of those assets in a competitive market.
29 However, the utility may be able to take actions that reduce this difference in
30 valuation. Such actions are frequently referred to as mitigation efforts.
31 Reducing, or mitigating, total stranded costs lowers the total impact of the

1 transition from regulation to competition by lowering costs or increasing the value
2 of the utility's assets in a competitive marketplace. To increase the value of its
3 assets, thereby lowering stranded costs, the incumbent utility will try to operate
4 more efficiently.

5 **Q. What is an appropriate standard for mitigation?**

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

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

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

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

28 New activities into which the incumbent enters after competition begins
29 also should not figure in stranded costs, as these assets were never part of the
30 regulatory compact. Allowing profits from non-utility activities to be applied to

1 stranded costs will be seen by investors as a reduction in their return, thereby
2 discouraging incumbents from engaging in new businesses (and consequently
3 harming economic efficiency). Furthermore, such policy would increase the cost
4 of both new debt and new and existing equity capital.

5 This view is entirely consistent with my understanding (as an economist)
6 of the Supreme Court's ruling in *Brooks Scanlon Co. v. Railroad Commission of*
7 *La.*, in which the Court ruled that it is not permissible to judge whether rate
8 regulation is confiscatory by including the return to unregulated operations of the
9 company in question. As the Court stated, "The plaintiff may be making money
10 from its sawmill and lumber business but it no more can be compelled to spend
11 that money than it can be compelled to spend any other money to maintain a
12 railroad for the benefit of others who do not care to pay for it."²
13

14 VII. CALCULATIONS OF STRANDED COSTS

15 I. Auctions/Divestiture vs. The Net Revenue Lost Method

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

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

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

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

² 251 US 396,399 (1920).

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

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

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

24
25

1 **2. Capping Recovery at Replacement Cost**

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

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

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

21 **3. Disallowing Returns on Equity Financing**

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

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

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

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

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

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

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

31

1 **VIII. RECOVERY MECHANISMS**

2 **1. *The Recovery Period Should be As Short As Possible***

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

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

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

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

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

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

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

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

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

29 **A.** No. While it would be desirable to closely match costs with benefits over time,
30 there are many circumstances in which this is impractical. The lack of a close

1 match in the timing of costs and benefits is not a valid reason not to proceed with
2 a project which has clear long-term net benefits. The only economic issue that the
3 difference in timing makes is whether the present value of the future benefits
4 exceeds the current costs.

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

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

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

20 **2. Lump Sum Payments or Exit Fees**

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

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

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

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

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

19 **4. *Exclusions from Stranded Cost Responsibility Should Be Few***

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

24 **A.** As long as exemptions do not reduce the total amount of stranded cost recovery,
25 and as long as recovery occurs via an economically sound payment mechanism,
26 the question of who should pay what share of the costs is ultimately a policy
27 decision. While Mr. Broderick apparently believes that public interest dictates
28 that public schools should not have to pay a share of these costs, the Commission
29 should keep in mind that exempting some parties requires charging remaining
30 customers more. Also, all parties should remember that energy deregulation will

1 provide long-term benefits to many customers that will exceed the burden of
2 covering stranded costs for a limited number of years.

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

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

17 IX. RATE FREEZES VS. PRICE CAPS

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

20
21 A. The principal benefits of a competitive market are the incentives it provides for all
22 participants to reduce cost through efficiency improvements and offer products
23 that better meet customer needs. The Commission should not lose sight of these
24 benefits. Any attempt to perpetuate the continuation of cost-of-service regulation
25 through price caps, rate freezes or other mechanisms should be resisted, because
26 they will impede the rapid development of competitive markets.

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

30 A. No. As I mentioned previously, the principal benefits from the transition to
31 competitive markets will accrue over the long term. Any attempt to prolong

1 regulated ratemaking through a price cap or a rate freeze would delay the onset of
2 competition and distort the marketplace. If it is interested in such public policy
3 goals as shielding certain groups from the effects of a market transition, the
4 Commission would be wise to consider direct policy options, such as subsidies to
5 low-income consumers, rather than continued ratemaking, which would distort the
6 price signal.

7
8 **X. CONCLUSIONS**

9 **Q. What conclusions have you reached?**

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

20 **Q. Does this conclude your testimony?**

21 A. Yes, it does.

22

1

2 **f:/admin/case/Ariz/New Rebuttall Testimony 2-2b.doc**

JOHN H. LANDON

Dr. Landon has served as an economic consultant to the electric utility, coal, and uranium industries for over 20 years. His consulting experience has been wide-ranging and includes analysis of deregulation, strategic planning, competition, ratemaking, transmission governance, performance-based regulation, statistical benchmarking, demand-side management, 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 litigation work has involved damages assessments, forecasting, merger analysis, market definition and market power, valuation, antitrust liability, cost allocation, and pricing.

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

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Member of the American Economic Association

Associate Member of the American Bar Association

TESTIMONY PROVIDED FOR THE FOLLOWING CLIENTS:

Nevada Power Company

Before the Public Utilities Commission of Nevada, Docket No. 97-5034, September 1998.

Arizona Public Service Corporation

Before the Arizona Corporation Commission, Docket No. RE-00000C-94-165, August 1998

Arizona Public Service Corporation

Before the Arizona Corporation Commission, Docket No. E-01345A-98-0245, July 1998.

The Detroit Edison Company

Before the Michigan Public Service Commission, July 1998.

Delmarva Power & Light Company

Before the Maryland Public Service Commission, Case No. 8738, July 1, 1998.

Nevada Power Company

Before the Public Utilities Commission of Nevada, Docket No. 97-5034, July 1998.

Nevada Power Company

Before the Public Utilities Commission of Nevada, Docket No. 97-8001, June 1998.

Delmarva Power & Light Company

Before the Delaware Public Service Commission, PSC Docket No. 97-394F, May 1998.

The McGraw-Hill Companies, Inc.

Before the District Court, City and County of Denver, State of Colorado, Case No. 96-CV-6977, May 1998.

Southern California Edison Company

Before the Public Utilities Commission of the State of California, Application Nos. 97-11-004, 97-11-011, 97-12-012, May 1998.

Commonwealth Edison Company

Before the Illinois Commerce Commission, Docket No. 98-0013, March, 1998. (Direct, Rebuttal and Surrebuttal Testimonies)

Arizona Public Service Corporation

Before the Arizona Corporation Commission, Docket No. U-0000-94-165, February 4, 1998.

Silvaco Data Systems

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

Entergy Gulf States, Inc.

Public Utility Commission of Texas, April 4, 1997 and October 24, 1997.

Delmarva Power & Light Company

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El Paso Electric Company

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Nevada Power Company

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

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Fireman's Insurance Companies

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

Nevada Power Company

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Beverly Enterprises-California, Inc.

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