



0000082984

ORIGINAL

BEFORE THE ARIZONA CORPORATION COMMISSION RECEIVED

WILLIAM A. MUNDELL  
CHAIRMAN  
JIM IRVIN  
COMMISSIONER  
MARC SPITZER  
COMMISSIONER

2002 FEB -8 A 8:59

AZ CORP COMMISSION  
DOCUMENT CONTROL

IN THE MATTER OF THE APPLICATION  
OF THE ARIZONA ELECTRIC DIVISION  
OF CITIZENS COMMUNICATIONS  
COMPANY TO CHANGE THE CURRENT  
PURCHASED POWER AND FUEL  
ADJUSTMENT CLAUSE RATE, TO  
ESTABLISH A NEW PURCHASED  
POWER AND FUEL ADJUSTMENT  
CLAUSE BANK, AND TO REQUEST  
APPROVED GUIDELINES FOR THE  
RECOVERY OF COSTS INCURRED IN  
CONNECTION WITH ENERGY RISK  
MANAGEMENT INITIATIVES.

Docket No. E-01032C-00-0751

Arizona Corporation Commission

DOCKETED

FEB 08 2002

DOCKETED BY 

NOTICE OF FILING

The Residential Utility Consumer Office ("RUCO") hereby provides notice of filing the Direct Testimony of Richard A. Rosen, in the above-referenced matter.

RESPECTFULLY SUBMITTED this 8th day of February, 2002.

  
\_\_\_\_\_  
Scott S. Wakefield  
Chief Counsel

1 AN ORIGINAL AND TEN COPIES  
2 of the foregoing filed this 8th day  
3 of February, 2002 with:

3 Docket Control  
4 Arizona Corporation Commission  
5 1200 West Washington  
6 Phoenix, Arizona 85007

5 COPIES of the foregoing hand delivered/  
6 mailed this 8th day of February, 2002 to:

7 Lyn Farmer  
8 Chief Administrative Law Judge  
9 Hearing Division  
10 Arizona Corporation Commission  
11 1200 West Washington  
12 Phoenix, Arizona 85007

Christopher Kempley, Chief Counsel  
Legal Division  
Arizona Corporation Commission  
1200 West Washington  
Phoenix, Arizona 85007

10 Ernest Johnson, Director  
11 Utilities Division  
12 Arizona Corporation Commission  
13 1200 West Washington  
14 Phoenix, Arizona 85007

Michael M. Grant  
Todd C. Wiley  
Gallagher & Kennedy  
2575 East Camelback Road  
Phoenix, Arizona 85016-9225

13 Walter W. Meek  
14 Arizona Utility Investors Association  
15 2100 North Central Ave., Suite 210  
16 Phoenix, Arizona 85004

Raymond S. Heyman  
Michael W. Patten  
Roshka Heyman & DeWulf, PLC  
One Arizona Center  
400 East Van Buren St., Suite 800  
Phoenix, Arizona 85004

16 Holly J. Hawn  
17 Deputy County Attorney  
18 Santa Cruz County Attorney's Office  
19 2150 N. Congress Drive, Suite 201  
20 Nogales, Arizona 85621

Christine L. Nelson  
John White  
Mohave County Attorney's Office  
P.O. Box 7000  
Kingman, Arizona 86402-7000

19 Jose L. Machado  
20 City Attorney  
21 777 North Grand Ave.  
22 Nogales, Arizona 85621

Marshall and Lucy Magruder  
Post Office Box 1267  
Tubac, Arizona 85646-1267

22  
23 By Linda Reeves  
24 Linda Reeves

24 Electric\Citizens PPFAC (00-0751)\direct test-nof.doc

**BEFORE THE ARIZONA CORPORATION COMMISSION**

**IN THE MATTER OF THE APPLICATION OF )  
THE ARIZONA ELECTRIC DIVISION OF )  
CITIZENS COMMUNICATIONS COMPANY TO )  
CHANGE THE CURRENT PURCHASED POWER )  
AND FUEL ADJUSTMENT CLAUSE RATE, TO )  
ESTABLISH A NEW PURCHASED POWER AND )  
FUEL ADJUSTMENT CLAUSE BANK, AND TO )  
REQUEST APPROVED GUIDELINES FOR THE )  
RECOVERY OF COSTS INCURRED IN )  
CONNECTION WITH ENERGY RISK )  
MANAGEMENT INITIATIVES )**

---

**DOCKET NO.  
E-01032C-00-0751**

**DIRECT TESTIMONY**

**OF**

**DR. RICHARD A. ROSEN**

**On Behalf of the Arizona  
Residential Utility Consumer Office**

**Tellus Institute  
11 Arlington Street  
Boston, MA 02116-3411  
Tel: 617/266-5400**

**February 8, 2002**

**TABLE OF CONTENTS**

I. SUMMARY OF TESTIMONY .....1

II. BACKGROUND.....5

III. CITIZENS' OBLIGATION TO PROTECT RATEPAYERS .....8

IV. THE OLD CITIZENS' PURCHASED POWER CONTRACT WITH APS .....15

V. THE NEW PROPOSED PURCHASED POWER AGREEMENT .....20

APPENDIX 1 - QUALIFICATIONS .....A-1

SCHEDULE (RAR-1)

RESUME

1  
2  
3 I. SUMMARY OF TESTIMONY

4 Q. WHAT IS YOUR NAME AND BUSINESS ADDRESS?

5 A. My name is Dr. Richard A. Rosen. My business address is Tellus Institute, 11  
6 Arlington Street, Boston, MA 02116-3411.

7 Q. PLEASE DESCRIBE YOUR EDUCATIONAL AND PROFESSIONAL  
8 BACKGROUND.

9 A. Appendix 1, which is attached to this testimony, describes my educational and  
10 professional background.

11 Q. ON WHOSE BEHALF ARE YOU TESTIFYING IN THIS CASE?

12 A. In this case, I am providing expert testimony on behalf of the Residential Utility  
13 Consumer Office ("RUCO").

14 Q. WOULD YOU PLEASE SUMMARIZE YOUR TESTIMONY IN THIS  
15 DOCKET.

16 A. There are two main issues in this case. The first is whether or not the Citizens  
17 Communications Company ("Citizens") should be allowed to collect the  
18 wholesale purchased power costs that have been accumulating in its Purchased  
19 Power and Fuel Adjustment Clause ("PPFAC") from its retail ratepayers, and, if  
20 so, how much, and over what time frame. The second main issue is whether or  
21 not the Arizona Corporation Commission ("ACC") should approve the new  
22 wholesale power supply contract that Citizens has signed with Arizona Public  
Service ("APS") that would replace its pre-existing power supply contract with

1 APS.

2 My testimony addresses the reasonableness of Citizens' positions on both  
3 of these key issues. My conclusion is that Citizens should not be allowed to  
4 collect the vast majority of the current PPFAC bank balance, because the power  
5 supply contract that it had with APS for the period May 2000 through May 2001  
6 indicates that about one-half of the charges that APS has included on its wholesale  
7 power bills to Citizens under the contract are not valid. I also have concluded that  
8 Citizens should not collect this portion of its PPFAC bank balance because  
9 Citizens did not take the appropriate steps to properly mitigate this balance. In  
10 particular, Citizens should have taken at least three specific actions to help  
11 mitigate its PPFAC bank balance as it grew rapidly during the period May 2000  
12 through May 2001:

13 (1) Citizens should have filed a complaint with the Federal Energy  
14 Regulatory Commission (FERC) to determine the correct interpretation  
15 of the APS contract.

16 (2) Citizens should have petitioned the ACC to institute a docket to  
17 determine if APS' supply planning was prudent in light of its firm  
18 contractual obligations to Citizens.

19 (3) Citizens should also have petitioned FERC to get price caps or other  
20 wholesale market price mitigation measures in place throughout the West  
21 as quickly as possible after May 2000.

22 Ultimately, Citizens should only be able to charge its ratepayers for all prudently

1 incurred and valid wholesale power charges from APS,

2 Further, I conclude that the new wholesale contract between Citizens and  
3 APS is too expensive compared with the power supply contract that APS is  
4 proposing in Docket No. E-01345A-01-0822 for its own Standard Offer  
5 customers, and therefore the ACC should not approve it. I also find that the  
6 proposed contract is far too expensive when compared with what Citizens had  
7 paid prior to May 2000 under the old contract. The proposed price for the new  
8 contract is 5.88 cents per kWh, even though Citizens only paid about 4.24 cents  
9 per kWh under the old purchased power contract during the five-year period from  
10 May 1995 through April 2000. Thus, if the proposed wholesale contract with  
11 APS is approved, retail rates would not be reasonable. In fact, except for the  
12 abnormal period from May 2000 through May 2001 when market prices for  
13 wholesale power in the West were extremely high, the average costs to Citizens'  
14 ratepayers under the old power supply contract were significantly less than the  
15 costs per kWh that APS' own standard offer customers would pay under its own  
16 proposal for approval of a purchased power agreement with its affiliate Pinnacle  
17 West (Docket No. E-01345A-01-0822).

18 I also do not believe that the risks of keeping the old power supply  
19 contract that Citizens had with APS are nearly as great as Citizens suggests in its  
20 testimony in this case to justify paying so much more for power in the future than  
21 the old contract would likely cost. One reason for my conclusion is that FERC  
22 appears to be taking the issue of market power in the wholesale markets far more

1 seriously than it had prior to its June 19, 2001 order setting price caps for the  
2 California and Western wholesale power markets (Docket No. EL00-95-031).  
3 FERC appears to be establishing effective market power monitoring and  
4 mitigation rules for those markets. Thus, I expect that a repeat of the very high  
5 purchased power prices in the Western power markets, as occurred from May  
6 2000 through June 2001, is not likely to re-occur.

7

## II. BACKGROUND

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22

Q. PLEASE PROVIDE A BRIEF OVERVIEW OF THE HISTORY OF THIS DOCKET.

A. On September 28, 2000, Citizens filed an Application in this docket to collect a growing PPFAC bank balance that it identified with the onset of very high wholesale market prices in the West in May 2000. Citizens' monthly bills for power purchased from APS had increased significantly under its then existing contract from APS. The application sought authority to begin to collect the extra charges from ratepayers, as well as stressing the need to further investigate the validity of the monthly bills from APS. Citizens hired a consultant to conduct the review process. The investigation was set up as a three-phase review process. The first two phases of the review were completed. The intent of the third phase was to focus on whether APS exercised due diligence in its resource acquisition strategy, and to determine why APS was unable to cover both its own load and Citizens' load with firm resources in many hours during the period from May 2000 through the summer of 2001, and beyond. Phase III was also to address why the incremental load on the APS system due to demand on the Citizens system became "exposed" to very high spot purchased power costs when APS' firm generation resources were not sufficient to meet both its own Standard Offer load, plus Citizens' load, in spite of its obligation to do so. The third phase of the investigation was never completed due to the lack of cooperation by APS.

1 Q. WHAT DID CITIZENS CONCLUDE FROM THE FIRST TWO PHASES OF  
2 ITS REVIEW OF THE VALIDITY OF THE APS BILLS FOR ITS POWER  
3 SUPPLIES?

4 A. The major conclusion that Citizens reached from the first two phases of its review  
5 of its bills from APS was that the higher than expected bills resulted primarily  
6 from a difference in the interpretation of Citizens' wholesale power supply  
7 contract between the two utilities, and not from any mathematical errors or errors  
8 in applying the contract language to the underlying billing data. In fact, for the  
9 May 2000 through May 2001 bills totaling approximately \$133 million, Citizens  
10 claims that more than 50 percent of the billed amount (\$70 million) was excessive  
11 based on its own interpretation of its purchased power contract with APS. (See  
12 Citizens' answer to RUCO Data Request No.6.02.)

13 Q. IN LIGHT OF THE MUCH HIGHER THAN EXPECTED WHOLESAL  
14 POWER BILLS RECEIVED DURING THE SUMMER OF 2000, WHAT  
15 ACTIONS DID CITIZENS TAKE TO PROTECT ITS RATEPAYERS FROM  
16 FUTURE HIGH BILLS FROM APS?

17 A. According to the Amended Application filed by Citizens in September 2001, the  
18 Company did very little to further protect its ratepayers from the additional high  
19 bills that occurred after its initial Application in this docket was filed in  
20 September 2000, except to complete its Phase I and II investigations.  
21 Furthermore, after Citizens' phase I and II analysis of the earlier APS bills was  
22 complete in the fall of 2000, Citizens did very little to mitigate the magnitude of

1 the bills, such as filing a complaint at FERC to resolve the contract interpretation  
2 dispute. In addition to filing a complaint, Citizens should have petitioned FERC  
3 to establish price caps in the Western power markets as quickly as possible so that  
4 APS would not have been facing the very high market prices that it was when the  
5 Citizens load became "exposed" to the market. FERC had several ongoing  
6 dockets that dealt with this and related issues, but to my knowledge Citizens did  
7 not actively participate in these dockets.

8 Citizens' only mitigating action pursuant to the Phase II investigation was  
9 to make a cursory attempt to conduct its Phase III audit of APS' planning  
10 practices by sending informal data requests to APS. When APS refused to  
11 respond, Citizens did not file a supply planning complaint at FERC or with the  
12 ACC which would have allowed it to make formal data requests of APS. The  
13 primary activity that Citizens engaged in to protect its ratepayers beginning in  
14 March 2001 was to make overtures to APS in an attempt to negotiate a deal to  
15 reduce power costs for the future. These overtures led to the new wholesale  
16 power contract signed in July 2001, for which Citizens is now asking ACC  
17 approval. However, the new agreement reached with APS did not lead to any  
18 reduction of the APS bills for purchased power from May 2000 through May  
19 2001.

20

1                   **III. CITIZENS' OBLIGATION TO PROTECT RATEPAYERS**

2

3    Q.     WHAT ACTIONS SHOULD CITIZENS HAVE TAKEN DURING THE FALL  
4           OF 2000 AND EARLY WINTER OF 2001?

5    A.     In light of its disagreement with APS over the interpretation of the old purchased  
6           power contract, the most logical action that Citizens should have taken to protect  
7           its ratepayers would have been to file a complaint over the bills at FERC, since  
8           the prices in the contract are regulated by FERC. In addition, Citizens should  
9           have filed a request with the ACC to get the ACC's interpretation of the contract,  
10          or, at least, to raise the existence of the contract interpretation issue with the ACC  
11          as highly relevant to this docket. As of January 2001, or so, Citizens should also  
12          have requested that the ACC review the prudence of APS' past generation supply  
13          activities, and its future supply plans, since these are regulated by the ACC. And,  
14          finally, as I noted above, Citizens should have actively intervened in the dockets  
15          at FERC that dealt with wholesale power prices in the California and Western  
16          markets, in order to get those prices reduced to just and reasonable levels as  
17          quickly as possible.

18                 Clearly, it was not prudent for Citizens to have taken none of these actions  
19                 between the time the original Application was filed in this docket and the time the  
20                 Amended Application was filed. Moreover, if Citizens believed that \$49 million  
21                 in overcharges out of \$95 million in bills were at stake based on their contract  
22                 interpretation from May 2000 through only January 2001 as indicated in their

1 response to RUCO Data Request 4.10, then they should have taken the above  
2 actions quickly, knowing that it was very likely that even more money would be  
3 at stake after January 2001. As noted above, Citizens' updated calculation of the  
4 overcharges due to APS' incorrect contract interpretation yielded approximately  
5 \$70 million in total overcharges through May 2001. (Again, see the answer to  
6 RUCO Data Request 6.02.)

7 In response to RUCO Data Request 5.5, Citizens indicated it had  
8 considered filing a complaint with FERC about its bills from APS. However,  
9 Citizens stated that it did not do so, because it thought it would be preferable to  
10 pursue negotiations for a new purchased power contract with APS, with the goal  
11 of reducing its power supply costs in the future.

12 Q. WAS IT REASONABLE FOR CITIZENS TO GIVE UP ON THE  
13 POSSIBILITY OF SAVING APPROXIMATELY \$70 MILLION FOR  
14 RATEPAYERS IN ORDER TO FOCUS ITS EFFORTS NEGOTIATING A  
15 NEW PURCHASED POWER CONTRACT WITH APS FOR THE FUTURE?

16 A. No, the strategy that Citizens followed did not make sense. It would have been  
17 reasonable in the fall or winter of 2000-2001 for Citizens to want an interpretation  
18 of the existing purchased power contract validated by the appropriate regulatory  
19 bodies, for at least two reasons. First, seeking such an interpretation could get its  
20 power supply bills from APS reduced. Second, having that interpretation would  
21 indicate how strong Citizens' negotiating position would be with respect to  
22 attempting to reach a new agreement on a new purchased power contract for the

1 future. Clearly, if Citizens had convinced FERC that its interpretation of the  
2 purchased power contract was valid, then the APS bills would have been reduced  
3 by about 50 percent, and the PPFAC bank balance would have been reduced by an  
4 even higher percentage. Citizens would also have been in a much stronger  
5 negotiating position to obtain a better new purchased power contract. Absent an  
6 authoritative interpretation of the old contract, APS had much less incentive to  
7 make Citizens a good deal under a new contract, since it would be able to charge  
8 Citizens much more than Citizens had expected under the old contract when  
9 market prices were high.

10 Q. WAS IT PRUDENT FOR CITIZENS TO FORGO FILING A COMPLAINT  
11 SEEKING A DEFINITIVE INTERPRETATION OF THE CONTRACT AND  
12 INSTEAD TO SIMPLY ATTEMPT TO RENEGOTIATE THE CONTRACT?

13 A. No. I believe it was imprudent for Citizens not to file such a complaint with  
14 FERC. Filing a complaint at FERC is relatively inexpensive. Even if Citizens  
15 had to pursue this matter to federal court, Citizens has estimated that such a  
16 process might have cost about \$1 million. At a cost of \$1 million, the risk was  
17 clearly worth taking since the potential benefit would have been a savings of  
18 approximately \$49 million just through January 2001, and potentially a much  
19 greater benefit beyond that. There was no way for Citizens to know during the  
20 winter of 2001 when the high bills from APS would end, and when market prices  
21 in the West would fall. Therefore, Citizens should have filed a complaint at  
22 FERC by January 1, 2001 at the latest, once its Phase I and II investigation was

1 completed.

2 The reason Citizens gives for abandoning its Phase III review of APS'  
3 actions was that APS did not answer their informal discovery questions.  
4 However, if Citizens had filed a complaint at both FERC and the ACC, which had  
5 included a request for a prudence review of APS' supply planning, then Citizens  
6 would have been entitled to perform formal discovery on APS. In such a  
7 situation, APS would have been required to answer Citizens' discovery requests,  
8 and the prudence investigations could have proceeded.

9 Citizens still has not directly raised the key contract interpretation issue for  
10 the old contract with the ACC in order to get the Commission' s guidance on the  
11 substance of the issue, as well as its guidance as to what further actions Citizens  
12 should take at this point. Citizens clearly had this opportunity when it filed its  
13 amended application in the fall of 2001.

14 Q. DOES APS AGREE THAT THE MAIN REASON WHY ITS POWER SUPPLY  
15 BILLS TO CITIZENS WERE SO HIGH FROM MAY 2000 THROUGH MAY  
16 2001 WAS THAT IT HAD TO RELY ON PURCHASES OF POWER FROM  
17 THE WESTERN MARKET DURING MANY HOURS, IN ORDER TO COVER  
18 BOTH ITS STANDARD OFFER LOAD AS WELL AS CITIZENS' LOAD?

19 A. Yes. The main disagreement that APS has with Citizens regarding the old  
20 purchased power contract is that APS believes that it is entitled to pass on the high  
21 market prices for power which it needed to purchase to cover the Citizens' load  
22 when its own firm capacity was not sufficient. A critical regulatory issue for the

1 ACC to address prior to determining the final amount of recovery of the Citizens'  
2 PPFAC bank balance is whether APS was prudent in not covering the Citizens'  
3 load with firm longer-term capacity without having to go to the volatile Western  
4 power market. The issue of supply planning for APS is, in my opinion, primarily  
5 a regulatory issue for the ACC because FERC does not usually regulate supply  
6 planning even for the provision of wholesale contracts. FERC only regulates the  
7 terms and conditions of wholesale power contracts, especially the price of the  
8 power. Thus, I believe that the task of determining whether APS was prudent in  
9 its supply planning in order to provide for both its firm wholesale and retail loads  
10 falls primarily to the ACC.

11 Q. HOW MUCH MONEY, IF ANY, OF THE CURRENT PPFAC BANK  
12 BALANCE, SHOULD CITIZENS BE ALLOWED TO CHARGE ITS  
13 RATEPAYERS?

14 A. As of the filing of the Citizens' Amended Application in this docket, the size of  
15 the PPFAC bank balance was \$87 million. The actual amount that Citizens  
16 should be allowed to charge is a fairly complex issue, but I estimate it to be about  
17 \$17 million (\$87 million minus \$70 million) based on Citizens' own analysis of  
18 the issue. I suggest that this amount of money be collected from Citizens' retail  
19 ratepayers on a uniform cents-per-kWh basis over the next two years beginning on  
20 July 1, 2002, with six percent interest accruing on the unamortized balance of this  
21 PPFAC bank balance, as Citizens has proposed. However, this \$17 million should  
22 be further refined and adjusted in the future based on the same type of analysis of

1 Citizens' power bills from APS through May 2001 that Citizens performed for the  
2 bills through January 2001. This analysis should be performed in order to more  
3 accurately determine the valid charges from APS according to Citizens'  
4 interpretation of the contract.

5 If APS continues to disagree with Citizens' interpretation of the existing  
6 power supply contract, then APS and/or Citizens will need to file a complaint at  
7 FERC in order to finally resolve this issue. If this is done, then the ACC should  
8 intervene and play an active role in that docket by supporting Citizens'  
9 interpretation of the contract. If, following such a proceeding, the ACC  
10 determines that Citizens should recover some significantly different amount, then  
11 the parties to this docket should again be consulted about the magnitude and  
12 duration for collecting this new balance from ratepayers through a new hearing  
13 process. If the final figure is not very different from \$17 million, then the actual  
14 amount should be collected by just slightly adjusting the period over which the  
15 same cents per kWh amount is collected. Finally, in order to determine if even  
16 less of the current PPFAC bank balance should be paid by its retail customers  
17 than I am recommending above, due to imprudent supply planning on the part of  
18 APS, Citizens should complete the prudence review of APS' supply planning  
19 process as part of this or another ACC complaint case.

20 However, as noted above, because Citizens disagreed with APS'  
21 interpretation of its pre-existing power supply contract since at least July 2000  
22 (when it first received an unusually high monthly bill from APS for May 2000),

1 Citizens should have taken all appropriate actions to mitigate that bill and all  
2 subsequent bills. Citizens' failure to act amounted to negligence once it realized  
3 the importance of its disagreement with APS at the end of its Phase I and Phase II  
4 review performed in the fall of 2000. By January 2001 at the very latest, Citizens  
5 should have filed a formal complaint with FERC, challenging APS' contract  
6 interpretation. If Citizens had filed a complaint with FERC regarding the  
7 magnitude of its bills from APS on or about January 1, 2001, that complaint  
8 would likely have been resolved well before now.

9

1           **IV. THE OLD CITIZENS' PURCHASED POWER CONTRACT WITH APS**

2

3       Q.     SINCE THE INTERPRETATION OF THE OLD CITIZENS' PURCHASED  
4           POWER CONTRACT WITH APS IS SO IMPORTANT FOR THIS CASE,  
5           PLEASE DESCRIBE HOW CITIZENS PERCEIVES THE DIFFERENCE IN  
6           ITS INTERPRETATION FROM THAT OF APS.

7       A.     The old Citizens purchased power contract had three different schedules under  
8           which power could be purchased: Schedules A, B, and C. Most of the power  
9           purchased under the old contract was purchased under the cheaper Schedule A, so  
10          this is the "base" block of power. Approximately 20 percent of the power was  
11          purchased under Schedules B and C. Citizens claims that there were two principal  
12          areas of disagreement concerning the interpretation of the contract: (1) the  
13          meaning of the definition of System Incremental Cost ("SIC"), and (2) how the  
14          SIC was used to create charges for the base block of power under Schedule A.

15      Q.     WHAT WAS THE DISAGREEMENT OVER THE FIRST AREA?

16      A.     Citizens claims that SIC was, by definition, limited to the costs of economy  
17          purchases (i.e., purchases made to save money relative to the cost of APS'  
18          resources), and could not include the costs of purchased power that were higher  
19          than APS' highest variable cost<sup>1</sup>.

20                       According to Citizens, APS claimed that the costs of any purchased power  
21          needed to meet Citizens' load on an incremental basis could be included in

---

<sup>1</sup> "Variable" costs consists of primarily fuel costs plus a smaller amount of variable generation and maintenance costs.

1 calculating the SIC, including those purchases made at market prices that were  
2 much higher than the variable cost of its most expensive unit. This could happen  
3 in those hours when APS ran out of enough firm power supplies, from either  
4 generating units that it owned or from firm capacity purchases made on a "least-  
5 cost" basis to cover both its load and Citizens' load.

6 Another valid, but less important, contract interpretation issue involves  
7 Citizens' failure to explicitly discuss differences in how the SIC was applied to  
8 power charged under Schedules B and C of the original PPA.

9 Q. WHAT WAS THE CONTRACT DISAGREEMENT OVER HOW THE BASE  
10 BLOCK OF POWER UNDER SCHEDULE A WAS CHARGED, WHICH IS  
11 THE SECOND ISSUE THAT YOU DESCRIBED ABOVE?

12 A. Citizens' interpretation of the Schedule A contract was that the "ceiling" or  
13 maximum price of the base block was based on the embedded cost of the APS  
14 system.<sup>2</sup> These total embedded costs included both the fixed, or demand costs,  
15 and the embedded variable costs of operating those units. In addition, the "floor"  
16 or minimum price would be the System Incremental Cost. Normally, the ceiling  
17 price would be well above the floor price represented by the SIC. Thus, Citizens  
18 claims that the base block of the load should not be subject to pricing which  
19 depends on the price of very expensive power purchases through their inclusion in  
20 the SIC.

21 Citizens claims that APS took the position that it could price even the base

---

<sup>2</sup> "Embedded" costs are determined by traditional cost-of-service ratemaking methodologies.

1 block of power under Schedule A at the full level of those purchased power costs  
2 needed to meet Citizens' load through the SIC-based floor provision of the  
3 pricing agreement. In other words, APS claims that in determining the maximum  
4 price of the base block, it could include the very expensive purchased power costs  
5 in the SIC.

6 Q IN YOUR OPINION, DOES CITIZENS HAVE A VALID CONTRACT  
7 DISPUTE TO TAKE BEFORE THE FERC?

8 A. Yes. There are at least two reasons why I believe that Citizens has a valid  
9 contract dispute that it should take to FERC. First, Citizens' interpretation of  
10 what purchases were to be included in SIC was reasonable. Stated simply,  
11 Citizens' interpretation was correct that high-priced purchased power cannot be  
12 validly included in the calculation of the SIC, since APS' purchases were not  
13 "economy purchases".

14 Second, I believe Citizens has a valid claim that relates to the role of  
15 section III in Exhibit B to Service Schedule A. This section is very cryptic, and it  
16 states that "Citizens shall also be responsible for purchased power costs" that  
17 would not have been incurred but for the need to meet Citizens' load. Within the  
18 overall structure of the contract, section III of that exhibit seems to be somewhat  
19 of an appendage or afterthought, though structurally it appears to have equal  
20 status with sections I and II. Section I defines the maximum price, or price  
21 ceiling. Section II simply defines the minimum charge, or "floor," for service  
22 under Schedule A as the SIC. APS' interpretation of section III appears to be that

1 the floor price must be charged even if it is higher than the ceiling price.

2 Q. UNDER THE OLD PURCHASED POWER CONTRACT, HOW MUCH DID  
3 CITIZENS ACTUALLY PAY FOR POWER?

4 A. Under the old purchased power contract, Citizens paid an average price of about  
5 4.24 cents per kWh for power at wholesale. This was the average price for the  
6 five-year period from May 1995 through April 2000, the five-year period just  
7 before APS' monthly bills for Citizens began their dramatic rise in May 2000.  
8 One very important fact about the past wholesale costs of power prior to May  
9 2000 is that they were relatively stable from month to month, and from year to  
10 year. Price volatility was not a significant problem in the past. (See Schedule  
11 (RAR-1, which is a graph of past monthly wholesale power prices under the old  
12 Citizens contract.)

13 During this five-year period, the highest monthly average price was 5.52  
14 cents per kWh in August 1998, with the next highest monthly average price being  
15 4.88 cents per kWh in September 1997. The lowest monthly price during that  
16 same period was 3.75 cents per kWh in March 2000. Generally, monthly average  
17 prices varied between about 4.00 and 4.50 cents per kWh.

18 The actual prices for power that Citizens bought from APS in the past  
19 should, then, be compared to the levelized 5.88 cents per kWh price that APS will  
20 charge in its new proposed PPA for Citizens. The new proposed average price is  
21 significantly higher than even the highest monthly average price (5.52 cents per  
22 kWh) in the 60 months prior to May 2000, after which prices in the Western

1 markets exploded. (Again, see Schedule (RAR-1.)

2 Q. HOW DID THE AVERAGE PRICES FOR POWER UNDER THE OLD  
3 CONTRACT VARY FOR SCHEDULES A, B, AND C, COMPARED WITH  
4 THE TOTAL AVERAGE CONTRACT PRICE CITED ABOVE?

5 A. From May 1995 through April 2000, the average price for wholesale power to  
6 Citizens from APS under Schedule A was 4.04 cents per kWh, under Schedule B  
7 was 5.24 cents per kWh, and under Schedule C was 6.71 cents per kWh.  
8 Schedule A could be considered the base block or baseload portion of the overall  
9 power supply contract since its average price was lowest, and 81 percent of all the  
10 power in that five-year period was purchased under that schedule. Similarly,  
11 Schedule B power could be considered cycling power, and 16 percent of the  
12 power was purchased under that schedule. Schedule C provided the most  
13 expensive or peaking power, and only three percent of the power was purchased  
14 under that schedule. Thus, Schedule A is clearly the most important schedule for  
15 providing power to Citizens, and, therefore, the price of power under Schedule A  
16 dominates the average price of all power under the entire contract.

17

1

1

**V. THE NEW PROPOSED PURCHASED POWER AGREEMENT**

2

3

Q. PLEASE SUMMARIZE THE BASIC TERMS OF THE PROPOSED NEW  
4 WHOLESale POWER CONTRACT WITH APS.

4

5

A. The proposed new contract has two key provisions that I will focus on in my  
6 testimony:

6

7

a. The term of the contract is seven years beginning June 1, 2001.

8

b. The price of the power would be fixed for the seven-year period at

9

an energy charge of \$0.05879 per kWh, no matter how much or

10

how little power is taken.

11

Q. ON THE WHOLE, WILL RATEPAYERS BENEFIT FROM THE NEW  
12 PROPOSED PURCHASED POWER AGREEMENT (PPA) COMPARED TO  
13 THE CURRENT PURCHASED POWER AGREEMENT?

12

13

14

A. No, on the whole ratepayers will not benefit from the new purchased power  
15 agreement compared with the current purchased power agreement.

15

16

Q. PLEASE IDENTIFY AND RESPOND TO THE ADVANTAGES THAT  
17 CITIZENS CLAIMS WILL RESULT FROM THE NEW PROPOSED  
18 CONTRACT.

17

18

19

A. First, Citizens claims that price stability or predictability is one of the advantages  
20 of the proposed PPA. However, price stability does not imply that there is no  
21 price risk to the retail ratepayers involved. For example, if it were to turn out that

20

21

1 the average wholesale price of power to serve the Citizens load under the old  
2 contract would have been 4.2 cents per kWh over the next seven years, as it had  
3 been over the past five years prior to May, 2000, the proposed contract price of  
4 5.9 cents per kWh would be very unfavorable for ratepayers. While stability  
5 sometimes has a value in itself, it may not be worth much compared to having  
6 lower average retail rates, even if those rates were somewhat more volatile. One  
7 way of checking how wholesale market traders value price stability is for Citizens  
8 to get a levelized price bid from the wholesale power market in order to determine  
9 what constant price the market would offer to resell power to Citizens based on its  
10 old contracts for the next seven years. Such a bid could then directly be compared  
11 to the price that APS has offered of 5.9 cents per kWh.

12 Q. IS THE RESOLUTION OF STRANDED GENERATION COSTS ISSUES A  
13 SECOND BENEFIT OF THE PROPOSED PPA FOR RATEPAYERS, AS  
14 CITIZENS CLAIMS?

15 A. No. There is no significant economic value for ratepayers in this contract in  
16 resolving so-called stranded cost issues, as Citizens claims. The key issue for  
17 ratepayers is how much their total electric bill is going to be in the future, not how  
18 it might be sub-divided into its component parts.

19 Q. IS THE SEVEN-YEAR DURATION OF THE PROPOSED PPA A THIRD  
20 BENEFIT TO RATEPAYERS RELATIVE TO THE OLD CONTRACT?

21 A. The seven-year duration of the proposed contract might be a benefit to ratepayers  
22 relative to the duration of the current contract, but I can not say for sure because

1 of the other differences between the two contracts. For example, Service  
2 Schedule A of the current contract does not end until 2011, which is about three  
3 years farther into the future than the new proposed contract. Thus, if prices under  
4 Schedule A prove to be much lower than the price for the same amount and type  
5 of power that is implicit in the proposed contract, then the shorter duration of the  
6 proposed contract may not be beneficial to ratepayers at all, because about 80  
7 percent of power in the past was taken under Schedule A. On the other hand, APS  
8 could terminate Schedules B and C prior to the end of the proposed PPA, though  
9 that may not be a problem if market prices behave reasonably, as expected. The  
10 year 2003 is the earliest time when Citizens would have to sign a new PPA for  
11 that portion of its power supplies previously provided by Schedules B and C, if  
12 those two schedules were terminated by APS.

13 Q. IS THE ADMINISTRATIVE SIMPLICITY OF THE PROPOSED CONTRACT  
14 A FOURTH SIGNIFICANT BENEFIT TO RATEPAYERS?

15 A. No, the administrative simplicity of the proposed contract is not a significant  
16 benefit to Citizens' ratepayers, as claimed in their Amended Application. This is  
17 because the costs of administering these types of contracts are very small  
18 compared to the underlying costs of the power itself. Thus, the administrative  
19 simplicity will not save a significant fraction of the cost of the proposed PPA.

20 Q. FINALLY, CITIZENS CLAIMS THAT ONE OF THE BENEFITS OF THE  
21 NEW PPA IS THAT IT WOULD BEGIN AS OF JUNE 1, 2001, IF  
22 APPROVED, AND THAT IT ALREADY WILL HAVE SAVED \$30-70

1 MILLION JUST OVER THE COURSE OF JUNE-SEPTEMBER, 2001.

2 A. No, upon reflection, the new contract compared to the old contract has not saved  
3 Citizens' ratepayers between \$30 million and \$70 million during last summer.  
4 The proposed contract has actually saved Citizens' ratepayers very little money,  
5 if any, during last summer, if Citizens' interpretation of the old contract is  
6 correct. Citizens' projected range of savings was computed during the summer of  
7 2001, before actual wholesale market prices in the region were known. The  
8 average wholesale market prices for the entire summer did not turn out to be  
9 nearly as high as the prices on which Citizens' projection of savings was based.  
10 Sean Breen states clearly on page 7 of his direct testimony of December 2001 in  
11 this docket that the \$70 million end of the range for savings was derived assuming  
12 that ACitizens would have been billed charges comparable to the \$.189/kWh it  
13 was billed in May 2001." Yet, that price assumption was a worst-case  
14 assumption, since it was one of the highest monthly average charges to Citizens  
15 for power, if not the highest.

16 Market prices at the Palo Verde hub fell quickly after mid-June 2001, after  
17 FERC issued its June 19, 2001 order setting price caps for the California and  
18 Western markets. By September 2001, market prices were generally as low as  
19 they had been prior to May 2000, when Citizens did not receive any claimed over-  
20 charges in their wholesale power bills from APS. Thus, the additional charges  
21 that Citizens actually would have received under its interpretation of its existing  
22 APS Service Schedules during the period June-September 2001 relative to the

1 new proposed PPA would have been fairly minimal after June, and would  
2 certainly have been far less than \$30 million.

3 In fact, the "overcharge" could easily have been negative, i.e. the new  
4 contract could have been more expensive even for June 2001 through August  
5 2001. Once the proposed PPA was signed in mid-July 2001, the worst of the  
6 wholesale market pricing situation was over, and market prices at the Palo Verde  
7 hub have been fairly low since then. Therefore, Citizens has greatly exaggerated  
8 the benefits that it would have already received under the new PPA relative to its  
9 old wholesale power contract with APS.

10 Q. WHAT IS THE MOST IMPORTANT ISSUE THAT NEEDS TO BE  
11 EVALUATED BEFORE IT CAN BE DETERMINED IF THE PROPOSED PPA  
12 IS AN OVERALL "GOOD DEAL" FOR RATEPAYERS?

13 A. The most important issue that needs to be evaluated is whether or not the  
14 proposed PPA is likely to be less costly, on average, than the old contract over the  
15 next seven years. The average wholesale price of the new contract is \$0.05879  
16 per kWh, and the retail price to Citizens' ratepayers is \$0.06583 per kWh, once  
17 transmission and distribution losses are taken into account. This price must then  
18 be compared to the current base price of generation in Citizens' current retail  
19 rates, which is \$0.04802 per kWh, including the impact of losses. Prior to May  
20 2000, this was basically the total cost of generation to Citizens' customers  
21 because there were no significant amounts of additional higher-priced purchased  
22 power costs that had to be included in their PPFAC. Thus, as Citizens' Amended

1 Application makes quite clear (page 8, line 4), the proposed new contract would  
2 represent a retail price increase for generation of 1.8 cents per kWh, or about 37  
3 percent, compared to the current retail base rates. Unless wholesale market prices  
4 at the Palo Verde hub rise substantially again, and Citizens' interpretation of the  
5 existing contracts is wrong, and APS continues to fail to be able to cover Citizens'  
6 total load with its own firm resources, the combination of which is very unlikely,  
7 then the proposed new contract will be substantially more expensive for Citizens'  
8 ratepayers than staying with the old contract would be.

9 Q. SINCE THE NEW WHOLESALE PRICE FOR POWER UNDER THE  
10 PROPOSED NEW CONTRACT WOULD BE ABOUT 40 PERCENT HIGHER  
11 THAN UNDER THE OLD CONTRACT, WOULD THE NEW PRICE BE  
12 "JUST AND REASONABLE" UNDER SECTION 206 OF THE FEDERAL  
13 POWER ACT?

14 A. I can not be sure, but if the prior average price of about 4.2 cents per kWh was  
15 "just and reasonable" under Section 206 of the Federal Power Act, I question how  
16 the new wholesale contract price of about 5.9 cents per kWh could also be just  
17 and reasonable. I raise this important question even though I am aware of the fact  
18 that FERC has already approved the new PPA for power rates from APS to  
19 Citizens.

20 The reason why I am skeptical that the new price is just and reasonable  
21 under the Federal Power Act is that the power will come from the same power  
22 supply system as it did in the past. Thus, since "just and reasonable" rates must,

1 primarily, be cost-based and justified on the basis of cost, how could this new  
2 much higher rate possibly qualify? Clearly, even if the cost of natural gas went up  
3 substantially over the next seven years, this would not raise embedded costs that  
4 underlie the old contract by anything close to 40 percent.

5 Q. DOES THE FACT THAT CITIZENS SIGNED THE PROPOSED NEW  
6 CONTRACT IN JULY 2001 INDICATE WHETHER THE RESULTING  
7 RETAIL PRICE IS REASONABLE?

8 A. Yes, the timing of the contract is highly relevant to the determination of the  
9 reasonableness of the rates. Because Citizens agreed to the new proposed power  
10 supply contract in July 2001, it seems likely that Citizens was motivated to sign  
11 the contract by the very high market prices that they observed throughout the  
12 Western region over the prior year. However, as FERC itself has stated, the high  
13 prices created by the California and Western markets were not just and reasonable  
14 over that prior year. Therefore, retail rates that would have reflected those very  
15 high wholesale rates would not have been reasonable either, and would not be in  
16 the future. For example, on page 22 of its June 19, 2001 Order in Docket No.  
17 EL00-95-031, FERC "reaffirmed its general finding that, as a result of the  
18 seriously flawed electric market structure and rules for wholesale sales of electric  
19 energy in California, unjust and unreasonable rates were charged, and could  
20 continue to be charged." Thus, FERC extended price mitigation from the  
21 California markets to the entire Western States Coordinating Council in order to  
22 mitigate the spill-over effects of market power from California to Arizona, and to

1 try to restore just and reasonable rates throughout the West. However, since the  
2 new Citizens contract with APS was due to begin on June 1, 2001, it appears that  
3 the price that Citizens agreed to was influenced by the unjust and unreasonable  
4 wholesale prices that had existed for the year prior to that date.

5 In retrospect, Citizens signed the new contract with APS at about the worst  
6 time possible, since it was not yet clear that wholesale prices would moderate so  
7 soon after that date. Thus, I conclude that the 5.9 cent per kWh price in the  
8 proposed contract was the result of the impact of the significant levels of market  
9 power being exercised in the Western markets during the period May 2000  
10 through June 2001. On its face, then, this price is not likely to result in just and  
11 reasonable retail rates, and should be rejected by the ACC.

12 Q. IS THE FACT THAT SERVICE SCHEDULES B AND C OF THE OLD  
13 WHOLE CONTRACT MIGHT BE TERMINATED BY APS IN 2003  
14 ANOTHER IMPORTANT FACTOR THAT MUST BE TAKEN INTO  
15 ACCOUNT?

16 A. Yes. The fact that APS could cancel Schedules B and C of the old contract during  
17 2003 with one year's notice is important to take into account. But if these  
18 schedules can be replaced by Citizens at approximately the same cost, then the  
19 fact that they could be terminated would not be significant to the issue of whether  
20 the proposed new PPA would be better. It is my judgment that since the average  
21 cost of power under Schedules B and C has been \$0.052 per kWh and \$0.067 per  
22 kWh, respectively, during the five-year period prior to May 2000 when wholesale

1 market prices were not excessively high, then it is likely that Citizens could  
2 replace the power purchased under those two schedules at about this same price,  
3 or somewhat higher. However, even if Citizens had to buy replacement power  
4 from the wholesale market at a higher price than it had paid previously, the  
5 average price of power needed to serve Citizen' load would still likely be lower  
6 than the price in the new contract.

7 For example, only 19 percent of Citizens' supplies from May, 1995  
8 through April, 2000 came from Schedules B and C. Even if the average price of  
9 power under these schedules had been as high as \$0.1372 per kWh, the average  
10 price of power would still only be equal to the proposed contract price of \$0.0588  
11 per kWh. Power with a fairly low load factor like that currently being purchased  
12 under Schedules B and C would not likely cost \$0.1372 per kWh, or more than  
13 2.5 times the average price that Citizens paid for the same low load factor power  
14 under Schedules B and C in the past. Thus, even if APS terminates Schedules B  
15 and C, it appears that Citizens could buy the power that they would need to  
16 purchase in order to meet their total load over the next seven years from both  
17 Schedule A and from the market, at a much lower average price than the \$0.0588  
18 per kWh price of the new proposed wholesale power contract with APS.

19 Q. DOES THAT CONCLUDE YOUR TESTIMONY?

20 A. Yes, it does.



1 A. As past director of the Energy Group and manager of the Electricity Program, I  
2 have had wide experience assessing utility system supply options on both a  
3 service area and a regional basis. These assessments have encompassed all types  
4 of generation plant, transmission plant, purchases of capacity and energy, fuel  
5 purchases and contracting, central station district heating and decentralized  
6 cogeneration plants, and alternative sources of energy such as wind, biomass, and  
7 solar energy connected to electricity grids. These assessments have dealt with the  
8 technical, economic, environmental, regulatory, and financial aspects of supply  
9 planning, including the relationships between supply planning, load forecasting,  
10 rate design, and revenue requirements. I have also reviewed the prudence of  
11 many past supply planning decisions by utilities.

12 Q. PLEASE PROVIDE A FEW ADDITIONAL DETAILS OF YOUR  
13 EXPERIENCE IN THE AREA OF UTILITY PLANNING.

14 A. Power supply system modeling and integrated resource planning has been a major  
15 focus of my activities for the past 22 years. My research and testimony in this  
16 area began in 1980, and I have testified in numerous cases involving generation  
17 planning and the integration of demand and supply technologies on a least-cost  
18 basis. For example, I submitted extensive generation planning testimony in the  
19 1980 CAPCO Investigation in Pennsylvania in Case No. I-79070315, and in the  
20 1981 Limerick Investigation as well (Case No. I-80100341). In early 1982, I  
21 prepared a major report for the Alabama Attorney General's Office entitled

1 "Long-Range Capacity Expansion Analysis for Alabama Power Company and the  
2 Southern Company System," and I filed testimony in Docket No. 18337 before  
3 the Alabama Public Service Commission. In addition, I testified on the excess  
4 capacity issue regarding Susquehanna Unit 1 in the 1983 Pennsylvania Power and  
5 Light Co. Rate Case (No. R-822169). In 1987, I testified before the Federal  
6 Energy Regulatory Commission ("FERC") on NEPOOL's Performance Incentive  
7 Program on behalf of the Maine Public Utilities Commission in Docket No. ER-  
8 86-694-001. In 1989, I testified before the Pennsylvania Public Utility  
9 Commission on excess capacity and ratemaking treatment regarding Philadelphia  
10 Electric Co.'s Limerick 2 nuclear unit. This work was performed on behalf of the  
11 Pennsylvania Office of Consumer Advocate in Docket No. R-891364. I also  
12 testified in Vermont in Docket No. 5330 on the cost-effectiveness of the proposed  
13 purchased power contract between the Vermont utilities and Hydro-Quebec. In  
14 the 1980s, I testified in several cases involving the planning and construction of  
15 the Palo Verde nuclear units, before the Arizona Corporation Commission  
16 ("Commission" or ACC), as well as before FERC.

17 Finally, in January 1998 I testified before this Commission on behalf of  
18 the Residential Utility Consumer Office ("RUCO") in Docket No. U-0000-94-165  
19 regarding public policy recommendations on key issues related to calculation,  
20 sharing, and recovery of stranded costs; and presentation of the "retail generation  
21 service" methodology for computing stranded costs. In September 1998, in

1 Docket No. E-01933A-98-0471, I was the author of comments to the Commission  
2 entitled "Analysis and Recommendations of Residential Utility Consumer Office  
3 Regarding the Tucson Electric Power Company's Stranded Cost Filing." In  
4 November 1998 I filed testimony before the Commission in Docket Nos. E-  
5 01933A-98-0471; E-01933A-97-0772; E-01345A-98-0473; E-01345A-97-0773;  
6 and U-00000C-94-165 on various filings related to the unbundled service tariffs,  
7 stranded cost recovery proposal for Arizona Public Service and Tucson Electric  
8 Power Company, and various other aspects of their restructuring proposals. I filed  
9 testimony before the Commission in Docket No. RE-00000C-94-0165 in July  
10 1999 on the status of settlement discussions between RUCO and Citizens Utilities  
11 Company-Arizona Electric Division ("CUC-AED"), and summary concerns about  
12 CUC-AED's stranded cost recovery plans.

13 Due to my extensive regulatory experience supporting the public interest,  
14 as outlined above, in 1988 I was chosen to serve a three-year term on the Research  
15 Advisory Committee of the National Regulatory Research Institute, an  
16 appointment made by the public utility commissioners serving on the NRRI  
17 Board of Directors. In addition, I have been the project manager on contract  
18 research that the Tellus Institute has performed for the U.S. Department of  
19 Energy, the U.S. Environmental Protection Agency, the U.S. Department of  
20 Justice, the National Association of Regulatory Utility Commissioners (NARUC),  
21 the New England Conference of Public Utility Commissioners, the New England

1           Governors Conference, and the National Council on Competition in the Electric  
2           Industry.

3                     In the last six years, I have spent most of my time analyzing electric utility  
4           restructuring issues. As early as 1996, I testified before the New Hampshire  
5           Public Utilities Commission on issues affecting the design of the state's pilot  
6           programs (Docket No. 96-150), and I testified before the New York Public  
7           Service Commission on stranded costs, market structures, and other issues related  
8           to ConEd's, NYSEG's, and RG&E's restructuring plans. I also have worked on or  
9           testified on other restructuring issues in Nevada, New Mexico, New Jersey,  
10          Illinois, Missouri, Colorado, Pennsylvania, Maryland, Maine, Rhode Island, and  
11          Michigan.



1 A. As past director of the Energy Group and manager of the Electricity Program, I  
2 have had wide experience assessing utility system supply options on both a  
3 service area and a regional basis. These assessments have encompassed all types  
4 of generation plant, transmission plant, purchases of capacity and energy, fuel  
5 purchases and contracting, central station district heating and decentralized  
6 cogeneration plants, and alternative sources of energy such as wind, biomass, and  
7 solar energy connected to electricity grids. These assessments have dealt with the  
8 technical, economic, environmental, regulatory, and financial aspects of supply  
9 planning, including the relationships between supply planning, load forecasting,  
10 rate design, and revenue requirements. I have also reviewed the prudence of many  
11 past supply planning decisions by utilities.

12 Q. PLEASE PROVIDE A FEW ADDITIONAL DETAILS OF YOUR  
13 EXPERIENCE IN THE AREA OF UTILITY PLANNING.

14 A. Power supply system modeling and integrated resource planning has been a major  
15 focus of my activities for the past 22 years. My research and testimony in this  
16 area began in 1980, and I have testified in numerous cases involving generation  
17 planning and the integration of demand and supply technologies on a least-cost  
18 basis. For example, I submitted extensive generation planning testimony in the  
19 1980 CAPCO Investigation in Pennsylvania in Case No. I-79070315, and in the  
20 1981 Limerick Investigation as well (Case No. I-80100341). In early 1982, I  
21 prepared a major report for the Alabama Attorney General's Office entitled "Long-

1 Range Capacity Expansion Analysis for Alabama Power Company and the  
2 Southern Company System," and I filed testimony in Docket No. 18337 before the  
3 Alabama Public Service Commission. In addition, I testified on the excess  
4 capacity issue regarding Susquehanna Unit 1 in the 1983 Pennsylvania Power and  
5 Light Co. Rate Case (No. R-822169). In 1987, I testified before the Federal  
6 Energy Regulatory Commission ("FERC") on NEPOOL's Performance Incentive  
7 Program on behalf of the Maine Public Utilities Commission in Docket No. ER-  
8 86-694-001. In 1989, I testified before the Pennsylvania Public Utility  
9 Commission on excess capacity and ratemaking treatment regarding Philadelphia  
10 Electric Co.'s Limerick 2 nuclear unit. This work was performed on behalf of the  
11 Pennsylvania Office of Consumer Advocate in Docket No. R-891364. I also  
12 testified in Vermont in Docket No. 5330 on the cost-effectiveness of the proposed  
13 purchased power contract between the Vermont utilities and Hydro-Quebec. In  
14 the 1980s, I testified in several cases involving the planning and construction of  
15 the Palo Verde nuclear units, before the Arizona Corporation Commission  
16 ("Commission" or ACC), as well as before FERC.

17 Finally, in January 1998 I testified before this Commission on behalf of  
18 the Residential Utility Consumer Office ("RUCO") in Docket No. U-0000-94-165  
19 regarding public policy recommendations on key issues related to calculation,  
20 sharing, and recovery of stranded costs; and presentation of the "retail generation  
21 service" methodology for computing stranded costs. In September 1998, in

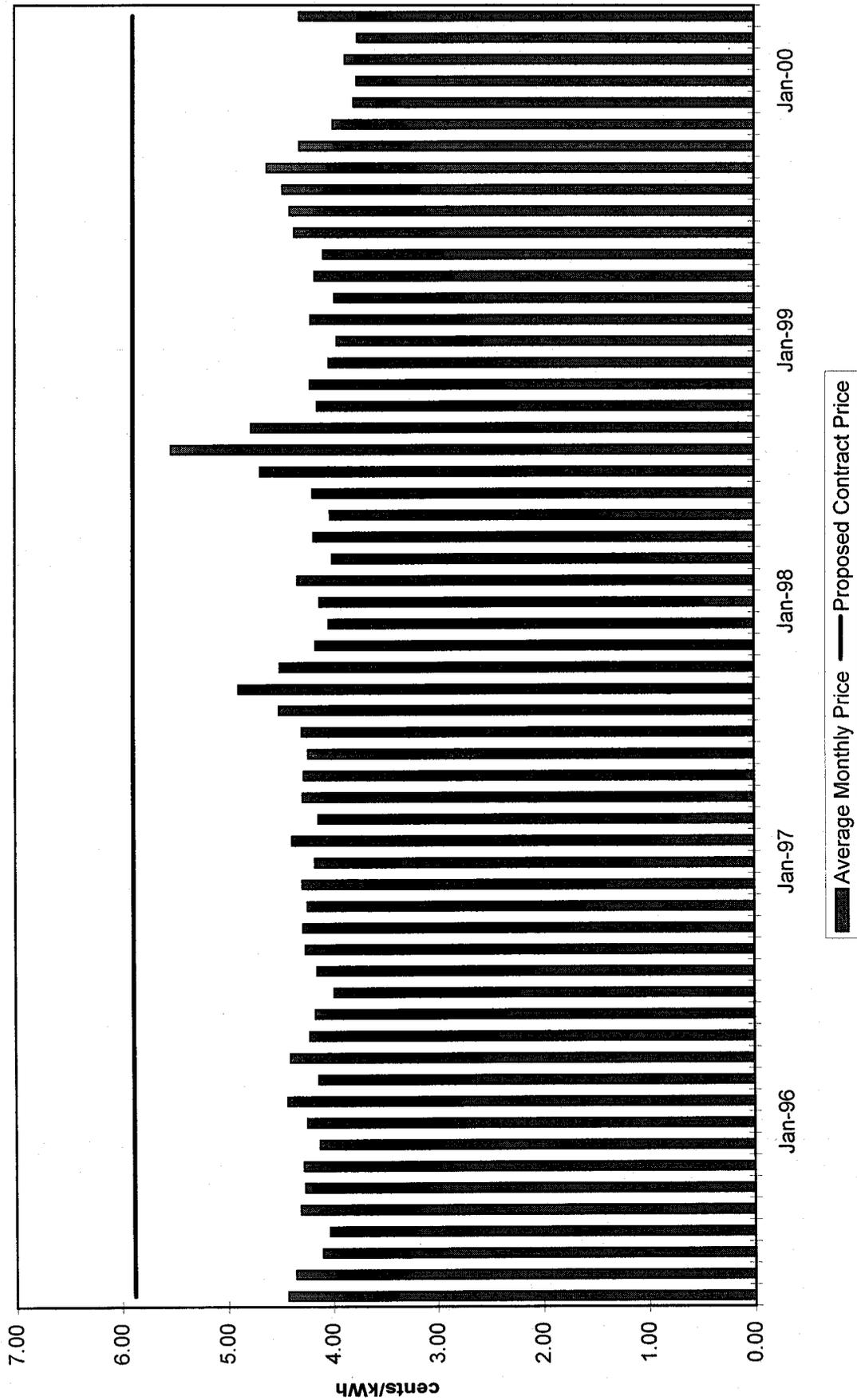
1 Docket No. E-01933A-98-0471, I was the author of comments to the Commission  
2 entitled "Analysis and Recommendations of Residential Utility Consumer Office  
3 Regarding the Tucson Electric Power Company's Stranded Cost Filing." In  
4 November 1998 I filed testimony before the Commission in Docket Nos. E-  
5 01933A-98-0471; E-01933A-97-0772; E-01345A-98-0473; E-01345A-97-0773;  
6 and U-00000C-94-165 on various filings related to the unbundled service tariffs,  
7 stranded cost recovery proposal for Arizona Public Service and Tucson Electric  
8 Power Company, and various other aspects of their restructuring proposals. I filed  
9 testimony before the Commission in Docket No. RE-00000C-94-0165 in July  
10 1999 on the status of settlement discussions between RUCO and Citizens Utilities  
11 Company-Arizona Electric Division ("CUC-AED"), and summary concerns about  
12 CUC-AED's stranded cost recovery plans.

13 Due to my extensive regulatory experience supporting the public interest,  
14 as outlined above, in 1988 I was chosen to serve a three-year term on the Research  
15 Advisory Committee of the National Regulatory Research Institute, an  
16 appointment made by the public utility commissioners serving on the NRRI Board  
17 of Directors. In addition, I have been the project manager on contract research  
18 that the Tellus Institute has performed for the U.S. Department of Energy, the U.S.  
19 Environmental Protection Agency, the U.S. Department of Justice, the National  
20 Association of Regulatory Utility Commissioners (NARUC), the New England  
21 Conference of Public Utility Commissioners, the New England Governors

1 Conference, and the National Council on Competition in the Electric Industry.

2 In the last six years, I have spent most of my time analyzing electric utility  
3 restructuring issues. As early as 1996, I testified before the New Hampshire  
4 Public Utilities Commission on issues affecting the design of the state's pilot  
5 programs (Docket No. 96-150), and I testified before the New York Public  
6 Service Commission on stranded costs, market structures, and other issues related  
7 to ConEd's, NYSEG's, and RG&E's restructuring plans. I also have worked on or  
8 testified on other restructuring issues in Nevada, New Mexico, New Jersey,  
9 Illinois, Missouri, Colorado, Pennsylvania, Maryland, Maine, Rhode Island, and  
10 Michigan.

### Comparison of Proposed Contract Price to Actual Monthly Price





## **RICHARD A. ROSEN**

**Executive Vice-President  
Senior Research Director  
Tellus Institute  
11 Arlington Street  
Boston, MA 02116 USA  
Tel. (617) 266-5400  
Fax. (617) 266-8303  
Email: rrosen@tellus.org**

### **Education**

Ph.D.	Physics, Columbia University, 1974
M.A.	Physics, Columbia University, 1969
B.S.	Physics and Philosophy, M.I.T., 1966

### **Experience**

1998-present	Director of Energy Group, Tellus Institute
1997-present	Manager of Electricity Group, Tellus Institute.
1993-1997	Director of Energy Group, Tellus Institute.
1991-present	Director of Planning, Tellus Institute.
1977-present	Energy Group. Responsibility for a broad range of research on integrated resource planning energy conservation; electric generation planning issues; and modeling studies of long-range energy demand, utility system reliability, energy demand curtailment, and environmental externalities and energy planning.
1978-1980	Consultant to Brookhaven National Laboratory.
1979	Consultant to the National Academy of Sciences, Puerto Rico Energy Study Committee.
1976-1978	Assistant Physicist, Economic Analysis Division, National Center for the Analysis of Energy Systems, Brookhaven National Laboratory.
1974-1976	National Research Council - National Academy of Sciences Resident Research Fellow, Goddard Institute for Space Studies, New York.
1973	Instructor, Putney - Antioch Graduate School.

### Testimony

Agency	Case or Docket No.	Date	Topic
United States District Court for the Southern District of Ohio – Eastern Division	C2-9901181 (Tellus 00-205)	November 2001	Evaluation of whether Ohio Edison should have forecasted that 11 activities undertaken at W.H. Sammis plant would cause net emissions increases exceeding the allowable Clean Air Act thresholds for SO <sub>2</sub> , NO <sub>x</sub> , and PM <sub>10</sub> at the time the activities occurred
Colorado Public Utilities Commission	00A-600E (Tellus 00-204)	March 2001	Review of evidence filed by Public Service Company of Colorado in support of a proposed transmission line and high voltage DC converter between Lamar, CO and Holcomb, KS
Wisconsin Public Service Commission	05-CE-113 (Tellus 99-207)	Nov. 2000	Review and critique of Application supporting construction of Arrowhead-Weston transmission line
		Dec. 2000	Sur-rebuttal Testimony in above docket
Colorado Public Utilities Commission	99A-549E Phase I (Tellus 00-128)	Nov. 2000	Review of the adequacy of PSCo's selection of the electric generation resource bids that it has chosen for its final IRP plan
Colorado Public Utilities Commission	00A-007E (Tellus 00-021)	March 2000	Review of methodologies on which PSCo's summer peak demand and sales forecasts are based, and recommendations how its load forecasting could, and should, be improved
New Hampshire Public Utilities Commission	DE99-099 (Tellus 99-136)	Dec. 1999	Discussion of the Transition Service Energy Charges that might be applied in New Hampshire
New Hampshire Public Utilities Commission	DE 99-099 (Tellus 99-136)	Nov. 1999	Non-rate design aspects of the proposed Settlement Agreement between PSNH and the State of New Hampshire
Delaware Public Service Commission	99-457 (Tellus 99-145)	Nov. 1999	Analysis of the stranded cost-related issues in the Delaware Electric Cooperative, Inc.'s filing and sponsoring of an estimate of stranded costs for the DEC
		Dec. 1999	Rebuttal testimony

Federal Energy Regulatory Commission	EC97-56-000 ER97-4669-000 (Tellus 97-230)	Sept. 1999	Description of, and results of, an independent analysis of market power performed to demonstrate potential impact on regional electricity prices of proposed KCPL/Western Resources merger, and to illustrate several key aspects of how market power analysis for a merger should be done
Arizona Corporation Commission	RE-00000C- 94-0165 (Tellus 98-147)	July 1999	The status of settlement discussions between Residential Utility Consumer Office (RUCO) and Citizens Utilities Company-Arizona Electric Division, and summary of concerns about CUC-AED's stranded cost recovery plans
Public Utilities Commission of New Hampshire	DR 96-150 (Tellus 98-237)	June 1999	Clarification of the regulatory policy implications of the New Hampshire Supreme Court decision of December 23, 1998, as it applies to the future recovery of stranded costs in the rates that the PUC will set for Public Service of New Hampshire
Missouri Public Service Commission	Case No. EM-97-515 (Tellus 97-230)	April 1999	Review and critique of the analyses of market power specific to the proposed merger of Kansas City Power & Light Company and Western Resources, performed by Dr. Robert Spann on behalf of the Applicants. Also a description of, and the results of, an independent analysis of market power performed in order to demonstrate the potential impact on regional electricity prices of the proposed merger.
Arizona Corporation Commission	E-01933A-98- 0471; E-01933A-97- 0772; E-01345A-98- 0473 E-01345A-97- 0773 and U-00000C-94- 165. (Tellus 98-147)	November 1998	Analysis of various filings related to the unbundled service tariffs, stranded cost recovery proposals for Arizona Public Service and Tucson Electric Power Company, and various other aspects of their restructuring proposals
New Mexico Public Utility Commission	2867/2868 (Tellus 98-195)	November 1998	Application of Residential Electric Incorporated for a CCN to provide electric service and its request that Public Service of New Mexico offer transmission, distribution, and customer-related services, at unbundled rates

Public Utilities Commission of Nevada	98-7023 (Tellus 98-111)	November 1998	Analysis of stranded generation costs of Sierra Pacific Power Co. and the Nevada Power Co.; analysis of conditions under which competitive wholesale power markets could be created in Nevada, particularly given the severe transmission constraints in the state
Maine Public Utility Commission	97-580 (Tellus 98-007)	May 1998	Central Maine Power's proposed Standby rates and related policy issues
		August 1998	Surrebuttal testimony in above docket
Maine Public Utility Commission	97-580 (Tellus 98-007)	April 1998	Alternative estimate of value of stranded costs of Central Maine Power Company based on three changes to their methodology, and alternative estimate of CMP's non-utility generation stranded costs arising from the Regional Waste Systems purchased power contract
New Hampshire Public Utilities Commission	DR 98-012 (Tellus 98-019)	April 1998	Proposed Offer of Settlement in the Granite State Electric Company restructuring docket
New Mexico Public Utility Commission	2761 (Tellus 97-135)	April 1998	Investigation of the potential of using market pricing for the unbundled generation portion of rates in a way that will allow Public Service Company of New Mexico to realize the fair market value of its generation plant over the long run, beginning with the test year 1996
New Hampshire Public Utilities Commission	DE97-251 (Tellus 98-019)	March 1998	Evaluation of whether or not the proposed transfer of the generating assets and purchased power agreements of the New England Power Company to USGenNE is in the public interest for the citizens of New Hampshire
Arizona Corporation Commission	U-0000-94-165 (Tellus 97-289)	Jan. 1998	Public policy recommendations on key issues related to calculation, sharing, and recovery of stranded costs; presentation of "retail generation service" methodology for computing stranded costs

		Feb. 1998	Sur-Rebuttal testimony in above docket
New Jersey Office of Administrative Law	BPU EO9707- 0465 OAL PUC- 7309-97 BPU EO9707- 0464 OAL PUC- 7310-97  Tellus (97-203/A4)	Jan. 1998	The importance of pricing retail generation services for use in the appropriate methodology for making stranded cost calculations (Rockland Electric Company)
		March 1998	Sur-rebuttal Testimony in above docket
New Jersey Office of Administrative Law	BPU E097070 456 OAL PUC 7311- 97 (Tellus 97- 203/A6)	Nov. 1997	Importance of pricing retail generation services for use in the appropriate methodology for making stranded cost calculations (Atlantic City Electric)
New Jersey Office of Administrative Law	BPU EO9707 0459 OAL PUC- 7308-97 BPU E09707 0458 OAL PUC- 7307-97  (Tellus 97- 203/A3)	Nov. 1997	Pricing of retail generation services relative to the appropriate methodology for making stranded cost calculations (Jersey Central Power & Light dba GPU Energy)
New Jersey Office of Administrative Law	BPU E09707 0462 OAL PUC- 7347-97 BPU EO9707 0461 OAL PUC- 7348-97 (Tellus 97- 203/A1)	Nov. 1997	Pricing of retail generation services relative to the appropriate methodology for making stranded cost calculations (Public Service Electric & Gas Company)

		Jan. 1998	Sur-rebuttal testimony in above dockets
Public Utility Commission of Texas	473-96-2285 and 16705 Tellus 97-046)	Sept. 1997	Competitive issues
Michigan Public Service Commission	U-11283 (Tellus 97-093)	May 1997	Recommendations on key policy issues related to determining the appropriate division between transmission and local distribution facilities, and the appropriate cost allocations, as required under FERC Order No. 888 using FERC's seven-point test
Michigan Public Service Commission	U-11337 (Tellus 97-093)	May 1997	Recommendations on key policy issues related to determining the appropriate division between transmission and local distribution facilities, and the appropriate cost allocations, as required under FERC Order No. 888 using FERC's seven-point test
New York Public Service Commission	96-E-0898 (Tellus 97-009)	May 1997	Public policy recommendations on key issues related to stranded costs, a preliminary range of estimates of the stranded generation costs of Rochester Gas and Electric Corp., and public policy recommendations on key issues related to market structure, market power, and the likelihood of RG&E's proposed retail access program actually leading to competition
New York Public Service Commission	96-E-0897 (Tellus 97-009)	April 1997	Public policy recommendations on key issues related to stranded costs, a preliminary range of estimates of the stranded generation costs of Consolidated Edison Company of New York, Inc., and public policy recommendations related to market structure and market power
New York Public Service Commission	96-E-0891 (Tellus 97-009)	February 1997	Public policy recommendations on key issues related to stranded costs, a preliminary range of estimates of the stranded generation costs of New York State Electric and Gas Company, and public policy recommendations on key issues related to market structure and market power
Missouri Public Service Commission	EM-96-149 (Tellus 96-214)	Nov. 1996	Various issues related to market power

Federal Energy Regulatory Commission	EC96-10-000 (Tellus 96-050F)	Sept. 1996	Review of the joint application of Baltimore Gas & Electric Company and Potomac Electric Power Company for approval of their proposed merger and organization
Maryland Public Service Commission	8725 (Tellus 96-050)	July 1996	Review of the joint application of BGE and PEPCO for approval of their proposed merger and reorganization
Illinois Commerce Commission	95-0551 (Tellus 95-302)	March 1996	Review of joint application of Central Illinois PSC, CIPSCO Incorporated, and Union Electric Company for approval of their proposed merger and reorganization
Vermont Public Service Board	5724 (Tellus 94-064)	July 1994	Review of Central Vermont Public Service's planning for its power supply resources over the past 5 years and its management of its resource portfolio
Illinois Commerce Commission	94-0065 (Tellus 94-112A)	June 1994	Assessment of the extent to which Byron 2, Braidwood 1 and Braidwood 2 nuclear units may be considered used and useful for ratemaking purposes by Commonwealth Edison, and recommendation of an appropriate ratemaking treatment of the units based on this assessment
		July 1994	Rebuttal Testimony in above docket
Kansas Corpora- tion Commission	180,056-U	February 1994	Oral Testimony (no written testimony) on establishment of IRP rules for electric and gas utilities
Public Utilities Commission of Hawaii	7257 (Tellus 93-144A3)	December 1993	Critique of HECO IRP plan. Recommendations re: better and simpler approach to taking environmental externalities into account in integrated resource planning
Arkansas Public Service Commission	93-132-U (Tellus 93-148)	November 1993	Review application of Arkansas Electric Cooperative Corporation (AECC) for a certificate of public convenience and necessity for the construction, ownership, operation, and mainten- ance of a hydro-electric generating facility at Dam No. 2 ("H.S. #2") on the Arkansas River
		January 1994	Sur-Rebuttal Testimony in above docket

Public Utilities Commission of Georgia	4152-U (Tellus 93-100)	August 1993	Review of ratemaking aspects of the Clean Air Act Compliance plans of Georgia Power Company and Savannah Electric and Power Company
Pennsylvania Public Utility Commission	A-110300 F. 051 (Tellus 92-026)	July 1993	Critique of certain aspects of the Joint Applicants' filing with respect to whether the Joint Applicants have satisfied the requirements of the Pennsylvania PUC's siting regulation
Public Utilities Commission of Ohio	91-635-EL- FOR 92-312-EL- FOR 92-1172-EL- FOR (Tellus 92-165)	April 1993	Comments and recommendations re: Cincinnati Gas & Electric Company's integrated resource plan submitted in the Company's 1992 Electric Long Term Forecast Report
Georgia Public Service Commission	4133-U, 4136-U (Tellus 92-078)	October 1992	Review of the need for new capacity on the Georgia Power Company, Savannah Electric & Power Company, and Southern Company system over the next three years, 1992-1995
Public Utilities Commission of Ohio	92-708-EL- FOR 92-1123-EL- FOR (Tellus 92-041A)	September 1992	Comment on Centerior Energy Corporation's integrated resource plan and Clean Air Act compliance plan submitted in the Company's Long Term Forecast Report; specific recommendations for action on behalf of the Company to improve components of its resource and Clean Air Act compliance planning process
Public Service Commission of the State of Georgia	4131-U, 4136-U (Tellus 91-266)	June 1992	Adequacy of the 1992 Integrated Resource Plans of Georgia Power Company (GPC) and Savannah Electric Power Company (SEPCO)
U.S. Bankruptcy Court - Manchester, NH	BK-91- 11336 Chapter 11	March 1992	Adequacy of bankruptcy plan filed by New Hampshire Electric Cooperative, Inc.
Public Utilities Commission of Ohio	91-410- EL-AIR (Tellus 91-082)	December 1991	Ratemaking treatment of Cincinnati Gas & Electric Company's 39.63% share in the Zimmer plant under the jurisdiction of the Public Utilities Commission of Ohio (PUCO)

Public Utilities Commission of Ohio	92-418-EL-AIR (Tellus 91-091)	December 1991	Ratemaking treatment of Columbus Southern Power Company's 24.20% share in the Zimmer plant under the jurisdiction of the Public Utilities Commission of Ohio (PUCO)
Maine Public Utilities Commission	89-193, 89-194, 89-195 (ESRG 89-189B & 90-039)	August 1990	Review of Bangor Hydro-Electric Company's solicitation of bids with a request for proposals dated July 24, 1989, and its approach to the evaluation of the respondents' bids.
New Hampshire Public Utilities Commission	DF 89-085 (ESRG 90-051)	July 1990	Assessment of Eastern Utilities Associates' Plan to acquire UNITIL Corporation: Issues Affecting NH Consumers
		September 1990	Supplemental Testimony in above docket.
Florida Public Service Commission	891345-EI (ESRG 90-017)	April 1990	Rate base treatment of Gulf Power Company's 63-MW ownership share of the Scherer 3 generating unit.
Michigan Public Service Commission	U-9458 (ESRG 89-158)	February 1990	Implications of excess capacity on the Indiana Michigan system for the costs that should be included in the Company's 1990 PSCR plan.
Vermont Public Service Board	5330 (ESRG 89-078)	December 1989	Presentation of results of ESRG Study: <i>The Role of Hydro-Quebec Power in a Least-Cost Energy Resource Plan for Vermont.</i>
		February 1990	Further Testimony in above Docket
		February 1990	Surrebuttal Testimony in above Docket
Pennsylvania Public Utility Commission	R-891364 (ESRG 89-90A)	October 1989	Recommendations regarding the proper ratemaking treatment for PECO's Limerick 2 nuclear unit.
Florida Public Service Commission	881167-EI (ESRG 89-034)	May 1989	Ratebase Treatment of Gulf Power Scherer 3 Capacity
Federal Energy Regulatory Commission	ER88-630-000 (ESRG 88-153)	April 1989	Pass Through of Performance Incentive Program Charges by New England Power Company

Public Service Commission of the District of Columbia	Formal Case No. 877 (ESRG 88- 128D)	February 1989	Evaluation of the Need and Justification for 210 MW CTs at Benning Road Site Proposed by PEPCO
	(ESRG 88- 128E)	March 1989	Rebuttal Testimony
Michigan Public Service Commission	U-8871 (ESRG 88-32)	April 1988	Review of the Appropriate Avoided Costs for the CPCo System
	(ESRG 88-32A)	August 1988	Rebuttal Testimony
Maine Public Utilities Commission	87-268 (ESRG 30A)	April 1988	Review Related to the Staff's Evaluation of the Desirability of the Purchase of Power from Hydro Quebec Proposed by Central Maine Power
	87-268 (ESRG 87- 30A1)	August 1988	Supplemental Testimony
Pennsylvania Public Utility Commission	M-870111, G-870087 G-870088 (ESRG 88-01)	February 1988	Review of Pennsylvania Power Company's Requested Recovery of Purchased Power Costs
Pennsylvania Public Utility Commission	R-870732 (ESRG 87-80)	November 1987	Investigation into Pennsylvania Power Company's Share of Perry 1 Nuclear Unit and Assessment of Physical Excess Capacity. Direct and Rebuttal Testimony.
Michigan Public Service Commission	U-7830 (ESRG 85- 35E)	December 1987	Review of the Application of Consumers Power Company to Recover Its Midland Investment
Pennsylvania Public Utility Commission	R-870651 (ESRG 87- 50D)	October 1987	Investigation into Whether Perry 1 and Beaver Valley 2 Capacity Is Economically Used and Useful on the Duquesne System.
Federal Energy Regulatory Commission	ER-86- 694-001	September 1987	Analysis of NEPOOL's PIP Program on Behalf of Maine Public Utilities Commission

Maine Public Utilities Commission	86-85	June 1987	Investigation of Reasonableness of Rates
		August 1987	Surrebuttal
Maryland Public Service Commission	7972	February 1987	Investigation by the Commission of the Justness and Reasonableness of the Rates of Potomac Electric Power Company
Arizona Corporation Commission	U-1345- 85-367 (Tellus 86-42B)	February 1987	Concerning the Prudence of Palo Verde Investment
Michigan Public Service Commission	U-8578 (Tellus 86-055A)	January 1987	Power Supply Cost Recovery Plan for Detroit Edison
Michigan Public Service Commission	U-8585	January 1987	Power Supply Cost Recovery Plan for Upper Peninsula Power Company
Pennsylvania Public Utility Commission	R-860378 (Tellus 85-083A)	September 1986	Economics of Duquesne Light Company's Share of Perry 1
		November 1986	Surrebuttal
Pennsylvania Public Utility Commission	R-850267 (Tellus 85-083B)	September 1986	Economics of Penn Power's Share of Perry 1
		November 1986	Surrebuttal
		March 1987	Supplemental
Michigan Public Service Commission	U-8348	July 1986	Palisades Performance Standards
Michigan Public Service Commission	U-8291	April 1986	Power Supply Cost Recovery Plan for Detroit Edison
Michigan Public Service Commission	U-8286	February 1986	Power Supply Cost Recovery Plan for Consumers Power

Michigan Public Service Commission	U-8297	January 1986	Power Supply Cost Recovery Plan for Upper Peninsula Power Company
Michigan Public Service Commission	U-8285	January 1986	Power Supply Cost Recovery Plan for Indiana & Michigan Company
Division of Public Utilities, Dept. of Business Regulation	85-2011-01 85-999-08	January 1986	Construction of a Transmission Line and Transmission Facilities in Southwestern Utah
New York Public Service Commission	28252	October 1985	Shoreham - Rate Moderation
		January 1986	Surrebuttal
Missouri Public Service Commission	ER-85-128 EO-85-185 EO-85-224 (Tellus 83-089)	June 1985	Wolf Creek Excess Capacity and the Prudence of Company Planning
Federal Energy Regulatory Commission	ER-84-560-000 (Tellus 85-019)	April 1985	Callaway Excess Capacity and a Review of Union Electric Planning
State Corporation Commission of the State of Kansas	120-924-U 142-098-U 142-099-U 142-100-U	April 1985	General Investigation by the Commission of the Projected Costs and Related Matters of the Wolf Creek Nuclear Generation Facility at Burlington, Kansas
Michigan Public Service Commission	U-8042	February 1985	Power Supply Cost Recovery Plan for Consumers Power Company
Michigan Public Service Commission	U-8020	January 1985	Power Supply Cost Recovery Plan for Detroit Edison Company
Massachusetts Department of Public Utilities	84-49, 84-50, 84-140, 627, 1656 & 1957	January 1985	Economics of Completing Seabrook 1 for Four Massachusetts Utilities

List of other testimony prior to 1985 available upon request.

## Tellus Research

- 2001 *Comments on the Interim Pricing Report on New York State's Independent System Operator.* Prepared for the Public Utility Law Project. Tellus No. 00-213. Co-author.
- 1999 *A Comparison of Studies by U.S. DOE and Stone & Webster on the Effect of Electric Restructuring in Colorado.* A Report Prepared for: National Rural Electric Cooperative Association. Tellus Study No. 99-085. Co-author. September.
- 1999 *Comments of the OCC to the Colorado Electricity Advisory Panel on Market Power. The Potential Exercise of Horizontal Market Power in a Deregulated Colorado Electricity Market.* Tellus No. 98-124. June. Co-author.
- 1999 *Funding for Energy-Related Public Benefits: Needs and Opportunities With and Without Restructuring.* A report to the Governor's Office of Energy Conservation. Tellus Study No. 98-002/C2. May. Co-author.
- 1998 *New England Tracking System (NETS).* A report of the New England Governors' Conference, Inc. Tellus Study No. 97-063. October. Project manager.
- 1998 "Analysis and Recommendations of Residential Utility Consumer Office Regarding the Tucson Electric Power Company's Stranded Cost Filing." Comments to Arizona Corporation Commission. Docket No. E-01933A-98-0471. September. Co-author.
- 1998 "Analysis and Recommendations of Residential Utility Consumer Office Regarding the Arizona Public Service Company's Stranded Cost Filing." Comments to Arizona Corporation Commission. Docket No. E-10345A-98-0473. September. Co-author.
- 1998 "Analysis and Recommendations of Residential Utility Consumer Office Regarding the Citizens Utilities Company's Stranded Cost Filing." Comments to Arizona Corporation Commission. Docket No. E-1032C-98-0474. September. Co-author.
- 1998 "Modeling Electricity Pricing in a Deregulated Generation Industry: The Potential for Oligopoly Pricing in a Poolco," the *Energy Journal*. Vol 19, no. 3. June. Co-author.
- 1998 *Use of Computer Simulation Models to Analyze Market Power in Electricity Markets.* Comments of Tellus Institute before the Federal Energy Regulatory Commission. Docket No. PL98-6-000. Tellus No. 98-074. June. Co-author.
- 1997 *Restructuring the Electric Industry in Delaware.* A Draft Report by the Delaware Public Service Commission Staff. PSC Docket No. 97-229. Tellus Study No. 96-099. November. Co-author. Final Draft Report.
- 1997 *Comments on NEPOOL Executive Committee Market Power Analysis and Mitigation Filings.* A report for: The New England Conference of Public Utility Commissioners (NECPUC). Tellus No. 97-054. July. Co-author.

- 1997 *Sustainable Electricity for New England: Developing Regulatory and Other Governmental Tools to Promote and Support Environmentally-Sustainable Technologies in the Context of Electric Industry Restructuring.* The R/EST Project. A report to the New England Governors' Conference, Inc. Tellus No. 95-310. January. Project manager.
- 1996 *Comments on FERC's CRT NOPR in Docket No. RM96-11-000.* Submitted to: The National Association of State Utility Consumer Advocates. Tellus Study No. 96-142. October. Principal investigator.
- 1996 *Potential Costs and Benefits of Electric Industry Restructuring.* Tellus No. 95-95-190. July. Co-author.
- 1996 *Achieving Efficiency and Equity in Nevada's Electric Industry - Comments Submitted by the Attorney General's Office of Advocate for Customers of Public Utilities on Issues Posed by the State Assembly in A.C.R. #49 Directing a Study of Competition in the Generation, Sale, and Transmission of Electricity.* Tellus Study No. 95-153A1. January. Co-author.
- 1995 *Promoting Environmental Quality in a Restructured Electric Industry.* A Report to: The National Association of Regulatory Utility Commissioners. Tellus Study No. 95-056. December. Co-author.
- 1995 *Power Pools and Least-Cost Compliance with the Clean Air Act.* A Report to: the Pew Charitable Trusts. Tellus Study No. 94-113. October. Principal investigator.
- 1995 *Costing Energy Resource Options: An Avoided Cost Handbook for Electric Utilities.* Tellus Study No. 93-251. September. Principal investigator.
- 1995 Discussion Paper: An Overview of the Generic Issues Related to the Amendment to Illinois Senate Bill 1058. Submitted to the Illinois Consumer Utility Board. Tellus Study No. 95-210. September.
- 1995 Tellus' Initial Comments on CEEP's Discussion and Conclusions of its Electric Competition Investigation (PA PUC Docket No. I-940032). Submitted to: Pennsylvania Office of Consumer Advocate. Tellus Study No. 94-012. September. Co-author.
- 1995 *Analysis of Economics of the Sherman Biomass Generating Unit.* Prepared for: Wheelabrator Environmental Systems, Inc. Tellus Study No. 95-154. May. Co-author.
- 1995 *Order on Application for Reconsideration, Formal Case No. 813, Order No. 10590.* Public Service Commission of the District of Columbia. Tellus No. 94-051. March.
- 1995 *Order on Application for Reconsideration, Formal Case No. 813, Order No. 10554.* Public Service Commission of the District of Columbia. Tellus No. 94-051. January.
- 1995 In the Matter of a Notice of Inquiry to Consider Section III of the Energy Policy Act of 1992 - Integrated Resource Planning and Energy Efficiency Investments in Power Generation and Supply for Electric Utilities. Docket No. 94-342-U. Prepared for: Arkansas Public Service Commission. Tellus No. 92-153A4. January. Co-author.

- 1994 *Competition and the Tennessee Valley Authority*. White paper prepared for TVA's Board of Directors. Tellus Study No. 94-096. Co-author. October. Draft.
- 1994-1995 Independent Advisors to the Tennessee Valley Authority's Board of Directors during the Utility's Development of its First Integrated Resource Plan. Tellus Study No. 94-096. May 1994-December 1995. Project Manager.
- 1994 *Report on Notice of Advanced Rulemaking Relating to Commission Review of Siting and Construction of Electric Transmission Lines*. Submitted to: Pennsylvania Office of Consumer Advocate. Docket No. L-00940091. Tellus Study No. 94-223. December. Co-author.
- 1994 "Comments in Response to Edison Electric Institute's Petition for Statement of Policy on the Ratemaking Treatment of the Costs Associated with SO<sub>2</sub> Emissions Allowances." Docket No. PL95-1-000. Federal Energy Regulatory Commission. Tellus Study No. 94-113. November. Co-author.
- 1994 *Electric Transmission Pricing*. A report to: American Wind Energy Association. Tellus Study No. 94-39. September. Co-author.
- 1994 *Review of Union Electric Company's Electric Utility Resource Planning Compliance Filings*. Prepared for: The Missouri Office of Public Counsel. Tellus Study No. 93-300. April. Co-author.
- 1993 *Aligning Rate Design Policies with Integrated Resource Planning*. A report to: National Association of Regulatory Utilities Commissioners. Tellus Study No. 92-047. December. Co-author.
- 1993 A Report to: The Public Service Commission of the State of Delaware Regarding Docket 35: Adoption of the Guidelines for Integrated Resource Planning by Electric Cooperatives. Tellus Study No. 93-053. August. Co-author.
- 1993 A Report to: The Public Service Commission of the State of Delaware Regarding Docket 39: PURPA Standards as Amended by the Energy Policy Act of 1992. Tellus Study No. 93-054. August. Co-author.
- 1993 *IRP Concepts and Approaches*. Report to Hydro-Quebec and the Public Interest Groups and Associations. Tellus Study No. 92-155. July. Project Manager.
- 1993 *Proposed Rules Governing Integrated Resource Planning for Electric and Natural Gas Utilities Regulated by the State of Kansas*. In collaboration with Kansas Corporation Commission Staff. Tellus Study No. 92-105. June. Project Manager.
- 1993 *Preliminary Study on Integrated Resource Planning for the Consumers' Gas Company Ltd*. Prepared for Consumers Gas Company, Ltd. Tellus No. 91-001. Project Co-manager. May. Not publicly available.

- 1992 *Sales Forecasts and Price Changes for New Hampshire Electric Cooperative.* Prepared for: Members Committee of New Hampshire Electric Cooperative. Tellus Project No. 91-173. January. Principal investigator.
- 1991 *America's Energy Choices: Investing in a Strong Economy and a Clean Environment.* In collaboration with the Union of Concerned Scientists, the American Council for an Energy Efficient Economy, the Natural Resources Defense Council, and the Alliance to Save Energy. Tellus Study No. 90-067. September. Co-author.
- 1990 *Environmental Impacts of Long Island's Energy Choices: The Environmental Benefits of Demand-Side Management.* Tellus No. 90-028A. September. Co-author.
- 1990 *Assessment of the Eastern Utilities Associates' Plan to Acquire UNITIL Corporation: Issues Affecting New Hampshire Consumers.* Exhibit 2 to Tellus No. 90-051. July. Project manager.
- 1990 *Comments on Pacific Power and Utah Power Resource and Market Planning Program.* On behalf of Committee of Consumer Services, Utah Department of Commerce. ESRG No. 90-050A. April. Author.
- 1990 *The Northeast Utilities Plan for Public Service Company of New Hampshire: Issues Affecting New Hampshire Consumers.* A report to: State of New Hampshire, Office of the Consumer Advocate. ESRG No. 90-019. March. Reviewer.
- 1989 *The Role of Hydro-Quebec Power in a Least-Cost Energy Resource Plan for Vermont.* A Report to the Vermont Public Service Board. ESRG No. 89-078. December. Principal investigator.
- 1989 *Rhode Island's Options for Electric Generation.* A Policy Statement of the Energy Coordinating Council. ESRG No. 89-004. July. Co-author.
- 1989 *Update of 1985 Study on the Economics of Closing vs. Operating Shoreham.* ESRG Report No. 89-051. March. Principal investigator.
- 1988 *The Cost to Ratepayers of the Proposed LILCO Settlement.* A Report to Suffolk County. ESRG Report No. 88-23. July. Co-author.
- 1988 *An Evaluation of Central Maine Power Company's Proposed Purchase of Power from Hydro Quebec.* A Report to the Maine Public Utilities Commission Staff. ESRG Report No. 87-30. April. Principal Investigator.

### Other Publications

- 2000 "Electricity Market Regulation in Germany and the USA—History and Prospects," in *Electricity Restructuring and the Environment – A U.S.-German Dialogue*. The Heinrich Böll Foundation, Washington, DC. Co-author.
- 1992 "Bill Indexing," chapter in: *Regulatory Incentives for Demand Side Management*, edited by S. Nadel, et al. Published by ACEEE/NYSERDA. With David Moskovitz.

### Papers and Presentations

- 2001 "Just and Reasonable Rates vs. Price Caps at FERC," Backgrounder. June 19.
- 2001 The Progressive Pro-Consumer Solution to Today's Electricity Crisis: Just and Reasonable Rates. Preliminary proposal to Progressive Caucus, U.S. House of Representatives. May 16. Co-author.
- 2001 "The Arrowhead-Weston Transmission Line – Issues and Lessons." Presented to: NWCC Upper Midwest Transmission Workshop, Minneapolis, MN. May 1.
- 2001 "Short- and Long-Term Solutions to Deal with Market Power." Presented at NRRI Market Power Conference, Columbus, OH. April 11.
- 2001 "Why We Need an ICAP Market in New England." Presented to Massachusetts Electric Restructuring Roundtable, Boston, MA. February 16.
- 2000 *Can Electric Utility Restructuring Meet the Challenges It Has Created?* A Tellus Institute White Paper. November.
- 2000 "Electric Restructuring in Crisis: The Implications of Market Power." Pace Conference on Electricity Restructuring. White Plains, NY. November 10.
- 2000 "Presentation on Market Power Issues Raised by the Proposed NU/Con Edison Merger," to Connecticut DPUC. August 3.
- 2000 "The Bumpy Launch May Never Stop." NASUCA Conference, Portland, ME. June 5-6. With F. Sverrisson.
- 1999 "A Comparison of Studies by U.S. DOE and Stone & Webster on the Effect of Electric Restructuring in Colorado." Presented at Tenth National Energy Services Conference, Tucson, Arizona. December 6-8. With F. Sverrisson.
- 1999 "The Emperor's New Clothes: Fatal Flaws of the HHI," presented at Pricing Power Products & Services Conferences, Chicago, IL. October 14-15.

- 1999 "A Better Approach to Market Power Analysis," presented at Annual NECPUC Conference, Bretton Woods, NH. May 25. Revised July 1999. Co-author.
- 1999 "The Emperor's New Clothes: Fatal Flaws of the HHI," presented at Annual NECPUC Conference, Bretton Woods, NH. May 25.
- 1999 "Market Power in Colorado." Electricity Advisory Panel. Denver, CO. May.
- 1998 "Market Power and Mergers," presented at NASUCA Annual Meeting, Orlando, FL. November.
- 1998 "Breaking Up is Hard to Do, Unless You Have the Power." Presentation to NASUCA Annual Meeting. November 10.
- 1997 "How Do You Compute Stranded Costs?" A talk to ELCON. Washington, DC. October 30.
- 1997 "An Overview of Key Issues in Electric Industry Restructuring," presented to the Colorado Office of Consumer Counsel. June 26. Co-author.
- 1997 "Letting Retail Competition Succeed," presented at 1997 NASUCA Mid-year Meeting, Charleston, SC. June 9-11. Co-author.
- 1997 "A Critique of FERC's New Merger Guidelines: Implications for Analyzing Market Power, Mergers & Deregulation," distributed at 1997 NASUCA Mid-year Meeting, Charleston, SC. June 9-11. Co-author.
- 1997 "A Critique of FERC's New Merger Guidelines: Implications for Analyzing Market Power, Mergers & Deregulation," 1997 NASUCA Mid-year Meeting, Charleston, SC. June 9-11. Panelist.
- 1997 "Market Power, Mergers, and Deregulation: A Critique of FERC's New Merger Guidelines," The National Regulatory Research Institute *Quarterly Bulletin*. May.
- 1997 "A Whitepaper On Stranded Costs and Market Structures in the U.S. Electricity Industry," prepared for: The American Association of Retired Persons. Tellus No. 97-009. April. Draft.
- 1997 "A Point/Counterpoint Analysis of Major Restructuring Issues." Co-author.
- 1996 "Leveraging" - The Key to the Exercise of Market Power in a Poolco. NARUC and NASUCA Summer Meetings. June. Co-author.
- 1995 "The Status of Regulatory Policy Affecting the Restructuring of the Electric Utilities Industry." Presentation to: Wheelabrator Technologies, Inc. September.

- 1995 Presentation to Maine Public Service Company on Behalf of Wheelabrator Sherman to explain Tellus' Calculation of Estimates of Total Avoided Costs for Wheelabrator Sherman Power through 2015. August. Co-author.
- 1994 "Nine Fallacies in Computing Avoided Costs." Distributed at: The Annual NARUC/NASUCA Conference, Reno, NV. November. Co-author.
- 1994 "Apples and Oranges: Using Multi-Attribute Analysis in a Collaborative Process to Address Value Conflicts in Electric Facility Siting." Presented at: Ninth National Association of Regulatory Utility Commissioners (NARUC) Biennial Regulatory Information Conference, Columbus, Ohio, September 8. Co-author.
- 1993 "How Should Electric Utilities Allocate Their Free EPA-Granted Allowances Among Retail and Wholesale Customers? An Unresolved Issue of Clean Air Act Compliance. Prepared for distribution at: The NARUC/NASUCA 1993 Annual Meetings, New York, NY. November 14. Co-author.
- 1993 "Integrated Resource Planning and Clean Air Act Compliance: Elements of Consistency." Prepared for Distribution at: The NARUC Energy Conservation Committee 1993 Winter Meeting, Washington, DC. February. Co-author.
- 1991 "The Clean Air Act Amendments of 1990 and Utility Least Cost Planning: Issues for State Regulators," for distribution at the NARUC Conservation Committee, 1991 Winter Meeting, Washington, D.C. February. Co-author.
- 1991 "Sustainable Development and the Future of Electric Utilities," for the Energy Conservation Coalition Electric Utility Industry Vision Paper Project, Washington, DC. February.
- 1989 "Six Fallacies in Computing Avoided Costs," delivered at the NARUC Least Cost Planning Conference, Charleston, S.C. September.
- 1988 "Ratemaking and Conservation: The Tune Should Fit the Dance," distributed at the NARUC Committee on Energy Conservation Meeting, San Francisco. October 30.
- 1987 "Electric Utility System Reliability and Reserves" (ESRG Paper). Co-author. September.
- 1986 "Risk Sharing and the 'Used and Useful' Criterion in Utility Ratemaking" (ESRG Paper). September. Co-author.
- 1986 "Risk Sharing, Excess Capacity, and the "Used and Useful" Criterion." Presented to the Fifth Biennial Regulatory Information Conference sponsored by the National Regulatory Research Institute in Columbus, Ohio. September.

List of other Publications and Presentations prior to 1985 available upon request.

## Related Professional Activities

Elected to Three-Year Term as a member of the Research Advisory Committee of The National Regulatory Research Institute, October 1, 1988 - September 30, 1991. Term extended through June 1992.

### Invited Speaker

- 2001 "Status of Electricity Deregulation Today." Consumers' Assembly – Washington, DC. March 8.
- 1997 "Evaluating the Competitive Effect of Electric and Gas Utility Mergers Under Retail Competition." Panel - "Merger and Acquisitions: Implications of the Convergence of Electric and Gas Industries," *Current Issues Challenging the Regulatory Process*, Center for Public Utilities, New Mexico State University, Santa Fe, NM. March 11.
- 1996 "NASUCA's Filing on the CRT NOPR at FERC," NASUCA Annual Conference. November.
- 1996 "Independent System Operators," NASUCA meeting, Chicago, IL. June.
- 1995 "Preserving Environmental Quality Under Electric Restructuring," NARUC Energy Conservation Committee meeting, New Orleans, LA. November.
- 1994 "Electricity Transmission Pricing," presented at NARUC Committee on Energy Conservation, Annual Meeting, Reno, NV. November. Co-author.
- 1994 Sixth Natural Gas Industry Forum, Quebec City. September 25-28.
- 1993 The National Energy Summit, in conjunction with the Multi-Media Energy Education Project of the Jefferson Energy Foundation - "Balancing Energy-Environment-Economy (E<sup>3</sup>)", Washington, DC. June. Panelist.
- 1992 "Natural Gas Planning: An IRP Case Study." Presented at: The NARUC Conference on Integrated Resource Planning, Burlington, Vermont, September 13-16. Co-author.
- 1992 Fourth Natural Gas Industry Forum, Montreal. September.
- 1992 American Gas Association Long Range Forecasting for Integrated Resource Planning Seminar - "How Externalities and Supply Costs Affect IRP". March.
- 1991 Edison Electric Institute -- Strategic Planning Committee - "Incorporating Environmental Externalities into Integrated Resource Planning." December.
- 1990 NARUC Energy Conservation Committee Meeting, Orlando, Florida - "Rate Impacts of Demand-Side Management Programs." November.

1990

NARUC and NASUCA Joint Annual Meeting, Orlando, Florida - "Environmental Externalities and Integrated Resource Planning." November.

11/01