

POTENTIAL IMPACT OF THE GRAND GULF NUCLEAR POWERPLANT ON SMALL BUSINESSES AND FARMERS

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HEARING BEFORE THE COMMITTEE ON SMALL BUSINESS UNITED STATES SENATE

NINETY-EIGHTH CONGRESS

SECOND SESSION

ON

POTENTIAL IMPACT OF THE GRAND GULF NUCLEAR POWERPLANT ON
SMALL BUSINESSES AND FARMERS

LITTLE ROCK, AR—DECEMBER 7, 1984



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POTENTIAL IMPACT OF THE GRAND GULF NUCLEAR POWERPLANT ON SMALL BUSINESSES AND FARMERS

FRIDAY, DECEMBER 7, 1984

U.S. SENATE,
COMMITTEE ON SMALL BUSINESS,
Little Rock, AR.

The committee met, pursuant to notice, at 9:04 a.m., at the fourth floor auditorium, Worthen Bank Building, 200 West Capitol Avenue, Little Rock, AR, Hon. Dale Bumpers (acting committee chairman) presiding.

Present: Senator Bumpers.

Staff present: Alan L. Chvotkin, minority chief counsel and staff director, and Tom Walsh, minority counsel.

Senator BUMPERS. The committee will come to order.

STATEMENT OF HON. DALE BUMPERS, A U.S. SENATOR FROM THE STATE OF ARKANSAS, AND ACTING CHAIRMAN, COMMITTEE ON SMALL BUSINESS

Senator BUMPERS. The Small Business Committee is holding this hearing to consider an issue of overwhelming importance to small businesses and farmers in Arkansas and, ultimately, across the country as well. That issue is the potential impact on these businesses of a ruling by the Federal Energy Regulatory Commission which would impose 36 percent of the cost of the Grand Gulf nuclear powerplant on Arkansas, and which would result in enormous increases in utility rates for these and other electricity consumers. This committee will also examine the impact of a possible decision, less dramatic, such as the imposition of 17.1 percent of the costs of Grand Gulf, and how such costs might be imposed upon us.

FERC is currently considering two cases which have become household words in Arkansas—the so-called *Grand Gulf Power Plant* case and the *Systems Averaging* case. These cases, if decided against Arkansans, could increase utility rates for small businesses, farmers, and other customers of Arkansas Power & Light by 25 percent, and possibly as much as 50 percent.

AP&L's customers hardly need to be told that utility rates have already risen dramatically in recent years, and another 25- to 50-percent increase would devastate every sector of our economy.

There is no doubt that utility rates have a significant impact on the competitiveness and survivability of this State's small businesses and farmers. Our largest corporate citizens will also be hurt, and would have no choice but to pass on their increased costs, where

they can, to the many small businesses with whom they deal. So we will hear from Arkansas' largest users of electricity as well as many of the smaller businesses and farmers who form the backbone of our economy. In my view, a final adverse decision in either of these two cases could have a disastrous effect on any of these—and perhaps all of these—businesses, and on the economy and future economic development of the State.

This hearing is designed to provide the Small Business Committee with specific insights into the likely impact of these businesses and farmers if the administrative law judge's opinion becomes the decision of the full Commission, and ultimately, of the courts. We also want information on the impact of a decision that would require AP&L to bear 17.1 percent of the costs of Grand Gulf.

For the purposes of the record, and even though the facts are well known in Arkansas, let me summarize the situation. In the last decade, AP&L undertook an ambitious construction program to make sure that it had sufficient reserve capacity to meet present and future demand for electricity. It built two large nuclear plants, plus two coal-fired plants at Redfield, and another coal-fired plant at Newark, in Independence County, which is also known as the Independence plant.

At the same time other companies in the Middle South system, of which AP&L is a part, had begun construction programs. One of those plants was a nuclear powerplant being built by Mississippi Power & Light at Grand Gulf, MS. Mississippi Power & Light had no experience with nuclear plants, and the plant's costs escalated almost as soon as it was proposed. As a result, MP&L was not financially strong enough to handle the project on its own, so Middle South, through a subsidiary created for the purpose, took over construction of Grand Gulf. The other subsidiaries agreed to help finance the plant, AP&L's share being 17.1 percent. The plant has finally received its full-power operating license, but the cost is now over \$4 billion, representing roughly an 800-percent to 900-percent cost overrun.

In 1980, before the plant was completed, AP&L was released by the other subsidiaries of Middle South from its obligation to help pay for the plant. AP&L agreed with its fellow subsidiaries that it would take none of the power, and they agreed to indemnify AP&L if AP&L had to satisfy its guarantee of 17.1 percent of the Grand Gulf indebtedness.

I should add that AP&L's withdrawal from this agreement was apparently the result of action taken by the Arkansas Public Service Commission, which refused to authorize construction of the Independence plant unless and until AP&L agreed to sever its connections with the Grand Gulf plant.

Nevertheless, FERC is now considering whether to honor the agreement that permitted AP&L to withdraw. If the Commission upholds the administrative law judge's decision, it would require AP&L to pay for 36 percent of the Grand Gulf plant, and that would add \$900 million to AP&L's bill and over a 10-year period would cost Arkansas ratepayers approximately \$3 billion.

In the second case, the so-called *Systems Averaging Case*, FERC is considering whether AP&L should be forced to help pay for the entire Middle South system's excess capacity. At the moment, that

primarily means helping to pay for both Grand Gulf and Louisiana Power & Light's Waterford nuclear plant. Losing the system's case would mean an estimated 50-percent increase in AP&L's rates.

Let me add that I have joined with the entire congressional delegation as an intervenor before the Federal Energy Regulatory Commission. Our position in that proceeding was, and continues to be, that Arkansas should not be burdened with costs of powerplants located outside Arkansas which we did not ask for, and which we cannot use, and don't need.

In the last session of Congress, Senator Pryor and I introduced legislation removing from FERC all authority to issue such a decision. Depending on the timing and outcome of the current proceedings at the Federal agency, that legislation will be introduced in the next Congress, as well.

I want to thank the chairman of this committee, Senator Lowell Weicker, for agreeing to this important hearing in Arkansas. I am also indebted to all the witnesses who have agreed to take time out of their very busy schedules and appear before the committee today to share with us the benefit of their thoughts as to how they would be affected. The interest in this hearing and the turnout today clearly reflect the importance of this issue to Arkansas, and I look forward to hearing all of the witnesses' statements.

[The prepared statement of Senator Bumpers follows:]

STATEMENT OF HON. DALE BUMPERS, A U.S. SENATOR FROM THE STATE OF ARKANSAS

Today, the United States Senate Small Business Committee is holding this hearing to consider an issue of overwhelming importance to small businesses and farmers in Arkansas and, ultimately, across the country as well. That issue is the potential impact on these businesses of a ruling by the Federal Energy Regulatory Commission which would impose 36 percent of the cost of a nuclear power plant on Arkansas, and which would result in huge increases in utility rates for these and other electricity consumers. This Committee also will examine the impact of a possible decision, less dramatic, such as the imposition of 17.1 percent of the costs of Grand Gulf, and how such costs might be imposed.

FERC is currently considering two cases which have become household words in Arkansas—the so-called Grand Gulf Power Plant case and the Systems Averaging case. These cases, if decided against Arkansans, could increase utility rates for small businesses, farmers and other customers of Arkansas Power and Light [AP&L] Company by at least 25%, and possibly by as much as 50 percent.

AP&L's customers hardly need to be told that utility rates have already risen dramatically in recent years. Another 25 to 50 percent increase could devastate every sector of the economy of this entire state.

There is no doubt that utility rates have a significant impact on the competitiveness and survivability of this State's small businesses and farmers. Our largest corporate citizens will also be hurt, and would have no choice but to pass on their increased costs to the many small businesses with whom they deal. We will, therefore, hear from Arkansas' largest users of electricity as well as many of the smaller businesses and farmers who form the backbone of Arkansas' economy. In my view, a final adverse decision in either of these two cases could have a disastrous effect on each of these businesses and on the economy and future economic development of this state.

This hearing is designed to provide the Small Business Committee with specific insights into the likely impact on these businesses and farmers if the Administrative Law Judge's opinion becomes the decision of the full Commission. We also want information on the impact of a decision that would require AP&L to bear 17.1 percent of the costs of Grand Gulf.

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plus two coal-fired units at Redfield and another coal-fired unit at Newark, in Independence County, which is known as the Independence plant.

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In 1980, before the plant was completed, AP&L was released by the other subsidiaries of Middle South from its obligation to help pay for the plant. AP&L agreed with its fellow subsidiaries that it would take none of the power, and they agreed to indemnify AP&L if AP&L had to satisfy its guarantee of 17.1 percent of the Grand Gulf indebtedness.

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Nevertheless, FERC is now considering whether to honor the agreement that permitted AP&L to withdraw. If the Commission upholds the Administrative Law Judge's decision, it would require AP&L to pay for 36 percent of the Grand Gulf plant. That would add \$900 million to AP&L's bill, and over a 10-year period, would cost Arkansas ratepayers approximately \$3 billion.

In the second case, the so-called "Systems Averaging Case," FERC is considering whether AP&L should be forced to help pay for the entire Middle South system's excess capacity. At the moment, that primarily means helping to pay for both grand Gulf and Louisiana Power & Light's Waterford nuclear unit. Losing the systems case could mean an estimated 50 percent increase in AP&L's rates.

Let me add that I have joined with the entire Arkansas congressional delegation as an intervenor before the Federal Energy Regulatory Commission. Our position in that proceeding was, and continues to be, that Arkansas should not be burdened with costs of power plants located outside Arkansas which we did not ask for and which we do not need.

In the last session of Congress, Senator Pryor and I introduced legislation removing from FERC all authority to issue such a decision. Depending on the timing and outcome of the current proceedings at the Federal agency, that legislation may be introduced in the next Congress, as well.

I appreciate the assistance of Senator Lowell Weicker, the Chairman of the Senate Small Business Committee, for agreeing to this important hearing in Arkansas. I am also indebted to all the witnesses who agreed to take the time out of their busy schedules and appear before the committee today to share with us the benefit of their thoughts as to how they will be affected. The interest in this hearing and the turnout today clearly reflect the importance of this issue to Arkansas. I look forward to all of the witnesses' statements today.

Senator BUMPERS. I want to include in the record, at the appropriate place, a summary of FERC's proceedings concerning the Grand Gulf plant prepared by the minority staff of the Small Business Committee, and I also want to insert in the record additional statements that have been received from witnesses unable to personally appear before the committee, but who wanted their statements inserted.

[The documents referred to follow:]

PROCEEDINGS AT THE FERC

A. GRAND GULF AND THE ALJ'S DECISION

When Middle South Utilities filed the Unit Power Sales Agreement allocating the Grand Gulf power, it was attacked, primarily by the Louisiana PSC and the City of New Orleans, as being discriminatory. The agreement would force 68.37 percent of the plant's cost upon Louisiana while letting Arkansas off free. The primary argu-

ment that this was discriminatory was that this arrangement would widen the disparity in rates among the different operating companies. At the time of the hearing, AP&L's costs were 1.17¢/Kwh cheaper than MP&L's, 1.32¢/Kwh cheaper than NOPSI's and 0.09¢/Kwh cheaper than LP&L's.

This argument was apparently persuasive to the Administrative Law Judge [ALJ] because he issued an opinion requiring AP&L to pay for 36 percent of the plant. The change would be the following:

[Dollar amounts in millions]

	Reallocation agreement		ALJ decision	
	Percent	Amount	Percent	Amount
AP&L.....		0	36	\$900
LP&L.....	38.57	\$964	14	350
MP&L.....	31.63	791	33	825
NOPSI.....	29.80	745	17	425

In issuing his opinion, the ALJ was guided by his conclusion that the retail rates of the companies should be equalized. The foundation of that conclusion was his finding that MSU was a fully integrated, centrally run company, not a collection of independent operating companies.

AP&L and the Arkansas Industries have attacked that finding, and they have challenged the Commission's jurisdiction to provide relief which effectively alters retail rates, a province of state regulatory bodies. The correct designation of MSU's status is clearly one about which reasonable men could differ, and there is certainly record evidence sufficient to support a finding either way. Consequently, a reviewing court would not likely reverse the Commission's finding on that point.

The nature of the Commission's jurisdiction is discussed below, but there is no doubt that the Commission has jurisdiction to set interstate rates and that Grand Gulf's power will be in the interstate market. The only question is whether its jurisdiction extends to the remedy proposed, and it probably does. Typically, a regulatory agency has authority to provide the relief necessary to enforce the laws entrusted to it, and the remedy is not *per se* a setting of retail rates. It does not delve into matters reserved to the States, such as plant siting and the cost of generation.

B. THE SYSTEMS CASE

The foundation of the systems case is the proposed Systems Agreement of 1982, which would supercede the 1973 Systems Agreement. It would only have changed the charge for power bought by one MSU company from another, basing it upon intermediate oil- and gas-fired capacity, the assumed real originators of the reserve power purchased.

The difficulty is that the same intervenors have protested this filing, using the same arguments as in the Grand Gulf case. Thus, instead of the potential for a 25 percent rate increase in the latter, AP&L is faced with the possibility of a 50 percent increase. This figure is somewhat speculative, because the ramifications of the case are so far reaching. To simplify a bit, it basically involves LP&L's Waterford 3 nuclear plant in addition to Grand Gulf. These two plants together would comprise only 14 percent of MSU's capacity, but they would represent two-thirds of its total investment in capacity.

The ALJ's decision is extremely important, because if he finds that MSU is a fully integrated, centrally run system, then the Commission would be hard-pressed to find otherwise.

C. LEGAL BACKGROUND

Federal-State Jurisdiction.—The jurisdiction of the Federal Energy Regulatory Commission is founded upon the Federal Power Act, which Congress passed in response to the Supreme Court's decision in *Public Utility Commission of Rhode Island v. Attleboro Steam and Electric Co.*, 273 U.S. 83 (1927), which held that the state utility commission had no jurisdiction over rates for electricity sold in interstate commerce. In the *Attleboro* case, the Narragansett Electric Co., a Rhode Island corporation, sold electricity exclusively within Rhode Island, with one exception, a

fixed price contract to sell electricity to the Attleboro Steam and Electric Company of Massachusetts. The sale ostensibly occurred at the state line.

With the passage of time, the Narragansett-Attleboro contract became unprofitable for Narragansett, so Narragansett unilaterally filed a rate change with the Rhode Island PUC. The PUC accepted the change and ordered it into effect, asserting that Rhode Island customers would otherwise be required to make up the difference or that Narragansett's financial stability, and thus its ability to render adequate service, would be jeopardized.

The Supreme Court reversed that decision, holding that the PUC's order was an impermissible burden upon interstate commerce. It rejected the PUC's reasoning, concluding it was regulating interstate rates. It pointed out that any state would have a similar argument for regulating interstate rates and that the result would be contradictory rate orders, with exporting states trying to increase the rates for electricity sold outside the state and importing states seeking to decrease those same rates. The Court also noted (273 U.S. 83, 90): "The forwarding state obviously has no more authority than the receiving State to place a direct burden upon interstate commerce."

In the context of the Grand Gulf case, this language would appear to rule out any jurisdiction of the Arkansas Public Service Commission over the plant or the rates once the electricity enters Arkansas.

The *Attleboro* decision created a gap in utility reduction which some utilities were able to exploit. Holding companies in particular were able to load their non-operating costs onto their intrastate utilities, forcing up rates. To close the "*Attleboro gap*" Congress passed the Federal Power Act which conferred jurisdiction over interstate sales and sales for resale in interstate commerce upon the Federal Power Commission, now the Federal Energy Regulatory Commission. It specifically reserved all other matters to the states. This reservation, however, has been reduced largely to a policy declaration by the Supreme Court's own words in *FPC v. Southern California Edison*, 376 U.S. 205 (1964). The Court said that the Federal Power Act (id, at 215): "make(s) FPC jurisdiction plenary and extend(s) it to all wholesale sales in interstate commerce except those which Congress has made explicitly subject to regulation by the States."

The Court has defined "interstate commerce" very broadly in its more recent decisions. It first attempted to look at the general nature of the companies and transactions involved. That approach lacked certainty, so it adopted the "bright line" approach of tracing the actual flow of the electricity to determine whether it crossed state lines. For example, in the *Southern California Edison* case, supra, the Court traced the electricity from its origin in Nevada and Arizona to the city of Colton, California, to determine that the sale was in interstate commerce, even though the utility sold electricity in California only. More recently, the Eighth Circuit Court of Appeals held that such tracing was not necessary. In *Arkansas Power & Light v. FPC*, 368 F.2d 376 (8th Cir. 1966), it held that the integrated nature of AP&L with the Middle South system guaranteed that power sold to certain Arkansas cooperatives was in interstate commerce, having originated in part in plants outside of Arkansas. Applying this precedent to Grand Gulf, that same integrated status guarantees that some of AP&L's power will come from Grand Gulf, even though it is not contractually obliged to take it or pay for it. For contractual purposes, it will be deemed to have received power originating elsewhere.

Finally, as some of the foregoing suggests, the Arkansas PSC has no authority to change the rates approved by the FERC. This situation was confirmed in *Narragansett Electric Co. v. Burke*, 381 A. 2d 1358 (Sup. Ct. of R.I., 1977), cert. denied 435 U.S. 972 (1978), where the Supreme Court of Rhode Island agreed that the Federal Power Act preempted the State's authority to investigate interstate prices. In that case, Narragansett, a retail utility in Rhode Island was a subsidiary of New England Electric System (NEES). Narragansett bought electricity from the New England Power Company (NEPCO), another NEES subsidiary. When NEPCO filed a rate increase with the FPC, Narragansett filed a commensurate increase with the Rhode Island PUC as a fuel adjustment. The PUC attempted to investigate NEPCO's costs. It acknowledged that it had no jurisdiction over NEPCO, but it argued that it could prevent the flow through of costs which were strikingly or glaringly out of line. The Rhode Island Supreme Court reversed, holding that the Federal Power Act preempted state jurisdiction. The U.S. Supreme Court denied certiorari.

The parallels in the Narragansett case to the Grand Gulf case are too obvious to be ignored. AP&L will be buying electricity from Grand Gulf, both as a physical fact and as a result of the possible Commission decision, which is owned by the same holding company that owns AP&L, just as Narragansett was buying electricity from a sister subsidiary. Clearly, the Arkansas PSC cannot assert jurisdiction over those

sales and thus attempt to determine whether the plant's costs were not prudently incurred.

This conclusion is buttressed by the decision of the United States District Court for the Western District of Arkansas in *Middle South Energy, Inc. v. Arkansas Public Service Commission* (Sept. 14, 1984). In that case, the Arkansas PSC sought to assert jurisdiction to void AP&L's contracts with the other operating companies of MSU. The Court held that the FERC had exclusive jurisdiction over interstate rates, that the contracts were "essential to the interstate wholesale sale of power" and thus that the Arkansas PSC had no jurisdiction. Much the same reasoning would attend any attempt to limit AP&L's recovery of costs associated with the Grand Gulf plant.



ASSOCIATED MILK PRODUCERS, INC.

ARKANSAS DIVISION

P. O. BOX 9589

LITTLE ROCK, ARKANSAS 72219

PHONE: 501 224-9200

DECEMBER 7, 1984

THE COMMITTEE ON SMALL BUSINESS

MY NAME IS JERRY MOORE, AND I RESIDE AT 3111 RIDGE PASS ROAD IN LITTLE ROCK. I WAS BORN IN RURAL ARKANSAS WITHOUT THE LUXURY OF ELECTRICITY. WE DID GET ELECTRICITY IN 1948, WHEN I WAS ABOUT NINE YEARS OF AGE. OUR NEW POWER LINE WAS CONSTRUCTED BY A.P. & L., AND ALTHOUGH R.E.A. HAD BEEN WITHIN FOUR MILES OF OUR AREA FOR SOMETIME, MY FAMILY AND OTHERS, KNOWING LITTLE ABOUT COOPERATIVES, WERE NOT INTERESTED IN R.E.A. AND WANTED WHAT THEY PERCEIVED WAS THE BEST, A.P. & L. MANY OF US TODAY ARE ABLE TO CHOOSE WHERE WE LIVE, AND THOSE OF US WHO LIVE IN ARKANSAS ARE FORTUNATE TO BE IN AN AREA WHERE ELECTRICITY CAN BE PRODUCED FOR ABOUT ONE THIRD THE COST OF PRODUCTION IN SOME OTHER AREAS. THE REASON FOR THIS INFORMATION IS TO LET YOU KNOW THAT I PERSONALLY HAVE A GREAT APPRECIATION FOR THE MANY CONVENIENCES ELECTRICITY OFFERS AND TO THE INCREASED QUALITY OF OUR LIVES IT PROVIDES. I DO NOT MIND PAYING A FAIR PRICE FOR THE ELECTRICAL POWER WE USE.

I'M NOT GOING TO BORE YOU WITH A LOT OF NUMBERS; RATHER, I WILL DISCUSS IN GENERAL THE POSSIBLE EFFECTS OF A 50 PERCENT INCREASE IN ELECTRICITY COSTS. I AM EMPLOYED BY ASSOCIATED MILK PRODUCERS, INC. "A.M.P.I.", A MILK MARKETING COOPERATIVE, MADE UP OF DAIRY FARMER MEMBERS, 800 OF WHOM ARE IN ARKANSAS. THEY USE ELECTRICITY TO MILK THEIR COWS, COOL AND STORE THE MILK AND TO LOAD THE PRODUCT ON THEIR COOPERATIVE'S TRAILERS FOR ITS' TRIP TO THE MARKET. THE COOPERATIVE USES ELECTRICITY AT ITS' FIVE OPERATING LOCATIONS IN ARKANSAS FOR THE ADMINISTRATION, TRANSPORTATION AND MARKETING OF ITS' MEMBERS PRODUCT. ELECTRICITY COSTS ARE A MAJOR FACTOR IN THE OPERATION OF THE FARM AND THE COOPERATIVE. WE ARE VERY CONCERNED WITH THE POSSIBILITY OF AN UNJUST INCREASE BEING PLACED UPON US. IN THE MILK BUSINESS, THE AREA WITH THE LEAST PRODUCTION COST AND THE RESERVE SUPPLY OF MILK IS WHERE THE LOWER PRICE IS RECEIVED FOR THE PRODUCT. IT SEEMS THIS SHOULD APPLY TO ELECTRICITY AS IT RELATES TO ARKANSAS AND THE RATE PAYERS. ALSO, IN THE MILK BUSINESS, IF MANAGEMENT AND THE BOARD OF DIRECTORS OF A. M. P. I. MAKE A COSTLY BUSINESS DECISION, ONLY MEMBERS OF A.M.P.I. PAY FOR THE MISTAKE. MAYBE THIS PRINCIPLE

SHOULD APPLY FOR THE MIDDLE SOUTH UTILITIES MANAGEMENT AND BOARD OF DIRECTORS IN MAKING WHAT MIGHT BE A WRONG DECISION; ITS' STOCKHOLDERS AND NOT THE RATE PAYERS SHOULD BEAR THE CONSEQUENCES OF THEIR ACTIONS. LETS SAY THE FARMERS, THEIR COOPERATIVE, PROCESSING PLANTS AND THE SUPERMARKETS HAVE THEIR RATE INCREASED BY 50 PERCENT, ULTIMATELY THE RESULTING EXPENSE WOULD BE PASSED ON TO THE CONSUMER, WHO WOULD ALSO BE PAYING HIS 50 PERCENT INCREASE IN ELECTRICITY RATES.

IN CONCLUSION, WE ARE OPPOSED TO THE DECISION WHICH WAS MADE BY AN ADMINISTRATIVE LAW JUDGE OF THE FEDERAL ENERGY REGULATORY COMMISSION REQUIRING A. P. & L. TO PAY A 36 PERCENT SHARE OF THE GRAND GULF PLANT. THIS IS, IF THE ECONOMIC RESPONSIBILITY WERE TO BE PASSED ON TO THE ARKANSAS RATE PAYERS.

THANK YOU FOR ALLOWING ME TO PARTICIPATE IN THIS HEARING.

A handwritten signature in cursive script, reading "Jerry Moore".

JERRY MOORE
DIVISION MANAGER

ARKANSAS POWER AND LIGHT COMPANY
SETTLEMENT AGREEMENT
COSTS AND DEFERRALS

YEAR	TOTAL COST OF 17.1% ALLOCATION OF GRAND GULF UNIT #1	DEFERRAL FACTOR	AMOUNT DEFERRED	ANNUAL AMOUNT RECOVERED
1985	124,726	0.833	103,897	20,829
1986	149,671	0.866	98,681	49,990
1987	149,671	0.499	74,886	74,985
1988	149,671	0.322	48,194	101,477
1989	149,671	0.166	24,845	124,826
1990	149,671	0.000	0	149,671
1991	149,671	0.000	0	149,671
1992	149,671	0.000	0	149,671
1993	149,671	0.000	0	149,671
1994	149,671	0.000	0	149,671

ARKANSAS POWER AND LIGHT COMPANY
SETTLEMENT AGREEMENT
COSTS AND DEFERRALS

YEAR	TOTAL COST	AMOUNT DEFERRED	AMOUNT RECOVERED	AMORTIZED AMOUNT	ACCUM. DEFERRED	ACC DEFER \$.5076	FINANCING COSTS	TOTAL RECOVERED
1985	128,050	103,897	24,153	0	103,897	52,738	5,400	29,554
1986	143,180	99,681	43,479	0	203,578	103,336	15,982	59,461
1987	129,300	74,686	54,614	0	278,263	141,247	25,046	79,660
1988	130,332	48,194	82,138	0	328,458	165,710	31,433	113,571
1989	116,628	24,845	91,783	0	351,303	178,321	35,229	127,012
1990	113,112	0	113,112	70,261	281,042	142,657	32,869	216,241
1991	115,596	0	115,596	70,261	210,782	106,993	25,565	211,421
1992	110,256	0	110,256	70,261	140,521	71,329	18,260	198,777
1993	104,304	0	104,304	70,261	70,261	35,664	10,956	185,521
1994	99,000	0	99,000	70,261	0	0	3,652	172,913

ARKANSAS POWER AND LIGHT COMPANY
SETTLEMENT AGREEMENT
COSTS AND DEFERRALS


WITH PHASE-IN

YEAR	TOTAL RECOVERED	RESERVE EQUALIZ.	FUEL SAVINGS	CUSTOMER NET COST	CUMULATIVE % INCREASE OVER BASE CASE	ANNUAL % INCREASE
1985	29,554	33,728	3,128	(7,298)	-0.69%	-0.69%
1986	59,481	30,390	3,669	25,402	2.25%	2.84%
1987	79,660	29,227	9,672	40,561	3.37%	1.13%
1988	113,571	26,412	12,114	73,045	5.58%	2.21%
1989	127,012	27,542	14,819	84,651	6.16%	0.57%
1990	216,241	35,361	27,201	153,599	9.48%	3.33%
1991	211,421	26,654	5,680	176,907	10.36%	0.88%
1992	198,777	24,727	4,157	163,893	8.96%	-1.40%
1993	165,521	24,267	(1,253)	162,507	8.01%	-0.95%
1994	172,913	23,500	(1,500)	150,913	6.82%	-1.19%

ARKANSAS POWER AND LIGHT COMPANY
SETTLEMENT AGREEMENT
COSTS AND DEFERRALS

WITHOUT PHASE-IN

YEAR	TOTAL COST	RESERVE EQUALIZ.	FUEL SAVINGS	CUSTOMER NET COST	CUMULATIVE % INCREASE OVER BASE CASE	ANNUAL % INCREASE
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1985	128,050	33,726	3,126	91,198	8.63%	8.63%
1986	143,160	30,390	3,669	109,101	9.65%	1.01%
1987	129,300	29,227	9,872	90,201	7.50%	-2.15%
1988	130,332	28,412	12,114	89,806	6.86%	-0.64%
1989	116,628	27,542	14,819	74,267	5.40%	-1.46%
1990	113,112	35,361	27,281	50,470	3.12%	-2.28%
1991	115,596	28,654	6,860	81,082	4.75%	1.63%
1992	110,256	24,727	4,157	81,372	4.29%	-0.46%
1993	104,304	24,267	(1,253)	81,290	4.01%	-0.28%
1994	99,000	23,500	(1,500)	77,000	3.49%	-0.53%



STRONG SYSTEMS, INC.

Operating Divisions:
Strong Manufacturing Company, Inc.
Strong-Lite Products Corp.
Strong-Lite Products of Illinois, Corp.

William A. Strong
Chairman of the Board

December 7, 1984

TO: The Honorable Senator Lowell Wicker
 The Honorable Senator Dale Bumpers

FROM: William A. Strong, owner of Strong Manufacturing Company
 and Strong-Lite Products Corporation, Pine Bluff, AR

In reference to your hearings on electrical rates being charged by Arkansas Power and Light Company to customers in Arkansas, I would like to point out some facts to show the impact it has on our business. First I would report that we have two business locations in Arkansas. Strong Manufacturing Company, Inc. in Pine Bluff, manufactures and sells capital goods throughout the world. In 1980, our foreign sales amounted to 20% of total sales. Today, that has shrunk to less than 10%, although sales have increased by some 50%. Our prices are no longer competitive with foreign manufacturers in the overseas markets, although our prices for this 5 year period of time have increased by only 15%. In examining the basic commodity that we buy, steel, we find that

prices for this item has risen from \$35.05 per CWT in 1980 to \$39.34 per CWT in 1984, or an increase of only 12% on an item that is energy sensitive. During this same period with an increase in sales of 50%, our electrical bill has increased from an average of \$780 per month in 1980 to \$1742 per month in 1984, an increase of 225%.

At our other plant in Pine Bluff, Strong-Lite Products Corp., we produce the commodity items, vermiculite, horticultural and cementitious products all of which are non-durable goods. One of the basic commodities used in our process is Portland cement, another manufactured product that requires large amounts of energy to produce. The price of this commodity at the plant has risen from \$45.00 per ton to \$53.00 per ton, or an increase of 17%, whereas electricity rate has risen at this plant, a total of 80%. Our prices for finished goods has escalated less than 15% for this same period.

A sizable increase in electrical costs will effect the sales, profitability and employment in our two plants. Today, we employ some 80 people at Pine Bluff. The unstable and fast escalation of electrical charges will cause us to look elsewhere at locations for plants. Stability in utility prices, as with other commodities, must come to allow the small businesses to survive,

grow and provide the jobs for the expanding population and workforce.

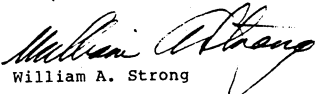
The basic problem with utilities such as Arkansas Power and Light Company is the lack of competitions. They have a monopoly and are guaranteed by law to have a given return on investments and sales. On the surface this sounds good, however, in practice there is little incentive for an efficient run operation. Unlike steel and cement, they have no competition. They are the only game in town. One possible remedy would be to have the franchise or operations put up for bids every 10, 15 or 20 years. Let someone else bid on furnishing electricity. All of their assets are charged to their customers, who are the public and who should have title. If another group can manage the operations more efficiently and produce power for less, then they should be given the opportunity to run the operation. This would give the utilities something that is lacking now, an incentive to run an efficient operation.

Monopolies have never produced the incentives to operate efficiently. They are not healthy nor do they insure a stable economy. Legislation should be forthcoming to create a competitive market. Certainly the mistakes of Mid-South Utilities should not be passed along to either businesses or

families of Arkansas. Let them operate as other businesses, whereby mistakes that are made is a business expense, not to be passed along to the unprotected public. It is not a coincident that steel and cement are sold at prices with little escalation. These companies have learned to operate in a competitive world. So would the utilities if they were not protected.

Thanks!

STRONG MANUFACTURING COMPANY, INC. AND
STRONG-LITE PRODUCTS CORPORATION
STRPMG SYSTEMS, INC.



William A. Strong
Chairman of the Board

Senator BUMPERS. And finally, the hearing record will remain open until January 4, 1985. If any person testifying here today or others interested in this matter would like to submit additional testimony for the record, that, too, will be included. Simply mail the written statements to me in Washington and indicate in a cover letter that the statement is to be included in the December 7 hearing on Grand Gulf.

Has the Governor shown up yet? Is he here?

Governor CLINTON. I heard all your statement, Senator. [Laughter.]

Senator BUMPERS. Well, we are honored to have our Governor, Gov. Bill Clinton, here today, who will be our leadoff witness.

Governor, we thank you very much for coming, and we look forward to your testimony.

STATEMENT OF HON. BILL CLINTON, GOVERNOR OF THE STATE OF ARKANSAS

Governor CLINTON. First of all, I'd like to thank you, Senator Bumpers, and Senator Weicker, and other members of the U.S. Senate Committee on Small Business for arranging this hearing in our State. Small businesses and farms are vital to the economy of Arkansas, and the *Grand Gulf* case, with its spectre of dramatic rate increases, threatens the very existence of our State's small businesses and farms. We welcome and, indeed, solicit your assistance in resolving this crisis and in helping to preserve the economic viability of our State.

Grand Gulf may very well be the single greatest threat ever to the economic future of our State. If we lose both cases pending before the Federal Energy Regulatory Commission and are required by FERC to pass on costs to the ratepayers of Arkansas Power & Light Co., rates could go up as much as 50 percent for the majority of the electricity customers in Arkansas.

The future economic and industrial development of Arkansas depends greatly upon the availability of competitively priced power sources. Our farmers need and require reasonably priced electricity in order to irrigate and process their crops. The poultry industry must have reasonably priced electricity to maintain its operations. The timber industry uses tremendous amounts of electric energy.

This is not in my statement, but parenthetically I should say, Senator, that I have met and talked with representatives of International Paper several times over the last few months in their struggle to keep open the mill at Camden, and one of the things they said in our last meeting was that the union has done everything it can do and the State has done everything it can do and is doing everything it can do. But our electric bills are already higher in this State than any other State in which we operate, and if we have to sustain another major rate increase, I don't know how we can continue to keep that plant in operation.

The success of small businesses depends to a large extent on the continued success and expansion of our industrial and agricultural operations. Small businesses provide necessary and essential support products and services for industrial and agricultural concerns as well as for people who earn their livelihood working in these

areas. Without a healthy industrial and agricultural base, small businesses will suffer.

Arkansas has been at or near the bottom rung of America's economic ladder since before World War II. We experienced a surge of prosperity in the 1960's and 1970's which was cut short by inflation and recession. We are moving forward again now but not without problems. Last year our State ranked in the top five States in percentage growth of new jobs. In the first quarter of this year, we were in the top five States again in percentage growth of personal income. Yet our unemployment rate remains above the national average, largely because of plant closings in industries very vulnerable to foreign competition. This vulnerability has increased dramatically in the past 2 years because of the greatly overvalued American dollar. Federal policies have contributed to this overvaluation, and our farmers and import-sensitive industries have paid the price. If Federal policy also requires Arkansas to pay for powerplants in Mississippi and Louisiana that we don't need, never agreed to pay for, and cannot afford, then those who are already in trouble may be ruined and the growth sectors of our economy will be stunted. All our efforts to improve the education and skills of our people and to aggressively promote economic growth and opportunity will be undermined. That is the message our people will bring to you today.

If Arkansas is saddled with devastating increases in electric rates because of Federal decisions on the Grand Gulf and System Average costing issues, we can realistically expect to see many industries drop off our present electrical systems. Other plants will shut down and unemployment will rise. Obviously, we would be unable to attract new industry to take the place of those lost. A significant decline in industrial use would then immediately shift much of the present cost of electric generation now borne by industry to all other ratepayers including small businesses, farmers, working men and women, and senior citizens who are already struggling to make ends meet.

The FERC staff and an administrative law judge have initially concluded that Arkansas must foot the bill for the troubled Grand Gulf nuclear plant in Mississippi which has cost over four times the original estimate. Also, the staff of FERC has recommended that we should pay for a portion of another expensive plant in Louisiana under proposed changes in the system agreement among the Middle South Utilities operating companies. Never before has the FERC decided that the people of any State must purchase power from or pay for an unneeded foreign powerplant. The determination of need for new domestic powerplants has always been within the sovereign power of each State. In this instance, permission to build the Grand Gulf powerplant was never sought from nor given by the Arkansas Public Service Commission, which is statutorily authorized with the responsibility to make such determinations.

The Congress clearly never intended for the FERC to interfere with the rights of individual States to regulate such matters. Section 201(a) of the Federal Power Act sets the jurisdictional boundaries of the FERC, providing that its regulation shall "extend only to those matters * * * not subject to regulation by the States" and further "shall not have jurisdiction * * * over facilities used for

the generation of electric energy. * * * The legislative history of the Federal Power Act clearly indicates that Congress, in formulating the act, intended only to fill existing gaps in the regulatory scheme; it did not intend to remove traditional State regulatory authority.

Why, then, is the FERC considering an order assigning the costs of these plants to Arkansas, and what did Middle South Utilities do to take the *Grand Gulf* case away from the States and give it to the Federal Government?

Historically, States have decided whether a utility could build a powerplant based on consumer need, reasonableness of cost, and compliance with State laws. The Federal Government, on the other hand, has exercised jurisdiction over sales of electricity in interstate commerce and/or at the wholesale level.

In 1973, Middle South Utilities began the process of putting the Grand Gulf plant under Federal jurisdiction by transforming the powerplant construction issue into one of wholesale electricity sales in interstate commerce. This is how it happened: Middle South Utilities created a subsidiary, Middle South Energy, whose sole asset would be Grand Gulf. Who would pay for Grand Gulf? The operating companies. How would they pay? Through contracts for the sale of electricity that are wholesale in nature and most of which are in interstate commerce.

My first contact with this arrangement came in early 1977. As attorney general, I asked Middle South Utilities' president, Floyd Lewis, in a hearing before the Public Service Commission, whether Arkansas would have to pay for a portion of Grand Gulf. He said candidly we would because we would need it. I then asked, since we were at a hearing on raising Arkansas' electric rates to pay for a plant we had built here, whether we would have to pay for a portion of Grand Gulf if we did not need it. He said we would not. We then continued to build powerplants in our State until we had a surplus of plant capacity. However, in 1980, documents filed with the Securities and Exchange Commission revealed that in fact AP&L was still to be assigned 17 percent of Grand Gulf even though we did have a surplus of powerplant capacity in Arkansas—a surplus, that you will remember, Senator, that was so significant that we sold part of the first Independence powerplant in Newark to Mississippi Power & Light Co., and we still had a surplus and they still had a shortage.

I met with AP&L representatives then who agreed with me—to be fair to them—our obligation to pay for part of Grand Gulf was inconsistent with Mr. Lewis' 1977 commitment. Mr. Norton was involved in those conversations, and you made a reference to that in your opening statement.

Then AP&L raised this issue with the other Middle South Utilities Co., and all the other Middle South Utilities Co. agreed that Arkansas should not have to pay for Grand Gulf. When the new contract was filed with FERC for approval, other State parties—not the utilities—objected to it and asked that it be set aside and that Arkansas be charged for electricity and powerplant capacity it does not need, will not use for more than a decade, cannot afford, and never agreed to pay for.

The FERC staff and an administrative law judge agreed to impose that burden on us, and to add to the injury, the staff has recommended that the system agreement be rewritten to require us, in effect, to pay for one-third of the Waterford plant in Louisiana which is actually owned by Louisiana Power & Light Co., and dedicated to the use of LP&L's customers. And the staff recommended that, I might add, with no initiative from any of the Middle South Utilities companies.

Thus, from our point of view in Arkansas, there are two culprits, if you will, in our present predicament: Middle South Utilities, which so cleverly evaded State jurisdiction in the first place; and, perhaps more importantly, the staff and the administrative law judge of the FERC, who not only have permitted the evasion to stand, but are determined to invalidate agreements among Middle South Utilities operating companies which allocate the costs of these out-of-State plants to the Louisiana and Mississippi companies and none to Arkansas.

We are diligently fighting to preserve our regulatory rights and economic well-being. We hope the full FERC will reverse its staff and its administrative law judge. If we lose there, we will go to court; but we need the help of Congress.

I first tried to get President Reagan or his Secretary of Energy to make an on-the-record statement of support for the position that all four States in this case should retain their rights to decide whether the ratepayers in those States should pay for Grand Gulf or Waterford. The entire National Governors' Association, Republicans and Democrats alike, agree with this position. Several hundred thousand Arkansans sent postcards to the President asking that he make a statement of policy. Although the President has never answered my letter, he did say in an interview that he couldn't intervene because the FERC is a quasi-judicial regulatory body. Clearly, however, the administration can make an on-the-record statement before a regulatory agency like FERC. Energy Secretary Hodel himself has already intervened in the Grand Gulf proceedings before the Mississippi Public Service Commission. The President has been advised wrongly and the rest of the administration is hiding from this very important State-Federal issue. Now we can only turn to Congress for help.

I submit that you can do four things.

First, the Public Utility Holding Company Act of 1935 must be strengthened, not repealed. The Securities and Exchange Commission, which enforces the act, should be required to seek from State utility commissions an affirmative statement that State security laws are either inapplicable to certain utility transactions or that a utility has complied with such laws.

Second, the Federal Power Act should be amended to require that questions of powerplant need and the availability of economical alternatives should be decided by the State regulatory commission of each State affected before a utility holding company can get Federal approval to build a plant or to charge an operating company in a given State and its ratepayers for a plant. Utility holding companies cannot be allowed to insulate themselves from State regulation by forming multistate generation subsidiaries to build powerplants. It may be necessary to ban such subsidiaries altogether.

But at a minimum, joint ownership of generating facilities should be conditioned upon prior receipt of State approvals for participation, construction and financing. And these requirements should apply even where the ownership is apportioned in another form, such as wholesale electricity contracts with energy and capacity charges.

Third, involuntary systemwide cost equalization should be prohibited.

Fourth and finally, Federal law should explicitly recognize the right of State regulatory commissions to refuse to pass along to their ratepayers all or part of the costs of powerplants which the State has not given prior approval to based on need, reasonableness of costs, or other legitimate considerations. In this case, the States and various State intervenors are pointing the finger at each other with Middle South Utilities effectively sitting on the sidelines, watching the States fight among themselves to see which State will be the bigger victim. The assumption is that even though most of Grand Gulf may be unneeded by any State, all of it will be paid for by ratepayers. Yet it seems only fair that Middle South Utilities stockholders should share the responsibility and assume some of the liability for investments that have gone sour. Utility investments of this magnitude cannot be risk-free. At the very least, the Federal Government should not be bailing out utilities at the ratepayers' expense and over the expressed opposition of State regulatory bodies.

It is important to recognize that it is precisely because the States and their regulators are doing their jobs and doing them better and more aggressively than ever before, that the utilities are now clamoring to be regulated by the Federal Government. Congress should reaffirm and clarify the longstanding demarcation between State and Federal regulation and, once and for all, prohibit transparent attempts to circumvent the States' traditional regulation of powerplant construction and local utility rates.

Thank you very much.

Senator BUMPERS. Thank you very much, Governor.

[The prepared statement of Governor Clinton follows:]

STATEMENT OF HON. BILL CLINTON, GOVERNOR OF THE STATE OF ARKANSAS

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Historically States have decided whether a utility could build a power plant and then whether its ratepayers would pay for the plant based on consumer need, reasonableness of cost, and compliance with State laws. The Federal Government, on the other hand, has exercised jurisdiction over sales of electricity in interstate commerce and/or at the wholesale level.

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Thus, from our point of view there are two culprits: Middle South Utilities, which so cleverly evaded state jurisdiction in the first place; and the staff and administrative law judge of the FERC, who not only have permitted the evasion to stand but are determined to invalidate agreements among the MSU operating companies which allocated the costs of these out of state plants to the Louisiana and Mississippi companies.

We are diligently fighting to preserve our regulatory rights and our economic well-being. We hope the full FERC will reverse its staff and its administrative law judge. If we lose there, we will go to court. But we need the help of Congress.

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You can do four things:

1. The Public Utility Holding Company Act of 1935 must be strengthened, not repealed. The Securities and Exchange Commission, which enforces the Holding Company Act, should be required to seek from state utility commissions an affirmative statement that state security laws are either inapplicable to certain utility transactions or that a utility has complied with such laws.

2. The Federal Power Act should be amended to require that questions of power plant need and the availability of economical alternatives to be decided by the state regulatory commission of each state affected before a utility holding company can get federal approval to build a power plant. Utility holding companies cannot be allowed to insulate themselves from state regulation by forming multi-state generation subsidiaries to build power plants. It may be necessary to ban such generation subsidiaries altogether. At a minimum, joint ownership of generating facilities should be conditioned upon prior receipt of state approvals for participation, construction and financing. These requirements should apply where the ownership is apportioned in other forms, such as wholesale electricity contracts with energy and capacity charges.

3. Involuntary system wide cost equalization should be prohibited.

4. Finally, Federal law should explicitly recognize the right of state regulatory commissions to refuse to pass along to their ratepayers all or part of the costs of power plants which the state does not approve based on need, reasonableness of costs or other legitimate considerations. In this case, the states and various state intervenors are pointing the finger at each other with Middle South Utilities effectively sitting on the sidelines, watching the states fight among themselves to see which State will be the victim. The assumption is that even though most of Guard

Gulf may be unneeded by any state, all of it will be paid for by ratepayers. Yet it seems only fair that MSU stockholders should share the responsibility and assume some of the liability for investments that have gone sour. Utility investments of this magnitude cannot be risk-free. At the very least the Federal Government should not be bailing out utilities at the ratepayers expense and over the opposition of state regulatory bodies.

It is important to recognize that it is precisely because the states and their regulators are doing their jobs and doing it better and more aggressively than ever before that the utilities are not clamoring to be regulated by the FERC. Congress should reaffirm and clarify the longstanding demarcation between state and federal regulation and once and for all prohibit transparent attempts to circumvent the states' traditional regulation of power plant construction and local utility rates.

Thank you very much.

Senator BUMPERS. Governor, let me ask you first of all, is it presently the State's intention to appeal the decision by the Federal judge that FERC has exclusive jurisdiction over this case? Is that on appeal now?

Governor CLINTON. Yes.

Senator BUMPERS. Second, I know that you're familiar with the Public Utility Holding Company Act of 1935, and I think that Congress really was fairly visionary back then in anticipation of this very thing, because they passed that law; and in that law it says specifically that a public utility holding company may not build generating capacity. It may own subsidiaries, as Middle South does, four subsidiaries. And Middle South in this case, of course, in order to circumvent that law—and it seems to me that it is a clear circumvention of the law—formed a subsidiary for one sole purpose, and that was to build Grand Gulf, in order to violate that law. Do you agree with that?

Governor CLINTON. Well, let's look at it this way. If they created a separate company, which the company says—which Middle South says—they did for financing reasons, as you said in your opening statement, and that company in effect owns only a powerplant and has no customers, then obviously every single sale of electricity from that company would be a wholesale sale, and wholesale sales are under Federal jurisdiction. So it seems to me to be a way that anybody could get out of it. I mean, you might argue that even an intrastate company could set up a subsidiary and build a powerplant to sell power to itself and go to FERC and say: "Well, I'm sorry, this company won't have any retail customers, it's only wholesale, so would you please approve of it." And I think it's very important—you know, the Federal Government can't be an expert on everything. The States generally have regulatory commissions that have become very sensitive in the last 10 or 15 years to this whole question of powerplant siting—what are the economics of it, what do you have to look into, how do you make these decisions. Historically, the Federal Government has not had to make those decisions, and so the people who go to work for FERC or any of these other agencies are just not as good at it. I don't think there's any question that that happened. Mississippi Public Service Commission, if you go back and review the record there, essentially gave them a building permit based on the representation that they would have to pay for about 19 percent of Grand Gulf and, of course, it looks like they're going to be stuck for about 31 percent of it if the case goes through in its present posture.

Senator BUMPERS. Assume that Mississippi Power & Light had been able to finance the plant as originally planned, even though we now know that it could not, would Arkansas' purchases be considered a wholesale sale subject to FERC jurisdiction?

Governor CLINTON. Yes; but then, you see, we would not have done it unless we needed it, and we would have bought it on negotiated terms—

Senator BUMPERS. As we have in the past?

Governor CLINTON. Yes, yes, and, of course, those things were done when they were presumably in the mutual interests of the two companies. But when Mr. Lewis came here in 1977, he said, you know, the reason we were building all these powerplants here was so that we could become self-sufficient because it was no longer economical for our neighbors, primarily in Louisiana, to sell us gas that was generated by what had been up to that time—excuse me, electricity—that had been generated up to that time by cheap natural gas, because the price of gas was going up, and we thought—we thought wrongly, but we thought—in the late 1970's, the supply was going down.

Senator BUMPERS. I'm sure that your figures are probably more accurate than mine. I had understood that the original cost of this plant was anticipated to be \$400 million.

Governor CLINTON. That could be right. I thought it was \$650 million, but it could have been revised—

Senator BUMPERS. We'll try to clarify the record on that before the day is over; but of course, as you know, it's well over \$3 billion now.

Governor CLINTON. I think the important thing on that is, again, let's say you could go back to square one and you could divide what was responsible for the cost overruns. To what extent were those things unforeseeable? To what extent can you not blame Middle South or any of the management for Three Mile Island, the new changes that had to be taken after that? And to what extent were those costs avoidable? Let me just ask you that—if this case—of FERC upholds this case, who gets to decide that? Can we still throw out costs here at the State level that we consider to be excessive? Can we say, well, you may stick us for 17 percent—let's just take 17 percent of the costs of Grand Gulf—but you had a quadruple or quintuple cost overrun, and we consider that only half of that cost overrun was justified, so we're still not going to give you as much as you ask for. Do we retain the jurisdiction to do that? Or did the Federal Government—if they uphold the staff recommendations, does FERC in essence say, not only do you have to pay, you've got to pay at the price they say? Because FERC doesn't do that.

There are a lot of these questions that are unclear. You know, even though the nuclear plant at Russellville was the least expensive nuclear plant ever built in this country, the Public Service Commission still threw out over \$20 million of the construction costs that AP&L requested on the grounds that they are unjustified. Do we retain the right to do that in this case? It appears, from looking at it and from the position that's been taken by the other parties, that that's a question within the Federal jurisdiction too, and they are plainly not able to make that decision.

Senator BUMPERS. I think there's a rule—and Chairman Johnston's here, and he can clarify this for us later—but I think there's a rule at both the Federal and the State level that allows both regulatory agencies to disallow what they call costs not prudently incurred. In other words, the cost to be passed on to the ratepayers has to be reasonably incurred, is that not correct?

Governor CLINTON. Yes, there is. But if the Federal Government doesn't do it, if FERC doesn't do it, does that mean they have pre-empted the right of the States to do it in this case?

Senator BUMPERS. Has that point been raised in the FERC briefs, or do you know?

Governor CLINTON. I don't know. Ask Dr. Johnston; he'll know. If we do it—suppose we disallowed half of it, or two-thirds of it, or three-fourths of it—I mean, you've got a lot of play there, since the cost overrun is so massive. Would they say, well, that's in effect negating the FERC ruling? I mean, it seems to me that the States have developed expertise in this area, know that they're doing, and now have been deprived of the right of doing it in our State. And Arkansas may be just the first State where this could occur because, as you know, there are lots of other plants out there hanging fire with construction costs that are astronomical.

Senator BUMPERS. Governor, are you personally familiar with the settlement offer that Mississippi Power & Light and Arkansas Power & Light submitted to FERC?

Governor CLINTON. Yes.

Senator BUMPERS. As I understand that, they are saying that for the first 10 years under that settlement offer, rates in Arkansas cumulatively would go up 6.8 percent, much less than an average of 1 percent a year. And I saw where the president of AP&L said the other day that the thing had been so politicized that he thought that offer was dead. I don't really understand why it would be; I mean, the nature of politicians is to be critical most of the time anyway. We are all guilty of that—but my point is, there are four things that can happen in this case, and three of them are bad. And the only thing I can say past that is the fifth thing would be for FERC to approve the settlement offer.

If you analyze the four possibilities—if we won the case outright, that's the best of all possible worlds for us. If FERC imposes 17.1 percent of the costs on us in accordance with the original agreement, that's going to be pretty tough; if they impose 36 percent of the costs on us, that's going to be much tougher. But if we lose the systemwide case, then, of course, that's the very worst of all possibilities.

Now, of course, in trying lawsuits I used to settle lawsuits for less than I thought I was entitled to, but as much as I thought I was going to get, depending on my client. I always had to turn to my client for advice and guidance on whether they wanted to accept the settlement, but in this particular case, No. 1, do you think it is based on reasonable assumptions? No. 2, do you think it ought to be considered seriously by FERC?

And, incidentally, there's one other additional element that I understand is in the settlement offer, and that is that after 10 years, then the imposition of increased cost, together with the fact that AP&L will be phasing out some other plants, that cost would actu-

ally begin to go down in the second decade. It would go up a total of 6.8 percent cumulatively the first 10 years, less than 1 percent a year, and over the next 10-year period would go down. Do you think that offer has merit?

Governor CLINTON. Well, first of all—

Senator BUMPERS. Excuse me for interrupting you, Governor, but if you'd like to preface that by saying that do you think that that is based on wrong assumptions or that there isn't any way, for example, for the Public Service Commission, or FERC, or anybody else to lock them in to that; that's a separate issue. I mean, it might change all of our thinking a little bit if we knew that they could be held to that over the next 20-year period, and that the figures submitted in this settlement offer would be binding over the next 20-year period. But your general comments on it?

Governor CLINTON. Well, first of all, I think that AP&L presented the offer in good faith and believes that it is unlikely that we'll be 100-percent victorious because the staff is against us and the administrative law judge is against us on Grand Gulf. There's been no ALJ ruling on the system averaging case.

Second, if the numbers were right, first of all, and if we knew we could get that settlement, second, anybody would have to consider the question of whether 1- to 3-percent increase—you know, there have been different arguments about how many it would be a year—for sure would be better than the possibility of an immediate 25- to 50-percent increase. And that is why I encouraged the utility, if it believed that settlement was a reasonable possibility, to go on and offer it, you know, and encouraged them to do it, and said so publicly. I think—you say, do I think FERC should seriously consider it. I don't think there's any question that they will look at it because they've got the staff recommendation that, you know, we should be, in effect, required to pay for significant portions of both those other States' plants. So I think they will look at it.

We were advised in the strongest possible terms by our Washington counsel not to go into the settlement offer for one or two reasons. One, if all of us changed our positions and said, they, we'll pay something, and our adversaries didn't change their positions, which is that we ought to pay for what we know is an exorbitant amount that is, if we came off the bottom and they didn't come off the top—we were afraid we'd just narrow the scope of compromise for FERC, if that's what they're going to do.

Second, we were reluctant to go into a settlement conference which, as I understand it under the rules of FERC, would permit all issues in both cases to be resolved without a lot deal on the *System Averaging Costing* case which is, of course, a separate and independent case and one that, as you've pointed out today, could cost us even more. That's why we didn't participate in the compromise. It didn't have anything to do with the politics of it, but what we thought would actually strengthen the likelihood of getting a better settlement for the people of our State. But I don't think there's anything wrong with AP&L presenting it.

Let me just say one other thing. It's obvious that—and I tried to make it clear in this testimony—that I consider, if you look at who did what, the Federal regulators have done things in agreement with parties in other States which are far more threatening to us

in the short run than anything that the management of AP&L did. But they have to take the position—they work for Middle South that the ratepayers have to pay for everything, whereas I'm free to say to you that I think the shareholders should bear some responsibility for an investment that, No. 1, is not entirely prudent, as it turns out; and No. 2, was organized so that they wouldn't have to deal with the Arkansas Regulatory Commission.

Senator BUMPERS. I must say, I certainly share your views on that latter idea.

Well, Governor, I appreciate very much your coming down to be with us. You've been on the cutting edge of this, perhaps as knowledgeable or more knowledgeable than anybody in the State including maybe even Chairman Johnston back there. I thank you very much for coming down. It was a fine statement, and we appreciate having you here.

Governor CLINTON. Thank you very much, Senator.

Senator BUMPERS. Our next witness will be Congressman Anthony.

**STATEMENT OF HON. BERYL ANTHONY, JR., A U.S.
REPRESENTATIVE FROM THE STATE OF ARKANSAS**

Representative ANTHONY. Thank you, Mr. Chairman. I would ask that my entire statement be presented for the record. I would like to summarize the parts that I think are the most pertinent to my particular part, as far as participating in these proceedings.

But I would like to join Governor Clinton in congratulating you for bringing this issue to the people in Arkansas. I think you're doing a great service for our State in holding this hearing to allow a complete record to be compiled regarding the legal and historical origins of the issue, and the potentially disastrous impact if decisions adverse to Arkansans should be put into place by FERC.

An adverse decision could require Arkansas Power & Light Co. to assume about \$900 million of the capital costs of Grand Gulf by requiring AP&L to purchase 36 percent of the capacity of this "white elephant." The issue in this case is whether AP&L ratepayers, who have already seen huge increases in their rates to pay for the six plants that you previously mentioned, can be forced to purchase power from Grand Gulf which is neither wanted nor needed. The issue is also whether a Federal agency will sanction a major change in the rules of the game, while ignoring the intent of Congress. In the other case before FERC, known as the *System Agreement* case, even more profound implications arise which threaten the future of Federal-State relations and the constitutional doctrine of federalism, as well as the future of the Arkansas economy.

The heart of the *System Agreement* case is whether Arkansas Power & Light Co. even exists, or whether it is merely a tool of an entity called Middle South. Of more significance is whether the Arkansas Public Service Commission and the public service commissions around the country will continue to exercise any significant role in the approval of powerplant construction, the setting of electric rates, or any other meaningful aspect of utility regulation. Also at issue is whether Arkansas ratepayers will be robbed of the

benefits from AP&L's past construction program which led to the current adequate supply of electric power in Arkansas.

Since the nature of the Middle South agreement is key to this dispute, let us look at that arrangement as it has historically operated. Each has been subject to its own body of State regulation, and each company had gone to its own State public service commission for approval of construction over the years. There was no system-wide decision to build Arkansas nuclear 1, or the AP&L coal-fired plants, and there has been no systemwide agreement to construct or absorb the costs of Grand Gulf.

Nobody at AP&L and no Arkansas ratepayer attempted to force those costs to be borne by others outside Arkansas. Yet, the implications in the administrative law judge's decision would force both coercion and confiscation on the electricity users of Arkansas on a grand scale.

It would also increase AP&L's costs by at least \$3 billion over the next 10 years, if passed on to ratepayers in Arkansas. It would mean a 50-percent increase for Arkansas ratepayers and put many businesses of Arkansas out of business.

The intent of Congress in the passage of the Federal Power Act was not to remove the role of the States in the approval of power-plant construction and in the setting of intrastate rates. Nor was it to force ratepayers in one jurisdiction to absorb the costs of expensive power or share the costs of cheaper power with those in another. The proponents of systemwide costing who want to force Arkansas ratepayers to carry a major portion of their costs for electric power in the future have based this hope on the concept that AP&L and the other member companies have lost their identity and are only instruments of Middle South. To accept this doctrine is to accept the irrelevance of States and local governing units in the Federal system. It is to install and concentrate all power in a six-man, unelected body, with near absolute power in terms of utility regulation—the Federal Energy Regulatory Commission. Ratepayers in Arkansas and Missouri absorbed at least \$1.4 billion in rate hikes that would otherwise have been the responsibility of the ratepayers of the other companies under the scheme now advanced by Louisiana and other interests.

What is involved here would be nothing less than a major change in the rules of the game which would grossly alter the intent of Congress and the traditional interpretation of utility law. Despite the clearly expressed congressional intent, the Commission would usurp the power of the States to set local rates, regulate the industry, and balance competing costs and benefits from future construction. Congress clearly intended FERC and its predecessor agencies to be limited to specified interstate responsibility. I cannot believe that the Commissioners, who were appointed by President Reagan as part of his program to decentralize Federal power and bring decisionmaking back to the State and local areas, would vote to overturn history and precedent in this case. To do so would invalidate the system agreements which have linked AP&L to its fellow companies for more than 30 years; it would place an entirely new interpretation on the Federal Power Act which would be subject to judicial challenge; and it would be a repudiation of everything the Reagan administration purports to stand for.

In conclusion, Mr. Chairman, I am giving the benefit of the doubt at this time to the intelligence and fairness of the FERC Commissioners. However, if I am wrong and the decisions go against Arkansas, I am sure you and I and the rest of the Arkansas delegation, along with the Governor, the PSC, and others will be prepared to take this case all the way to the Supreme Court, if necessary. In addition, I will recommend that we explore all legislative remedies to this problem as well. Many other Members of Congress will not be content to accept a massive transfer of power to a Federal agency which a loss of our position would imply. We have many potential allies in Congress.

For that reason, I urge that we remain vigilant and optimistic as we await the decision by FERC. If there is this major historical change, Mr. Chairman, I think that we have many, many potential allies in the Congress to look at strengthening of the Federal laws. And I want to thank you for the opportunity to present my views today.

Senator BUMPERS. Congressman Anthony, I thank you very much for your testimony. I would just make a couple of comments.

[The prepared statement of Representative Anthony follows:]

STATEMENT OF HON. BERYL ANTHONY, JR., A U.S. REPRESENTATIVE FROM THE STATE OF ARKANSAS

Mr. Chairman, I want to begin by expressing my sincere thanks to you for holding this hearing. There is not any issue or even any combination of issues which can approach in importance the pending decision by the Federal Energy Regulatory Commission in regard to allocation of power and costs in the Middle South system. You are doing a great service for our state in holding this hearing to allow a complete record to be compiled regarding the legal and historical origins of this issue, and the potentially disastrous impact if decisions adverse to Arkansas should be put into place by FERC.

As you know, the Arkansas Congressional delegation and the Missouri congressional delegation jointly filed comments on March 5 of this year before FERC, objecting to the proposed settlement of the *Grand Gulf* case. An adverse decision could require Arkansas Power & Light Company to assume about \$900 million of the capital costs of Grand Gulf by requiring AP&L to purchase 36 percent of the capacity of this white elephant. These costs could be passed on to AP&L customers, even though the AP&L service area has no current need or long-term potential demand for the power. In fact, the two nuclear plants and four coal field plants now operated by AP&L will more than meet our needs for the foreseeable future. The issue in this case is whether AP&L ratepayers, who have already seen huge increases in their rates to pay for the six plants, can be forced to purchase power from Grand Gulf which is neither wanted nor needed. The issue is also whether a Federal agency will sanction a major change in the rules of the game, while ignoring the intent of Congress.

In the other case before FERC, known as the "System Agreement Case," even more profound implications arise which threaten the future of Federal-State relations and the constitutional doctrine of federalism, as well as the future of the Arkansas economy.

The Arkansas and Missouri congressional delegations filed comments in the "System Agreement Case" on March 22 of this year. The gravity of the proceedings in this case may be the most significant issue in the modern history of the Federal Energy Commission and its predecessor, the Federal Power Commission.

The heart of the "System Agreement Case" is whether Arkansas Power & Light Company even exists, or whether it is merely a tool of an entity called Middle South. Of more significance is whether the Arkansas Public Service Commission and public service commissions around the country will continue to exercise any significant role in the approval of powerplant construction, the setting of electric rates, or any other meaningful aspect of utility regulation. Also at issue is whether Arkansas ratepayers will be robbed of the benefits from AP&L's past construction program which led to the current adequate supply of electric power in Arkansas.

Since the nature of the Middle South arrangement is key to this dispute, let us look at that arrangement as it has historically operated. The system has operated on the basis of mutual cooperation to share reserves since 1951. However, each member company has operated independently in terms of its service area and has been governed by its own board of directors. Each has been subject to its own body of State regulation, and each company has gone to its own state public service commission for approval of construction over the years. There was no system wide decision to build Arkansas Nuclear One, or the AP&L coal-fired plants, and there has been no system wide agreement to construct or absorb the costs from Grand Gulf.

In fact, there is no evidence in the entire history of Middle South that any member company could be forced to accept a decision detrimental to it. Yet this is precisely what the Louisiana and Mississippi proposals would do. When AP&L had to seek large rate increases after the construction of Arkansas Nuclear One, Louisiana was continuing to benefit from cheap natural gas. Nobody at AP&L and no Arkansas ratepayer attempted to force those costs to be borne by others outside Arkansas. Yet, the implications in the administrative law judge's decision would force both coercion and confiscation on the electricity users of Arkansas on a "Grand" scale.

If the proposal from Louisiana should be allowed to stand, it would create a precedent never before seen in American utility regulation. It would also increase AP&L's costs by at least \$3 billion over the next 10 years, if passed on to the ratepayers in Arkansas. It would force the acquisition of electric power which is unwanted, unneeded and grossly expensive due to the massive cost overruns of Grand Gulf. It would mean a 50 percent rate increase for Arkansas ratepayers and put many businesses of Arkansas out of business.

I believe that the law established in the Federal Power Act does not permit such an unjust outcome. The intent of Congress in the passage of the Federal Power Act was not to remove the role of states in the approval of powerplant construction and in the setting of intrastate rates. Nor was it to force ratepayers in one jurisdiction to absorb the costs of expensive power or share the costs of cheaper power with those in another. The act of power pooling to maintain reserves as economically as possible to all companies does not create a firmly locked, unitary system either. If the Middle South Companies are not to be viewed as a confederation, rather than a solitary unit, then a major principle of American constitutional doctrine involving the federal system and the power of States to regulate their internal affairs must also be abandoned. The proponents of systemwide costing who want to force Arkansas ratepayers to carry a major portion of their costs for electric power in the future have based this hope on the concept that AP&L and the other member companies have lost their identity and are only instruments of Middle South. To accept this doctrine is to accept the irrelevance of States and local governing units in the federal system. It is to install and concentrate all power in a six man, unelected body, with near absolute power in terms of utility regulation—the Federal Energy Regulatory Commission.

I believe that FERC must rule in favor of the position argued by AP&L, the Arkansas congressional delegation, the Governor, the Arkansas Public Service Commission, and the Arkansas Industries. The facts have been laid before the Commission, and they clearly demonstrate that during the entire history of Middle South, the equalization of generating costs has never been a part of any operating agreement among the companies of Middle South. The ratepayers in other jurisdictions have never been asked to share any of the costs of construction in Arkansas. Approval for that construction and rate making as a result of it has always been determined by the Public Service Commission. Ratepayers in Arkansas and Missouri absorbed at least \$1.4 billion in rate hikes that would otherwise have been the responsibility of the ratepayers of the other companies under the scheme now advanced by Louisiana and other interests.

What is involved here would be nothing less than a major change in the rules of the game which would grossly alter the intent of Congress and the traditional interpretation of utility law. Despite the clearly expressed congressional intent, the Commission would usurp the power of States to set local rates, regulate the industry, and balance competing costs and benefits from future construction. Congress clearly intended FERC and its predecessor agencies to be limited to specified interstate responsibility. I cannot believe that the Commissioners who were appointed by President Reagan as part of his program to decentralize Federal power and bring decisionmaking back to the State and local areas would vote to overturn history and precedent in this case. To do so would invalidate the system agreements which have linked AP&L to its fellow companies for more than 30 years, it would place an entirely new interpretation on the Federal Power Act which would be subject to judi-

cial challenge, and it would be a repudiation of everything the Reagan Administration purports to stand for.

In conclusion, Mr. Chairman, I am giving the benefit of the doubt at this time to the intelligence and fairness of the FERC Commissioners. However, if I am wrong and the decisions go against Arkansas, I am sure you and I and the rest of the Arkansas delegation, along with the Governor, the PSC and others will be prepared to take this case all the way to the Supreme Court, if necessary. In addition, I will recommend that we explore all legislative remedies to this problem as well. Many other Members of Congress will not be content to accept a massive transfer of power to a Federal agency which a loss of our position would imply. We have many potential allies in Congress.

For that reason, I urge that we remain vigilant and optimistic as we await the decision by FERC.

Senator BUMPERS. I especially appreciate your comments about congressional intent. It seems to me that if we wind up winning this case at any level, at least ultimately winning it, then either FERC or the courts will be saying that Congress has been clear on this matter—they never intended for Middle South to have the right, by subsidiary or otherwise, to build its own generating power and then impose it on their subsidiaries. That's exactly why that provision was put in the Public Utility Holding Company Act for, to prevent that very thing.

Representative ANTHONY. Correct. And you made a statement a while ago, government many times is criticized; but I think, in dealing with a very complicated issue, that Congress did show some very strong, forward-thinking, visionary interpretation of what could and possibly would be a devastating effect on the ratepayers throughout the United States.

I think not only is it critically important for the State of Arkansas, because we have a vested interest here, but it sets a precedent that I promise you can go through all of the industries; because we know that the nuclear power industry is literally on its knees, all the way from what happened to Washington Public Power System [WPPS], out in the Northwest to all of the others. There are massive cost overruns. There are no plants that are being on the drawing boards. If anything, we're going to export our nuclear utility industry overseas where there is still strong demand for it.

Senator BUMPERS. It's small solace to the ratepayers of this State that there are several sections of the country that are in the same predicament that we are right now, with this. I was in Montana about a month ago, and Montana Power & Light is just on the verge of bankruptcy. WPPS, of course, is hopelessly bankrupt. There is a case in Michigan almost precisely like this one; and, of course, you know of Southwestern Power in the southwestern part of our State, which faces similar arguments. So it's become a nationwide debacle.

Representative ANTHONY. Well, I'd like to make one additional comment, Mr. Chairman. The Governor made a very, very interesting point. I wrote a letter several months ago to the Nuclear Regulatory Commission because there had been a study done, and there had been something like 300 defects noted during the course of the construction. And each one of those defects had to be corrected. And therein lies the reason for the tremendous cost overruns. And I think the Governor really put his finger on a very interesting point. If the FERC Commission goes against us, are we going to have an opportunity to say, was this sound construction manage-

ment or not? And if it wasn't are we still going to have to pay for sloppy workmanship? And I think that's just an intolerable position to put any State through. I mean, you're literally impaled on the horns of a dilemma when you get caught in that type of a circumstance

Senator BUMPERS. Well, I must say this, and I'm not saying this to politicize the issue—after all, that's what politicians are for, they're supposed to be trying to take care of their people, and I'm not saying this to politicize this—but I still believe that somebody besides the ratepayers ought to have to absorb this cost based on my firm belief about how it all occurred. Having said that, I won't pursue that any further at this point. There will be plenty of others make that point often today, I'm sure.

Representative ANTHONY. Well, I was a practicing attorney before I went to Washington, DC and we know that any time you try to reach a compromise or a settlement you look for every single pocket that you can find to share in those costs.

Senator BUMPERS. Beryl, I didn't ask you about the settlement offer. Are you familiar with the proposal that—

Representative ANTHONY. I am familiar with it. The lawyers briefed us on it during the course of them talking about it, and I must admit that there was an awful lot of dissension, confusion as to whether or not it would be good or bad because they felt like that it may send the wrong signals if they presented it; yet, they knew that there was always that possibility that if you could do 17 percent versus 50 percent or 36 percent, that that's certainly better off. Yet they had also looked at the possibility of zero. We were advised—my office was advised about it—from our lawyers that represent us, and I can't say—

Senator BUMPERS. It would be comforting, would it not, to know that FERC was not going to be politically influenced by anybody from Arkansas, but that they were not going to be politically influenced by anybody from any other State either?

Representative ANTHONY. Well, when you add them up, there are more Members of the Senate and Members of the House from other States than there are from Arkansas, and therein lies the—

Senator BUMPERS. There happen to be more members of the staff from those States, too. [Laughter.]

Representative ANTHONY. Therein lies the problem that we have legislatively also, and I think that's one reason we've got to argue so strenuously before the FERC and rely upon their integrity and rely upon their intelligence and fairness; and again I think that is so critical, why you are holding this hearing—it allows me, as a politician, to say what I have been doing all along. It's going to allow these business people to really lay on the record what the disastrous effects are, and I think that record needs to be made public at some point outside the State of Arkansas.

Senator BUMPERS. Well, thank you very much. I appreciate your being with us this morning.

Mike Bemis from AP&L is our next witness.

Mike, thank you very much for being with us this morning. We look forward to hearing your testimony.

**STATEMENT OF MIKE BEMIS, SENIOR VICE PRESIDENT FOR
RATES AND REGULATIONS, ARKANSAS POWER & LIGHT CO.,
ACCOMPANIED BY JERRY JACKSON, ESQ.**

Mr. BEMIS. Thank you, Senator.

Senator BUMPERS. Incidentally, Mike, you can proceed either of two ways, if you want to. Your statement will be inserted in the record exactly as prepared. If you would like to summarize or if you want to go through the statement, it's OK.

Mr. BEMIS. I don't plan to read my full statement. I would appreciate it if those in attendance would give it careful consideration.

I just want to make a few brief comments. I would have to say that, in reading the comments of all the participants in this hearing last night, I was struck by the fact that there was very little that I disagreed with. I think we're all basically trying to get to the truth, get to the facts and to understand what the impact of these two cases—and notice I don't say "*Grand Gulf*"—there are two cases in Washington. Unfortunately, Grand Gulf has become sort of a shorthand for the two cases. They are separate and distinct issues, each with their own consequences. As I understand this hearing today, the intent is to determine what the impact of Grand Gulf would be.

As I stated in my prepared statement, I think the impact of Grand Gulf on AP&L, either under the 17 percent, or the settlement scenario, or the 36-percent allocation that has been ordered by an administrative law judge, has been grossly overstated. I think that overstatement and the rhetoric that has accompanied that overstatement has probably done more to hurt the economic development of the State of Arkansas than will the impact of the decision itself. We are losing industry and jobs today as a result of that cloud of uncertainty, Senator.

I am familiar with several—as a matter of fact, I have worked on several of those industries—who have gone to other States not because electric prices were lower, but because of the concern, the uncertainty of electric cost in the State of Arkansas in the future.

My purpose today is to try to put into perspective the impact of Grand Gulf as best I can. And I will have to say also that I do have a few points on some of the comments that were made earlier, and I'm going to ask Jerry to comment on some of them. I did not get a chance to read Dr. Johnston's statement until first thing this morning, about 8:30, and I haven't had a chance to study it in the detail that I would like to. I will be, in all probability, submitting additional comments in response to his statement. But I will touch on a few areas because they are particularly troublesome, and I think maybe indicative of the type of overdramatization of the impact of Grand Gulf that we're seeing today. I will try to be brief, also.

I would like to start with the level of rates in the State of Arkansas today. Arkansas Power & Light does its own studies, comparing our rates to those in other States. And we did that based on 1983 rates. I realize this is an Arkansas Power & Light study and has to be taken—I've heard it said that Arkansas Power & Light numbers have to be taken with a large grain of salt. But I think this, at

least in a range of reason, has been confirmed by other studies performed by the University of Arkansas at Little Rock, studies performed by other companies including Tennessee Valley Authority, and one that I will also share with you today.

But that study, based on 1983 rates, ranked Arkansas—this involves 113 companies across the United States, investor-owned utilities—Arkansas ranked 18th from the bottom overall. We only ranked 48th from the bottom in terms of residential, but our industrial rates ranked 10th from the bottom. There were only 9 utilities out of this 113 utilities that had better industrial rates than Arkansas Power & Light. This was for the year 1983.

Senator BUMPERS. Who did that study, Mike?

Mr. BEMIS. We did it internally.

We surveyed 100—I think we sent requests to about 130 or 128 investor-owned utilities, all of whom are members of VEI. We received 113 responses. It was prepared basically using the same methodology as studies that were performed by the University of Arkansas at Little Rock during the last several years.

Senator BUMPERS. I'm sorry to interrupt.

You said a moment ago—I'm sure I misunderstood you—I thought you said our residential rates were 48th from the bottom, which would make us second highest, the way I interpret that. What did you mean by that?

Mr. BEMIS. We were 48th out of 113, going from the bottom to the top.

Senator BUMPERS. Oh, 48th from the bottom out of 113?

Mr. BEMIS. That's correct, Senator.

Overall, we were 18th from the bottom of the 113—

Senator BUMPERS. Averaging industrial and residential and commercial?

Mr. BEMIS. That's correct.

Senator BUMPERS. Now, where did you say we were out of 113 industrially?

Mr. BEMIS. Tenth.

Senator BUMPERS. Has any independent study verified that, validated that study?

Mr. BEMIS. The University of Arkansas at Little Rock did a study that came to basically the same conclusion. It was released in March 1984.

Senator BUMPERS. Have you seen this—I don't know where that map is—

Mr. BEMIS. From Public Service of Oklahoma?

Senator BUMPERS. Yes, that was it. Have you seen that, which showed Arkansas the highest rates in about an 8- or 10-State area.

Mr. BEMIS. In residential in July, that report is grossly misleading. We also have the highest taxes in our electric rates, which they included in their comparison of any of the utilities that were surveyed. They used the month of July, which Arkansas rates have a 20-percent summer-winter differential during the month of July. We have done an analysis that has been shared with the media; as a matter of fact, I see Mr. Buell here—I understand that Mr. Steven Buell with the Democrat has looked at that and is preparing a story—I think that study is grossly misleading. It's the type of thing that causes us a great deal of problems, as you might

imagine. Our residential rates don't compare nationally as well as our industrial rates. But overall we compare favorably, and our industrial rates compare very favorably.

Those utilities that are ranked lower than us fall into two general categories. One, there are northwestern companies who have a higher amount of hydropower, and, two, they are companies that are primarily oil and gas who have yet to begin the fuel diversification program that Arkansas Power & Light is now completing.

I have with me—this is a study dated November 27, 1984—this is prepared by the College of Business Administration, University of Arkansas at Fayetteville. It is a study done with a grant from Arkansas Power & Light by the University of Arkansas in cooperation with Arkansas Industrial Development Commission, and it's just been released, and I do have extra copies.

This study also concludes that AP&L's rates are at or below national average. It goes on—I'm paraphrasing, but it says basically, the uncertainty over the issues, the FERC cases, are more of a concern than the level of rates. This study was trying to determine what the impact on industry would be as a result of an adverse decision in *Grand Gulf* or the *System Agreement* case.

It goes on to say that electric energy accounted for an average of 4.58 percent of the total operating costs of manufacturing firms in Arkansas. That ranges from a low 1.2 percent to a high of 6.7 percent. Now, it did exclude Reynolds—I know John Amos is here today—and other aluminum companies because their percentages would be higher than this. They are very electric intensive.

It talked about the factors that encourage industry to come into Arkansas, and basically concluded—and I will try to read it.

The data does not suggest a catastrophic impact on industry in the State as the results of these issues, primarily because our rates are competitive today and because electric costs do not make up a large portion of the operating costs of the manufacturers in the State of Arkansas.

It talked about the positives, such as the labor force, the quantity, and the work ethic of the labor force of Arkansas. The State's central location and the availability of raw materials. It listed energy positives being availability and cost.

On the negative side, it listed inadequate timber and oil resources, increasing labor and production costs, level of skills of potential employees, and high and uncertain energy costs, and I do have copies of this rather detailed study.

Our electric rates have increased in the State of Arkansas; there is no doubt about it. When we filed this latest case, we went back to 1967, which is the first year that the Consumer Price Index was calculated, and calculate what the electric cost in the State of Arkansas has done. It has risen 205 percent from 1967 to 1984.

To put that into some type of comparison, housing cost nationally has increased 240 percent. Gasoline has increased 266 percent. The cost of living, Consumer Price Index, has increased 213 percent, which tells you that electric prices have increased at a lower rate than the rate of inflation. Social Security benefits have increased 420 percent, and wages in the State of Arkansas have increased 266 percent. So, yes, electric prices have increased, and they have caused a burden on Arkansas citizens, but no more than other increases.

If I can stop there by saying that that is the base that we're starting from. If we're going to try to evaluate the impact of Grand Gulf, we have to have a base to start from, and I would submit to you, Senator, that our rates today—particularly our industrial rates—in the State of Arkansas are, in fact, competitive.

I'll now try to talk about the 36-percent impact of Grand Gulf. We've done some analysis of what the 36 percent impact of Grand Gulf would be. The 36 percent is the impact that—or the level that has been mandated by the administrative law judge. I've tried to prepare some graphs and they are attached to the testimony that I submitted. We tried to prepare them in two ways; one on the basis of a phase-in, and another without a phase-in where there would be an immediate impact. A nuclear unit has very, very high capital costs, very high front-end costs. Ratepayers pay for net plant, net investment in plant; so as a plant is depreciated, the revenue requirement for that plant declines. In addition, nuclear fuel cost is the lowest of any source of power other than hydro; and therefore, the fuel savings from all allocation of any nuclear plant compared to alternative fuel sources increases over time. So what you see is downward curve.

On this graph you will see that consistent with the information and the documentation, testimony that we have recently filed with the APSC, the impact of a 36-percent allocation of Grand Gulf in the first year is approximately 27 percent. On a phased-in basis, that first-year impact is approximately 5 percent. Rates would increase an additional 6 percent in the second year, 4 percent in the third year, 3 percent in the fourth year, and would decline thereafter.

Over the 10-year period—you see the line come down to the bottom—over the 10-year period, or after the 10-year period, I should say, that allocation of power would actually save Arkansas consumers money. I don't say that to try to justify an allocation of Grand Gulf in any way; our position has been, and continues to be, that we should have zero allocation of Grand Gulf. We haven't changed from that. But I did think it's important to put the impacts into some type of perspective. I'm not trying to make a silk purse out of a sow's ear. But the fact that the impact of Grand Gulf has been distorted, I do feel is hurting the State today.

I'd like to also talk about the settlement and the impact of that settlement. There has been, I guess, some ongoing debate in the media and the public about whether or not AP&L's figures are accurate in terms of the impact of this settlement. We have tried to the best of our ability to communicate what the impact would be, to explain that we felt that we were using the best assumptions possible, and that our calculations were as accurate as possible.

You will see, under the settlement, the impact on the first year on a phased-in basis is practically nil. That's because the settlement involves two factors: one, of 17.1 percent allocation of Grand Gulf, and, two, a sale of Independence or our portion of the second unit of Independence to Mississippi Power & Light. We have consummated that sale for 5 years—

Senator BUMPERS. What part of Independence does AP&L own?

Mr. BEMIS. We own 31.5 percent of both—

Senator BUMPERS. So you're selling your total interest in Independence to Mississippi?

Mr. BEMIS. Only our interest in the second unit, about 257 megawatts.

Senator BUMPERS. Is that the one that's just coming on stream right now?

Mr. BEMIS. Came on this week, yes, sir.

We have consummated that sale for 5 years, and the benefits of that sale, I think, over a 5-year period is about \$26 million, which is going to reduce our rates in Arkansas today.

You can see—that's on a phased-in basis. I've also tried to demonstrate graphically what the impact of the settlement would be on a nonphased-in basis. Because of the concern, again, that AP&L's numbers might be in some way misleading, we retained the firm of Frost & Co. Frost & Co. is a company of independent certified public accountants. To the best of my knowledge, they have never in the past done any work for Arkansas Power & Light. They are one of the largest, if not the largest, Arkansas-based accounting firms. That means that they are located here in Arkansas and probably have a greater vested interest in the economy of Arkansas than most other firms. We've asked them to review the settlement, to take all the calculations, to take all the assumptions, to test them independently, and to report on that. Frost & Co., in their report—and we do have copies of this also; their report is dated November 15—has concluded that our calculations and assumptions are accurate and reasonable in this report, and that the 6.8 is a reasonable calculation of the impact of this settlement over the 10-year period.

Additionally, we asked them to look at the sensitivity of that, what it would take to change that percentage by any significant degree, to a significant degree, and also asked them to focus on price elasticity, which I want to comment in just a moment on some of the numbers that Dr. Johnston has used.

We employed Data Resources, Inc. for Arkansas Power & Light. Again, they are one of the largest, if not the largest, firms of economists in the United States, known for their econometric models. So we have some experience with price elasticity ourselves. We asked Frost & Co. to review those calculations and to do whatever work was necessary to satisfy themselves as to what the price elasticity factor of this settlement would be over the 10-year period. They have concluded that the 6.82 percent, adjusted for price elasticity, would become 8.01 percent, so it would move from roughly 6 to roughly 8 percent—roughly 7 to 8 percent.

We also asked them, again, to evaluate the sensitivity of that percentage. They have calculated that if we assume a 10-percent increase in the revenue requirement for Grand Gulf, that would equate to approximately a 1-year delay in that plant which is presently expected to be online in the first quarter of 1985. If there was a 1-year delay in that plant, that the percentage would go from 6.82 to 7.27 percent.

What we're saying is, those percentages just can't be moved that much.

I won't go into any more detail. I do have copies of this report.

Dr. Johnston's statements—and as I say, I've only scanned through it—but it attempts to take—well, let me start at the beginning.

Early on, he makes a statement that these nuclear plants are going to cost \$4 billion each. Grand Gulf 1, our portion of Grand Gulf 1, is estimated to cost \$3.065 billion; Waterford is going to be less than that. Both of those plants are close enough to completion that we're fairly comfortable with those estimates. We don't believe either one of them will reach \$4 billion.

There has been some talk here about imprudence in the cost of nuclear plants. On October 11, 1984, there was an article published in *Public Utilities Fortnightly* which compared the cost of nuclear plants coming online in 1982 forward—any plants that come on in 1982 and afterward—and obviously Grand Gulf and Waterford were included in those studies. The cost of those plants on a kilowatt basis ranged from approximately \$1,000 per kilowatt up to \$5,000 per kilowatt, which is Shoreham, up at the Northeast. The average for those 32 plants is \$2,700 per kilowatt, which is the approximate cost of both Waterford and Grand Gulf. So yes, these two plants—

Senator BUMPERS. How does that compare with the plant at White Bluff, for example?

Mr. BEMIS. White Bluff today—the cost of one unit is \$398 per kilowatt, and the second unit is \$325 per kilowatt. Independence 1 is \$600 per kilowatt; Independence 2 is approximately \$525 per kilowatt.

Senator BUMPERS. That's still a tremendous disparity between coal-fired plants and nuclear, isn't it, Mike?

Mr. BEMIS. There's no doubt about it, Senator. We could spend hours and days talking about what has caused the cost of nuclear plants to escalate as rapidly as they have. We could also talk about the fuel differential—

Senator BUMPERS. You need to talk about that on my other committee assignment, which is Energy, not Small Business.

Mr. BEMIS. Yes, sir. I point that out only to indicate that the cost of these two plants, in comparison to the world, is not unreasonable.

Dr. Johnston goes on to report AP&L's annual profits at \$200 million. I wish that they were. Our present estimate is \$138 million for 1984—

Senator BUMPERS. For AP&L?

Mr. BEMIS. For AP&L. He reports Middle South Utilities at \$600 million; again, I wish they were. I don't know what the figure for 1984 would be; it was \$378 million for 1983. They're going to have to increase quickly.

Senator BUMPERS. You mean for 1984?

Mr. BEMIS. Yes, sir.

He refers to an Alexander Grant study and compares energy costs, and he says that AP&L is higher than Louisiana and some of the other States in this area. I would certainly agree with that. We don't have the gas prices that Louisiana or Texas has. What he failed to say is that energy prices in that same study for Arkansas was 14th lowest in the United States. So, if you're talking about attracting industry, and if you say that energy cost is a primary—

I'm not sure it's the No. 1 determinant, but it is a primary determinant—ranking 14th nationally is not bad.

Senator BUMPERS. Mike, right now, or just an average for the past 6 months what percent of your generating capacity is generated with natural gas, and what is your average cost? I don't want to get into a full-scale PSC hearing here; that's really one of Dr. Johnston's problems, but I am curious about it. That does sort of go to my other committee assignment, which is Energy, and Mike, we may have you up to testify before the Energy Committee this next year.

Mr. BEMIS. I hope not, Senator. [Laughter.]

Senator BUMPERS. Are you telling me you don't enjoy this?

Mr. BEMIS. I do not enjoy this. I don't know how I got involved in this, to tell you the truth. [Laughter.]

For the year to date, 1984, October 1984, virtually no oil; 9 percent was gas; 26 percent was coal; 43 percent was nuclear, and 1 percent was hydro. The relative cost, 41 mills, 4.1 cents, for gas; 22 mills or 2.2 cents for coal, and eight-tenths of 1 percent for nuclear. That's the cost per kilowatt.

Senator BUMPER. Fuel cost?

Mr. BEMISE. Yes, sir.

The part of Dr. Johnston's testimony or his comments that I would really—well, I forgot to say anything—but I really felt compelled to say something about is his analysis about the impact of future electric prices, because I think these are indicative of the type of comments that are causing us a great deal of problems today.

He quotes some rates now which, with all due respect, Dr. Johnston, are slightly high. And then he lists percentages for the full increase of Grand Gulf and for the phased-in impact of Grand Gulf, and those percent range in the 57- to 33-percent range. And he unfortunately goes on to talk about price elasticity, and he's got the impact of Grand Gulf in our presently filed case up to a 90-percent increase in rates. And I can't get from here to there. We have filed a rate increase in October that would increase rates overall about 15.3 percent. It's \$139 million. Dr. Johnston says that the increase is approximately \$200 million. A big part of that difference is an impact of the termination of a short-term sale, it's about a 6-percent impact, that was approved by this Commission in our last case back in 1983. My point is, that impact's going to be there anyway. I hope that—because I certainly believe we deserve the entire 15-percent increase that we filed for—but Dr. Johnston takes the 15 percent, and then the 6 percent, and then somehow adds an impact of Grand Gulf and gets to a 90-percent impact. What I'm saying is that the impact of Grand Gulf is not 33 percent, it's not 57 percent. On a phased-in basis it's approximately 5 percent, and it will escalate over time, up to a range of about 17 or 18 percent, and there will be a price elasticity factor. As rates go up, there is a conservation effort, so usage goes down. But I would submit that very few industries in the State of Arkansas can curtail their electric usage by 90 percent. I don't think that's a realistic estimate of any type of price elasticity—

Senator BUMPERS. Mike, in today's market is it true that the ratepayers get it either way? If they use it, they have to pay for it, and if they don't use it, they have to pay for it?

Mr. BEMIS. To some degree, Senator, that is exactly right. Because what happens is that if the demand for electric cost goes down, then the fixed costs that have been put in place to serve those customers will spread over the remaining customers. I would certainly agree with that.

Senator BUMPERS. You know how strongly I feel about conservation. I've been on the cutting edge of that ever since I've been in the Congress. But it's very difficult for me to continue championing conservation of electricity when I know that people are going to have to pay just about the same rates whether they use it or whether they don't. I mean, we've gotten ourselves into this pickle; and I'm not suggesting what the solution to that is, but—

Mr. BEMIS. Senator, what we need to do is devise electric rates not only to attract but to retain industry. We need industrial incentive rates in the worst possible way. We need jobs in Arkansas. A utility has a commitment to serve. We have to put in place generating facilities sufficient to make that last kilowatt-hour of demand, not the first. The first one's easy to meet; it's that last kilowatt hour of demand, when everybody flocks on the switch. But that only occurs once a year. What we need to do is to fill in our valleys. We need to be innovative in the design of industrial rates. We need to work with our industry, which we're trying to do—

Senator BUMPERS. Do you have time-of-day pricing at AP&L?

Mr. BEMIS. Yes, sir, we do.

Senator BUMPERS. How extensive is it?

Mr. BEMIS. It's been a big controversy with industrial customers. It's rather extensive there; it is not popular at all with residential customers.

Senator BUMPERS. How do you account for that? Why is it not?

Mr. BEMIS. Skepticism about the savings; people not wanting to change their lifestyle to conform to electric usage.

Senator BUMPERS. They don't want to do their laundry at 11 o'clock at night instead of 9 o'clock in the morning, is that what you're saying? [Laughter.]

Mr. BEMIS. I don't want to do my laundry anytime. [Laughter.]

My wife has other ideas occasionally.

Senator BUMPERS. That was one of the tough things about going from the Governor's office to a Senate office—I had to start doing my own laundry. [Laughter.]

Mr. BEMIS. Senator, I think I've taken up more time.

I would like for Jerry Jackson—if I could just have another minute—the presentation that I hope that I've made, along with the testimony, is to support that, yes, we are opposed to any allocation of Grand Gulf. It would be bad. It would increase our electric rates, there's no doubt about it. But it will not have the dramatic impact that you may be hearing or may have already heard.

With that I'll close. But a couple of things have been said this morning that were not in the testimony, some by yourself and some by the Governor, that I would like for Jerry to take a moment and discuss.

Senator BUMPERS. For the record, this is Jerry Jackson, with AP&L.

Mr. JACKSON. I'm not with AP&L, I'm an outside attorney with Mitchell, Williams, Seeley, Jackson & Tucker law firm.

Senator BUMPERS. You do work for AP&L?

Mr. BEMIS. We feel like he's with us.

Mr. JACKSON. Senator, I would like to take just a few minutes to address for the record certain statements that were made earlier in the proceeding this morning that I think some clarification might be helpful, for the record.

First of all, a statement was made that MSE was created by MSU to evade State regulation. And Arkansas Power & Light Co.—I know that we've addressed that question in a number of forums previously; but I think again, for the record, we must readress the factors that were considered back in the early 1970's that led to the creation of MSE and why MSC was created.

I think the statements have been made earlier——

Senator BUMPERS. MSE, for the record—I don't think anybody has said that this morning; you may have—is Middle South Energy, Inc.

Mr. JACKSON. Right. Middle South Energy, Inc., is the correct corporate name.

In the early 1970's the four companies that make up the Middle South Utilities System—Arkansas Power & Light, Louisiana Power & Light Co., Mississippi Power & Light Co., and New Orleans Public Service—were involved in the construction of new baseload-generated facilities to serve the projected needs of the customers in the three-State area—four States, including Missouri. At that time Arkansas Power & Light Co. had under construction two nuclear plants, Arkansas Nuclear 1 and Arkansas Nuclear 2. Louisiana had under construction Waterford 3, a nuclear plant located in southern Louisiana. In addition, Mississippi Power & Light Co. had plans to construct a nuclear powerplant, as did New Orleans Public Service. Those units are now the two units that make up the Grand Gulf nuclear project.

What occurred is that, as those units were being planned in the early 1970's, it became quite obvious that companies the size of NP&L and NOPSI, which are very small in comparison to LP&L and AP&L, could not finance the construction of a nuclear power project. In looking at the various alternatives that were available, first of all, AP&L was already constructing two nuclear plants of its own and four coal units under planning. It couldn't finance an additional plant separately. LP&L, was constructing Waterford 3; it could not finance that nuclear unit. So a study was made to determine what was the most economic alternative available for the four companies that make up the Middle South Utilities System with respect to the financing of Grand Gulf.

Among the alternatives that were considered, and the one that finally was determined to provide the lowest cost power to the companies, was the creation of a generation subsidiary, Middle South Energy, Inc., and that's primarily due to the fact that the creation of a generation subsidiary can utilize a capital structure utilizing a greater percentage of debt to finance the powerplant than the traditional capital structures that would be used by the operating

companies. Therefore, a decision made solely on economic grounds due to the comparisons of the costs to finance the powerplant let to the decision to use a generating subsidiary.

Senator, a statement was made that the creation of MSE, a generating subsidiary by Middle South Utilities, would somehow violate the Public Utility Holding Company Act. I would merely point out for the record that the Public Utility Holding Company Act is administered by the Securities and Exchange Commission, which is given the authority by Congress to administer the provisions of the Public Utility Holding Company Act; and the creation of MSE was done in compliance with the Public Utility Company Act and SEC approval was obtained and received that did authorize the creation of Middle South Energy.

The point I'm making is that the SEC is empowered to administer and enforce the provisions of the Public Utility Holding Act, and MSE was created pursuant to approval of the SEC, which would not have been granted if the SEC was of the opinion that a generation subsidiary has been used for the purpose of financing powerplants on a holding company system. In fact, it was modeled after other generation subsidiaries that had been previously approved by the SEC for other holding company systems, and so I wouldn't say it's widespread practice, but certainly was in common use throughout the country.

Senator BUMPERS. Jerry, the fact still remains, does it not, that Middle South Utilities could not have done this on its own, under the law?

Mr. JACKSON. Middle South Utilities could not. But again, the law does permit, as evidenced by the fact that the SEC did approve the creation of MSE, a generation subsidiary, to construct powerplants, to provide power to operating subsidiaries of a holding company system.

Senator BUMPERS. SEC did approve Middle South Energy, Inc., doing this, but I assume that that was also because nobody challenged it at that time.

Mr. JACKSON. Well, Senator, that—

Senator BUMPERS. It was not challenged before the SEC, was it?

Mr. JACKSON. Senator, there was not challenge made; but I will point out that when the filing was made, it was certainly noticed in public notices. It was not something that was done in secret; it was done as a filing before a Federal agency with public notices that are required under the law to be given to all parties so that if anybody wanted to challenge the proceeding, it certainly was a vehicle there. And I want to also point out that the mechanism utilized to finance Grand Gulf through the creation of MSE was something that was known by the parties, the State commissions. Governor Clinton pointed out today that as early as 1977 he cross-examined Mr. Floyd Lewis, who is chairman of Middle South Utilities, concerning Middle South Energy and the reason for the creation of Middle South Energy.

And so, certainly the State was knowledgeable that Middle South Energy has been created to finance Grand Gulf; and as he pointed out, Mr. Lewis indicated that Arkansas Power & Light Co. would purchase some 38 percent of the power from Grand Gulf.

Senator BUMPERS. I thought the Governor testified that he said we would not be recognized to take any power we didn't need.

Mr. JACKSON. Senator, the question was asked: Under the terms of the systems agreement, will Arkansas Power & Light Co. be required to purchase any power if we are not short on the terms of this systems agreement? And the answer was obviously, then, under the terms of the Agreement if you're not short you would not purchase any power under the agreement. And that is correct, and that was a true statement by Mr. Lewis at that time, and factually correct. And I just want to point out that we've not changed the rules; what we filed with the FERC would not have provided for any share of Grand Gulf power for Arkansas Power & Light Co. The officials of Middle South Utilities and the officials at AP&L have not changed the rules; it's the FERC that's changing the rules of the game.

Senator BUMPERS. In defense of the Governor, there was no reason for him to get excited at that point when the president of Middle South was saying to us, yes; we have done this; we have formed the subsidiary; we are going to build Grand Gulf and are building Grand Gulf with a subsidiary; but don't worry about it, even though we have formed a subsidiary to do it, because you're not going to be required to take any of it anyway if you don't need it or don't want it. I mean, that certainly wasn't calculated to raise a red flag to anybody, was it?

Mr. JACKSON. Senator, I would only point out again that the concern now is addressed to the possibility of AP&L being required to take 36 percent of the power of Grand Gulf. Again, the record in January 1977, the cross-examination of Mr. Floyd Lewis by the Governor—then Attorney General—Bill Clinton, was that AP&L under those forecasts would be taking 38 percent of the power of Grand Gulf. And the question did arise, what if you don't need it? And Mr. Lewis responded that under the terms of the agreements, that if AP&L was not short under the terms of the agreements, then it would not take it. And again, that has been the provisions of the agreements. But what I think ought to be made clear is that—

Senator BUMPERS. All I'm saying is that in light of that answer, though, there was no reason for us to challenge—then-Attorney General Clinton or anybody else—to challenge the right of Middle South to form a subsidiary and go to the SEC and get permission to use that subsidiary for financing Grand Gulf.

Mr. JACKSON. Senator, the point is that if there is a concern that has been stated that somehow MSE was being used to bypass State regulation, and that we have not complied with State regulatory requirements—the point is that at that time the testimony was such, and the load forecasts were such, that AP&L would be purchasing 38 percent of the power from Grand Gulf. So I would say if there was a concern at that time, that AP&L should not be purchasing any power from Grand Gulf, that was what was being advised—the State was being advised—that we were going to be purchasing 38 percent of the power from Grand Gulf.

Senator BUMPERS. We're going to be here at this time tomorrow night, at the rate we're going. These farmers and businessmen have come to testify and I wanted to lay the groundwork for the

hearing for you and Dr. Johnson so everybody would know pretty much what we're talking about—

Mr. JACKSON. Senator, if I could, I do feel as an attorney for one of the parties in the FERC cases, there is a point I believe I must clarify again for the record.

There have been allegations made by the Louisiana parties in support of their position before the FERC that AP&L should be allocated a share of Grand Gulf, that AP&L was not allocated any share of Grand Gulf capacity in the agreements because of political pressure in Arkansas. And I want to state for the record that that is totally not correct, that the agreement between the companies that led to AP&L receiving an allocation of zero share of the power from Grand Gulf was negotiated by the companies in the fall of 1979 as agreed to in January 1980, and then signed officially in the summer of 1980. The meeting between AP&L officials and Governor Clinton occurred in the early summer of 1980, after the agreement had already been reached among the companies that led to the zero allocation of Grand Gulf. And I think I just must make it clear for the record that the zero allocation of Grand Gulf to Arkansas Power & Light Co. was due to negotiations and agreements between the companies based on—

Senator BUMPERS. Voluntarily entered into, without any coercion from Middle South?

Mr. JACKSON. Voluntarily entered into, that is correct. And it was not the result of any—

Senator BUMPERS. Politicians, as you say?

Mr. JACKSON. That's correct. And I think that's important to make clear for the record.

I also want to say that Arkansas Power & Light Co. and Middle South Utilities have complied with all State and local and Federal statutory and regulatory requirements.

Senator BUMPERS. Jerry, let me ask you one other question along that line. Was it not correct that the Arkansas Public Service Commission said that they were not going to give a permit to build Independence as long as we were on the hook for any part of Grand Gulf, and that that's the reason that agreement was entered into?

Mr. JACKSON. Senator, that's really not correct, and—

Senator BUMPERS. Let's clarify that, because I don't want to mis-speak myself and I want a good record here.

Mr. JACKSON. All right. I'll tell you what I believe leads to that conclusion. I was the attorney for Arkansas Power & Light Co. in that certification process whereby we secured our certificate, so I can state with some familiarity the record in that case.

Arkansas Power & Light Co. did file for a certificate to build Independence and, based on our projections at that time—if we constructed Independence, we would more or less then not be short under the systems agreement; we would have constructed our share of the capacity on the Middle South Utilities System.

A question was raised during the hearings by the Commission at that time, if you did not build Independence then you would be short and you would be getting Grand Gulf power, would you not? Which would have been what would have occurred under the systems agreement at that time. The question was raised, which would be the preferable course to follow? We did provide testimony

that compared the economics of Grand Gulf and Independence, and it was our testimony that we would prefer to build Independence rather than be short under the systems agreement. But again, the question was asked from the viewpoint of, let's evaluate your alternatives. There was never any statement that "we will not give you a certificate unless you assure us that you will not receive Grand Gulf power." In fact, if they had not given us the certificate we would have been short, and that would have been the result. So that certainly was not any understanding or any requirement, again, the legal effect of no certificate would have been to assure Grand Gulf capacity.

Senator BUMPERS. Let me ask you, Mike, just a couple very quick questions.

If the settlement offer were to be accepted by FERC—you have a settlement agreement which I have seen here, I mean, I have seen the figures on how it would work. You have your charts up there. Would the FERC accept the settlement offer and also accept those rates, or would that be kicked back to the Arkansas Public Service Commission to approve?

Mr. BEMIS. FERC, as I understand it, would approve an allocation of Grand Gulf. The way that the rates are determined are by the Arkansas Public Service Commission, what we have proposed in this settlement is a phasein based upon the maximum prudent financing capability of Arkansas Power & Light. We are trying to move some of the front-end, high cost to the back, where the cost of Grand Gulf is significantly less. That type of procedure, those types of rates would have to be approved by the Arkansas Public Service Commission, not the FERC.

Senator BUMPERS. Are you prepared to say for the record today that Arkansas Power & Light Co., if that settlement offer were approved, would be willing to lock in these rates right now, with no questions asked and no deviations in the future?

Mr. BEMIS. That question was asked to me by Dr. Johnston in a recent hearing, and my response then was that that would have to go before the Arkansas Power & Light board of directors. That's who would have to approve it. But within a range of—

Senator BUMPERS. Mike, listen, this is really important. You're not telling me now that the Arkansas Power & Light Co. board has not approved this phasein, are you, if the settlement offer is accepted?

Mr. BEMIS. The Arkansas Power & Light board approved the filing of the settlement with Mississippi Power & Light. You're asking me whether Arkansas Power & Light will agree to the establishment of these rates over a 10-year period. First, that would take an agreement with Arkansas Public Service Commission. It would probably—it would have to go before the Arkansas Power & Light board of directors. Speaking for Mike Bemis, senior vice president of Arkansas Power & Light, my recommendation to that board would be yes, within a range—a 2-percent, 3-percent band—on either side of that 7 percent—yes, sir, I would—

Senator BUMPERS. Well, you're certainly making that settlement offer a lot less attractive to me now than you were originally. I thought we were talking about something here that AP&L was of-

fering in concrete for the Public Service Commission and all the rest of us to consider, either being for or against.

Mr. BEMIS. We have also—

Senator BUMPERS. You're telling me now that could vary as much as 3 percent?

Mr. BEMIS. I've shared with you the estimates of what Frost & Co. has calculated a 10-percent change in the revenue requirement of Grand Gulf would be, and on that basis it's less than half of 1 percent. It could vary the other way, Senator. If we were to increase sales during this 10-year period, if we were able—these projections include a 2- to 3-percent growth rate for the State of Arkansas. If we were able to increase industrial and residential sales during this 10-year period, the impact on our customers might be substantially less than this. So—

Senator BUMPERS. There, again, we get into the inverse thing because if the economy turns downward, rates are going to go up because of the lack of consumption; is that not correct?

Mr. BEMIS. No, sir, I said increased sales.

Senator BUMPERS. Well, you sell based on economic activity, don't you? AP&L's sales are directly related to economic activity in the State?

Mr. BEMIS. Yes, sir.

Senator BUMPERS. So I'm saying that if economic activity turns downward, rates turn upward.

Mr. BEMIS. If our growth projections of 2 to 3 percent are overstated, then it is possible that the 7 percent that we calculated this settlement to be might, in fact, become 7½ percent. That's possible.

Senator BUMPERS. What is AP&L's present excess capacity, Mike?

Mr. BEMIS. We don't have any excess capacity, Senator.

Senator BUMPERS. We have none?

Mr. BEMIS. No, sir. We have a reserve margin now that is in excess of what is an industry norm, of 25 percent. But any excess capacity that we have, and I don't think we have any—

Senator BUMPERS. But you're not in a position to sell power to anybody else if they wanted it?

Mr. BEMIS. Yes, sir. And we are—we are selling power; today, we—

Senator BUMPERS. When I say excess capacity, I'm talking about do you have excess capacity to serve AP&L's customers?

Mr. BEMIS. How do you define excess capacity? Base load capacity? Oil and gas, or—

Senator BUMPERS. More than you anticipate the needs from all sources.

Mr. BEMIS. In my opinion, Senator, we do not have excess capacity, depending on how you define reserves. We probably have a—well, we do have a reserve margin today that is higher than the industry standard, higher than we actually need to serve our customers. As of today we are selling, on a short-term basis, 257 megawatts of coal capacity to MP&L, and 785 megawatts of coal capacity to LP&L and NOPSI; and our customers are getting benefits of those sales.

We are also selling gas capacity, and have several possible sales of additional gas capacity—there's a possibility of several addition-

al sales in the near future. We are trying to do everything that we can do to minimize the cost to our customers. I don't think that we have excess capacity. We have a sufficient baseload capacity to meet our customers' needs into the mid-1990's. Our present projection is that we will need additional capacity by the year 1995; that is presently anticipated to be the Alec Plant, a lignite plant down in Hampton. If we—

Senator BUMPERS. If you wind up with 36 percent of Grand Gulf, are you still going to need that?

Mr. BEMIS. No, sir. In all probability the need for that plant will still be there, but it will not be in the 1995 timeframe. It will be something later than that. I would point out, though, that an allocation of Grand Gulf—any allocation of Grand Gulf will be less costly in that timeframe than will Alec.

Senator BUMPERS. What you're saying is that in that timeframe, then, we'd be better off to take part of Grand Gulf than we would to build that plant?

Mr. BEMIS. There's not a doubt in my mind that that is true, Senator.

Senator BUMPERS. That's not going to be welcome news to the folks in south Arkansas.

Mr. BEMIS. We do not need Grand Gulf today; that is not to say that we will not need it over time. And to say that we are not going to use Grand Gulf is not true. If we are allocated a portion of Grand Gulf, we will in fact use it because electricity is dispatched on the lowest fuel cost available, and Grand Gulf would be the lowest cost generation from the fuel perspective in the system, other than ANO.

Senator BUMPERS. Just for the record, so that everybody will understand, on page 3 of the schedule of settlement agreement, you show in a column there, "fuel savings." That is the savings that you get by using Grand Gulf as opposed to other generating power, is that not correct?

Mr. BEMIS. That's correct, sir.

Senator BUMPERS. One final question, Mike, so that the record will be clear and hopefully everybody who is listening will be clear. When we are talking about these phase-in rates on the settlement proposal, we're talking about rates that are in excess of the amount rates would otherwise go up?

Mr. BEMIS. That is correct.

Senator BUMPERS. That's in addition to the 15 percent, for example, that you just asked for?

Mr. BEMIS. That is a very good point; yes, Senator. We are talking about solely the impact of an allocation from Grand Gulf.

Senator BUMPERS. Mike, thank you and Jerry both for being with us. Mike and Jerry, I may submit some additional questions to you for the record.

Mr. BEMIS. We'd be happy to answer them.

[The prepared statement and supplemental information of Mr. Bemis follow:]

COMMENTS OF

MICHAEL BEMIS

SENIOR VICE PRESIDENT

FINANCE, REGULATION & LEGAL SERVICES

ARKANSAS POWER & LIGHT COMPANY

DECEMBER 7, 1985

12/07/84

COMMENTS OF MICHAEL BEMIS

First, I would like to express my appreciation to Senator Dale Bumpers and his staff for this opportunity to speak on behalf of AP&L. It is our understanding that these hearings are directed at assessing the impact on present and future economic development by any adverse decision by the Federal Energy Regulatory Commission in the Grand Gulf proceedings.

I say, without fear of contradiction, that no Company in Arkansas can match our efforts in the field of economic development. Much of this state's efforts to attract industry and jobs to Arkansas can trace its beginning to the early work of Arkansas Power & Light Company. I make this point only to underscore how seriously we take our role as a leader in economic development. We are ever mindful of the price of our product and the possible impact that price might have on new and expanding industries in our service area.

In order to evaluate the impact of any price increase, you have to look at where you are at present. Lost in much of the present rhetoric is the fact that Arkansas' industrial rates are among the very lowest in the nation. A recent survey of 113 companies across the country showed that AP&L industrial rates were lower than 103 of the 113

companies surveyed, or tenth from the lowest. Our overall rates, including all classes of customers, compare very favorably with the rest of the nation.

The impact of an unfavorable decision by the FERC in the Grand Gulf case has been greatly overstated. In fact, I suspect that when we look back on this issue, we'll find that those overstated predictions did more harm to economic development than any allocation itself.

Let's look at the facts. Even a 36% allocation of Grand Gulf would not put Arkansas' electric rates out of line with the rest of the nation. In fact, we would still have some of the lowest rates in the nation to attract industry. If our "settlement proposal" were accepted by the FERC, the impact would be even less--increasing rates about 7 percent by 1994. An increase of this proportion would have very little impact on our present ranking vis-a-vis other states. It is also worth noting that at our present growth of about two or three percent, we will, by the mid-90's, need additional sources of electricity to meet the needs of this state. At that point, Grand Gulf becomes a "cost saver"...an asset that will benefit the state for the next 25-30 years.

Let me be perfectly clear, we have strongly opposed any forced allocation of Grand Gulf power upon AP&L in our case before the FERC, and we will continue to oppose the

administrative law judge's ruling allocating 36% of Grand Gulf power to AP&L. I would also point out that no one--including the PSC, the Attorney General or the Governor--has ever said AP&L did not put forth as strong a case before the FERC as was humanly possible to defend its position. We still believe we should receive a zero allocation of Grand Gulf. We believe the record fully supports that position.

Unfortunately, the term Grand Gulf has been used as a kind of "verbal shorthand" to refer to not only the Grand Gulf case, but also the other proceeding currently pending before the FERC--the System agreement case. In that proceeding, we could be forced to share the benefits of our low-cost nuclear and coal generation with customers in Mississippi and Louisiana through the adoption of the concept of System average costing as has been proposed by the Louisiana Public Service Commission and the FERC staff.

We have devoted our efforts to achieving a rational solution to both issues ON THE FEDERAL LEVEL. We have said from the beginning that the battle will be won or lost in Washington. Previous rulings and even a recent Federal Court decision in Arkansas should make it abundantly clear that whether we like it or not, the FERC has jurisdiction of these issues. It is folly to ignore the decision of the administrative law judge who heard testimony in the Grand

Gulf case and then ruled against us. And it is a terrible hoax to take a position that Arkansas can somehow reverse any decision made in Washington. For that reason, we have sought a unified Arkansas position.

It was a search for a rational solution that led us to propose what we felt was a settlement offer that protected the best interest of our customers. The alternative was to gamble on winning and running the risk of a much greater allocation of Grand Gulf--or even worse, the adoption of System average costing. To date, we have been unable to gain support for the settlement proposal from other Arkansas intervenors. Therefore, we are not very optimistic about its chances of being accepted. We have repeatedly said that if others feel they have a better alternative, we are open to discuss it. So far, no other alternative has been forthcoming.

At this point, I would like to take a few moments and provide a brief history of AP&L's position in regards to Grand Gulf.

When Grand Gulf was conceived in the early 1970's, no one could have foreseen how the energy picture in this country would change in the years ahead. Certainly, no one was predicting Arab Oil Embargos, double-digit inflation, Three Mile Island, and other events that have impacted power plant construction and electricity usage across the country.

The decision to build Grand Gulf was a prudent one when it was made, and, over the life of the plant, it will be a good investment. In fact, much of the criticism being heard now about Grand Gulf is similar to that we heard about our own construction program. A program that is now recognized by even its initial critics as a benefit to the state.

The impact on growth patterns by the events mentioned above resulted in our reassessment of our participation in Grand Gulf. We were nearing completion of our own fuel diversification program, and the other companies needed the energy from Grand Gulf more quickly than we did. So in 1979 and 1980, we negotiated an agreement with the other operating companies in the Middle South System whereby AP&L would not purchase any of the power available from Grand Gulf. Instead, all of the power from the unit would be purchased by Louisiana Power & Light Company, Mississippi Power & Light Company and New Orleans Public Service, which were at the time totally dependent on oil and natural gas, whereas we had shifted primarily to coal and nuclear energy.

That agreement held until last February when an administrative law judge for the Federal Energy Regulatory Commission in essence embraced a position proposed by the Louisiana Public Service Commission--allocating 36 percent of Grand Gulf to Arkansas. His position was that by doing this, he was in effect averaging the cost of constructing

nuclear power plants among all the operating companies of Middle South. It is worth noting that until this decision, the other Middle South companies and even the FERC staff supported a zero allocation of Grand Gulf to Arkansas. However, once the administrative law judge ruled, LP&L and NOPSI generally fell in line to positions taken by the Louisiana Commission. Also, at about this time, all of the other operating companies decided to support the adoption of System average costing.

As we began to assess our position in the months following the administrative law judge's decision, we began to fully comprehend the tremendous risk we were taking by gambling on an all-or-nothing outcome in the two FERC proceedings. Remember, a compromise is possible only if we act before the FERC rules in these cases. Although we believe that our arguments and the arguments that have been advanced by the other Arkansas parties are sound and equitable, we do face an uphill battle in our effort to overturn the administrative law judge's decision.

It was against this backdrop a 36% allocation of Grand Gulf and the possibility that the administrative law judge's decision might be affirmed, together with the risk of an adverse decision in the System agreement case, that we began a review and reassessment that looked at any and every alternative we could think of to protect our customers. Out

of this review came our settlement proposal to take not 36% of Grand Gulf, but 17%. FURTHER, SYSTEM AVERAGE COSTING WOULD BE REJECTED. We felt this settlement proposal offered the best alternative available. It was one that:

1. Minimized the cost exposure facing our customers.
2. Removed the cloud of uncertainty that hangs over the state and its ability to recruit new industry.
3. And demonstrated once and for all that the operating companies of the Middle South System do make independent decisions which benefit the customers of their individual service territories.

Let's just for a moment look at the financial impact the settlement would have on our customers. The attachments to my statement demonstrate graphically the impact of the settlement and further serve to show that the perceived impact of an allocation of Grand Gulf power has been terribly distorted. We have proposed a phase-in over a ten-year period (see attachments). The first year, the settlement would actually decrease existing rates, albeit slightly. The second year rates would increase three percent, the next year another one percent and so forth until after six years our rates would have increased about 11%. But then the revenue requirements for the unit would begin declining so that at the end of ten years, the net

impact of the settlement would be about 7%. After that, Grand Gulf actually starts to save money for our customers.

If the PSC should reject the phase-in approach and order the full increase for a 17% allocation of Grand Gulf the first year, rates would increase about 8.6% the first year, increase another one percent the second year and then start declining so that at the end of ten years the net effect is a 3.5% increase.

If, on the other hand, the FERC affirms the administrative law judge's 36% allocation as many seem to think it will, the impact, again without a phase-in, would be an increase of about 27% the first year with a gradual decrease in the impact in succeeding years. By about 1994, the savings from Grand Gulf offset the annual cost.

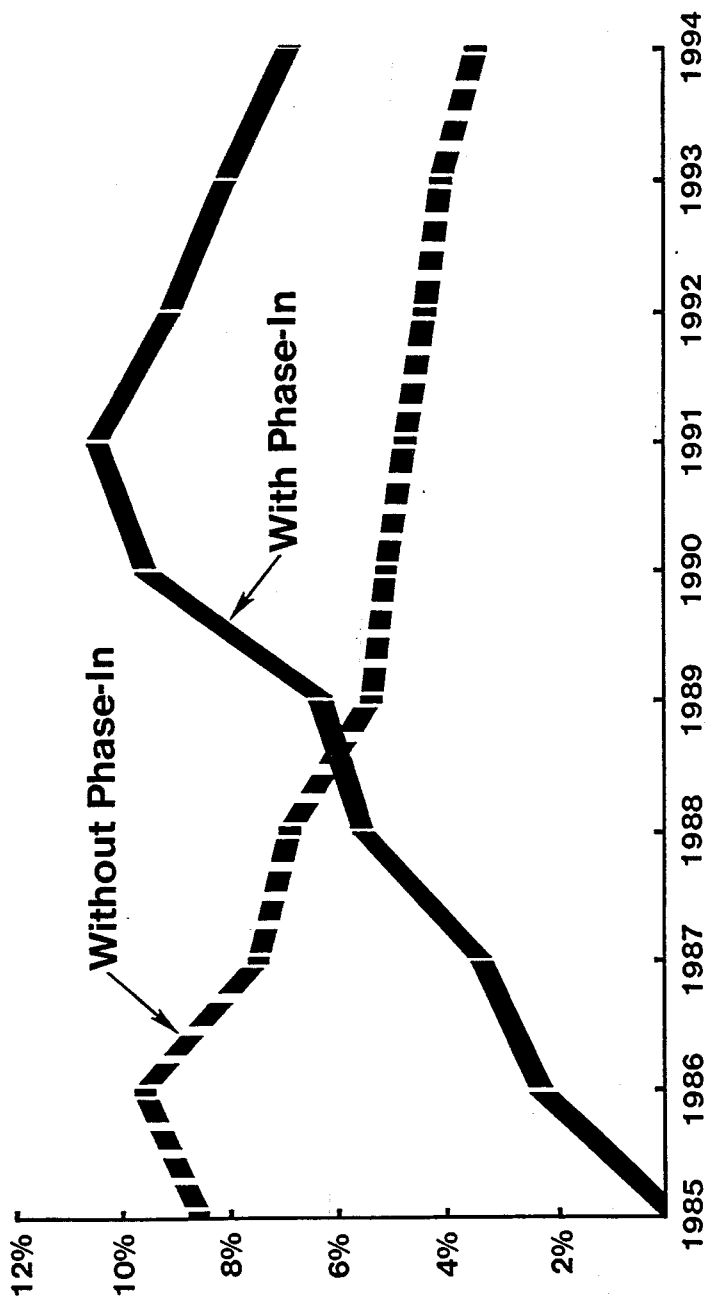
If we were to phase in the 36% allocation, the first year's impact is an increase of 5%, followed by an additional 6% the second year, 4% the third and 3% the fourth. After four years, the revenue requirement starts to come down so that in about ten years, the unit begins to save our customers money.

I think these numbers confirm that an allocation of Grand Gulf power would not have the devastating impact that some have alleged. Instead, if allowed to phase in the cost of any Grand Gulf allocation, we can avoid the kind of rate shock that would substantially effect economic development

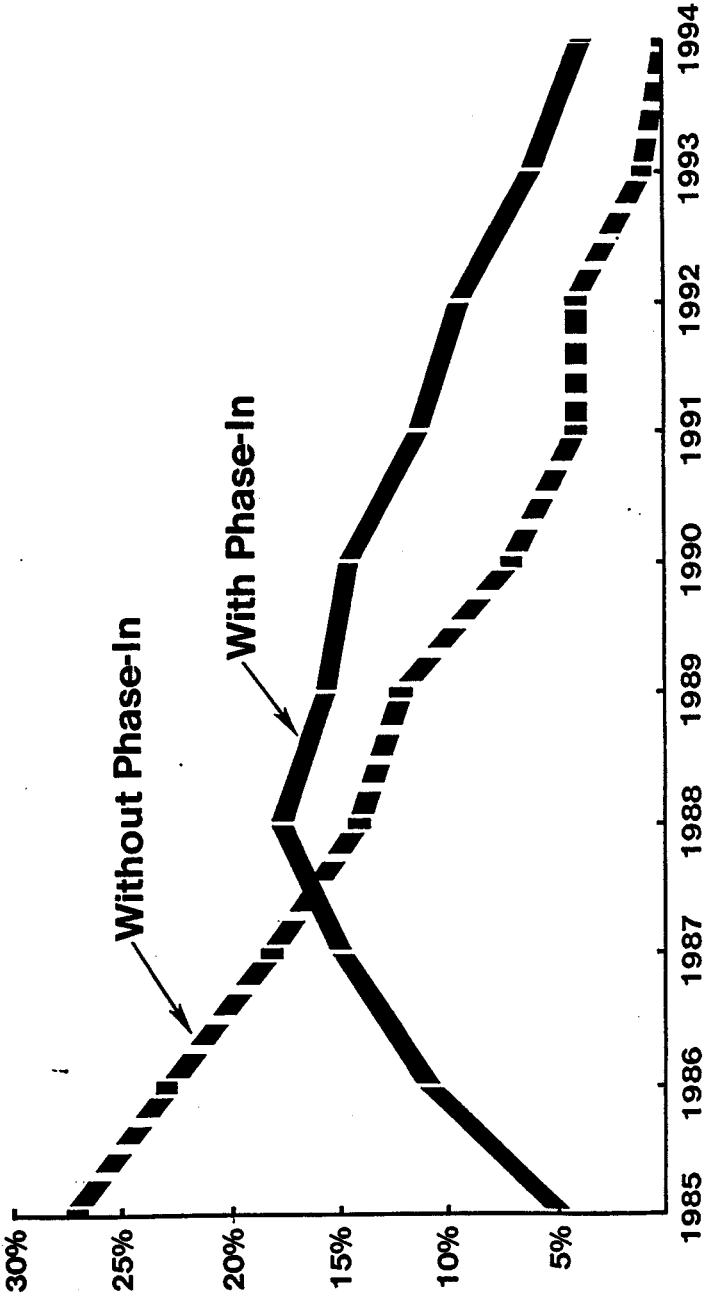
in Arkansas. Again, I would reiterate, I think some of the exaggerated statements about the impact of Grand Gulf may very well be causing a "mind-set" that does more damage to our economy and its future than any potential allocation of Grand Gulf.

This issue is vitally important to our state and deserves full and careful review. We thank the Senator and his staff for this opportunity and hope today's hearing will go a long way toward putting this issue in its proper perspective. Thank you.

SETTLEMENT PROPOSAL



36% OF GRAND GULF





ARKANSAS POWER & LIGHT COMPANY

FIRST NATIONAL BUILDING/P.O. BOX 551/LITTLE ROCK, ARKANSAS 72203/(501) 371-4274

MICHAEL B. BEMIS

Senior Vice President

Finance, Regulation & Legal Services

January 2, 1985

FEDERAL EXPRESS

The Honorable Dale Bumpers
United States Senator
Room 3229
Dirksen Senate Office Building
Washington, D.C. 20510

Re: Senate Small Business Committee Hearings
On the Grand Gulf Case

Dear Senator Bumpers:

We appreciate the opportunity extended to us to testify before the Senate Small Business Committee hearing in Little Rock on December 7 concerning the Grand Gulf proceeding.

In accordance with your invitation to submit additional comments for the record, we would like to supplement the points previously made in our testimony during the hearing as follows:

1. Governor Clinton testified that he had met and talked with representatives of International Paper Company several times over the last few months in an effort to help open their Camden plant. He quoted the representatives of International Paper as having said that:

the union has done everything it can do; the State has done everything it can do, and is doing everything it can do; but our electric bills are already higher in this State than any other state in which we operate, and if we have to sustain another major rate increase, I don't know how we can continue to keep that plant in operation. (Tr. 10)

The record should reflect that the electric rates for the International Paper Company plant at Camden, Arkansas are lower than most of the other areas of the United States where International Paper Company plants are located. We have attached a copy of an analysis recently completed which compares the electric rates for International Paper's Camden location with the eleven other pulp and paper mills operated by International Paper in the United States. The results of this comparison are reflected on Attachment "A". As reflected on Attachment A, AP&L's rates for International Paper's Camden plant are third from the lowest of their twelve locations in the United States when state taxes are omitted. With state taxes included, AP&L's rates are fourth from the lowest.

2. Dr. Johnston referred to a study of industrial attractiveness by Alexander Grant & Company, Certified Public Accountants. He states that the Alexander Grant study found Louisiana to be the most attractive state in the United States for manufacturers with respect to energy costs and that Arkansas is fourth out of four states (Texas, Arkansas, Oklahoma and Louisiana) in the South Central region.

We believe that the record in these proceedings should clearly reflect that the Alexander Grant studies did not consider electric rates alone. Instead, the relative rankings in the Alexander Grant study cited by Dr. Johnston referred to fuel and electric energy costs per million BTUs. Thus, the rankings looked at total energy costs per billion BTUs which would include natural gas, fuel oil, propane and electricity. It is not surprising that total energy costs, including natural gas, propane and fuel oil, for manufacturers in Arkansas would be higher when compared to the gas and oil producing states of Oklahoma, Texas and Louisiana.

Thus, the Alexander Grant study is not in conflict with the studies which demonstrate that AP&L's electric rates compare very favorably with other states. As I stated during my testimony, our studies reflect that, based upon 1983 electric rates, AP&L's overall rates were 18th lowest among 113 electric utilities in the United States. AP&L's industrial rates are even more favorable when compared to the rest of the country -- ranking 10th from the lowest of the 113 companies surveyed. Although this was a study performed by AP&L, the results were confirmed by an independent study by the University of Arkansas in March 1984. The results of the studies by AP&L and the University of Arkansas were further confirmed by a recent analysis published in the Arkansas Democrat on December 9, 1984 (Attachment "B"). The Arkansas Democrat survey found that AP&L's

rates were eighth lowest overall of the 27 utilities surveyed and third lowest for industrial customers.

The fact that AP&L's rates are very competitive was further confirmed by the testimony of Mr. Richard Bell, President and Chief Executive Officer of Riceland Foods, Inc., and other witnesses who testified that their electric rates in Arkansas compared favorably with other states. Mr. Bell testified

"We do feel at the present time, compared to other states which we do consider ourselves to be competitive with, that our electric costs are in line." (Tr. 114)

3. Although AP&L's rates would increase as a result of an unfavorable decision by the FERC in the Grand Gulf case, AP&L's rates would still compare very favorably with other utilities in the United States.

As we stated in our written statement, even a 36 percent allocation of Grand Gulf would not cause our electric rates to become non-competitive with the rest of the nation and our electric rates would still rank among the lowest in the nation. Furthermore, if the settlement of the FERC cases proposed by AP&L and Mississippi Power & Light Company were adopted by the FERC, AP&L's rates would only increase by approximately 7 percent over the next 10 years and, after 10 years, Grand Gulf would actually start to save money for our customers.

Dr. Johnston and Mr. Larry Jegley, an attorney for the Arkansas Public Service Commission, raised questions with respect to the accuracy of our projections of the impact of the proposed settlement with MP&L. Dr. Johnston alleges that the cost of Grand Gulf could be understated and that the projections do not consider the effects of price elasticity, i.e. reduced consumption in response to price increases. Mr. Jegley stated that the Commission Staff was reluctant to accept the Company's projections because they had not reviewed our workpapers.

First, AP&L met with the Commission and the Commission Staff on a number of occasions for the purpose of discussing the MP&L settlement and addressing any questions raised by the Commission or its Staff. Not only has the Company been willing to provide any workpapers desired by the Staff, we offered the opportunity to the Commission or the Staff to have our calculations reviewed by an independent accounting firm to verify their accuracy.

Subsequently, as I stated during the hearings on December 7, AP&L retained the firm of Frost & Company, Certified Public Accountants, to review the forecasted impact of the settlement proposal by AP&L and Mississippi Power & Light Company in the FERC cases (Attachment "C"). As reflected in their report, Frost & Co. concluded that AP&L's calculations and assumptions are accurate and reasonable and that 6.8 percent is a reasonable forecast of the impact of the settlement at the end of 10 years under our phase-in plan.

In response to Dr. Johnston's assertions that our projections did not include the effects of price elasticity, it should be noted that the Frost & Co. report did adjust the 6.8 percent forecast to reflect the effects of reduced consumption in response to an increase in price. Frost & Co. concluded that if the 6.8 percent increase which would result from the proposed settlement were adjusted to reflect the effects of price elasticity, the increase would be 8.01 percent rather than 6.8 percent. To further demonstrate that projected percentage increases are relatively insensitive to changes in assumptions, it should be also noted that Frost & Co. determined that a 10 percent increase in the revenue requirement for Grand Gulf -- which would be comparable to a one-year delay in the completion of the unit -- would only increase the impact of the settlement from 6.82 percent to 7.27 percent. This demonstrates the point I made during my oral presentation -- the forecasted percentage increase resulting from such a settlement simply cannot be moved that much by changes to the underlying assumptions.

We believe the Frost & Co. study confirms the point that we have attempted to emphasize in our written statement submitted in this proceeding -- the effects of an allocation of Grand Gulf have been seriously overstated. Furthermore, I would like to reiterate our sincere belief that such overstatements of the impact of Grand Gulf as a "crisis" which will have a "devastating impact" on the economy of Arkansas have done, and are doing, more harm to the ability of our state to attract and retain industry than the results of an allocation of Grand Gulf.

I have attached a copy of a 73-page study entitled "Analysis of the Significance of Electric Energy Costs to Industrial Establishments" prepared by the Bureau of Business and Economic Research of the College of Business Administration at the University of Arkansas at Fayetteville (Attachment "D"). This study concluded that electric energy costs for manufacturing establishments served by AP&L are at or below the national average and that uncertainty over the FERC cases is more of a concern than the actual level of rates.

4. A statement was made by Governor Bill Clinton that "permission to build the Grand Gulf power plant was never sought from nor given by the Arkansas Public Service Commission (APSC), which is statutorily authorized with the responsibility to make such determinations." Contrary to Governor Clinton's statements, there is no statutory provision which would require MSE (or AP&L) to secure approval from the Arkansas Commission to build the Grand Gulf facility. The Utility Facility Environmental and Economic Protection Act of 1973, which Governor Clinton cited, requires an environmental impact statement and APSC approval only when a power plant is constructed in the State of Arkansas and does not apply to a generating unit constructed outside the state.

As we stated during the hearings, MSE and AP&L have complied with all statutory and regulatory requirements with respect to the Grand Gulf facility.

5. It was also stated during the hearing that "MSE was created to evade state regulation." These allegations are totally untrue. Middle South Energy, Inc. was created in February 1974 to finance, construct and operate new base load generating facilities to provide electric power and energy to the operating subsidiaries of Middle South Utilities in Arkansas, Louisiana, Mississippi and Missouri. The first such project was the Grand Gulf Project.

Historically, each of the operating companies of the Middle South System has been responsible for constructing the generating facilities necessary to serve the requirements of their customers. Furthermore, each company has been responsible for financing the construction of its facilities, primarily through the sale of their first mortgage bonds and preferred stock to the public. Middle South has provided the common equity portion of the permanent capital needs of the System operating companies through the purchase of common stock of these companies.

At the time of the decision to construct the Grand Gulf Nuclear Station, system load forecasts indicated the need for significant amounts of generating capacity by each of the operating companies in addition to those facilities already under construction. Further, engineering and economic studies indicated that the construction of a two-unit nuclear generating plant at the Grand Gulf site was the most economic alternative available.

Although it was initially planned for MP&L to construct Grand Gulf, it became quickly apparent that MP&L alone could not finance a project of that size since the

cost would far exceed the total capitalization of the company. In fact, at that point in time, no single system operating company had the financing capability to undertake a project of this magnitude.

Accordingly, the Middle South system undertook various financial studies with respect to alternative methods to finance this project.

After extensive studies, we concluded that the most desirable alternative for our customers was for the project to be owned and financed by a new subsidiary of MSU. Accordingly, MSE was incorporated in 1974 and after receipt of appropriate approvals of the Securities and Exchange Commission and the Atomic Energy Commission, MSE undertook responsibility for the financing, construction and operation of the Grand Gulf project.

It should be recognized that separate generating companies had been created and were in use by many other utility systems long before MSE was created. Accordingly, it was not unusual to utilize a separate generating company to finance and construct a new power plant such as Grand Gulf. There was never any intent to avoid regulation through the creation of MSE. Furthermore, the creation of MSE has not, and could not, result in an avoidance of regulation.

All financial transactions involving MSE have required SEC approval pursuant to the Public Utility Holding Company Act of 1935. In addition, the FERC has jurisdiction over the rates to be charged for the power and energy produced by Grand Gulf. In fact, in our deliberations on this subject, we viewed the prospects of rate regulation by the FERC as less favorable to the stockholders of MSU than rate regulation by the states and, accordingly, consideration of this factor was a negative and not a positive consideration from the stockholders' viewpoint.

In fact, if one were to go back to the time that MSE was created and compare the rate decisions that were being issued by the FERC at that time with those made by state regulators, from the viewpoint of both the adequacy and timeliness of rate increases allowed, it would be apparent that utility companies could expect more responsive rate relief from state regulators than from the FERC. As a result, there was simply no incentive to substitute FERC regulation for regulation by the state commissions. Accordingly, the decision to create MSE was not based upon regulatory considerations, but was motivated by the prospects of achieving significant savings in the cost to finance the facilities through the use of the generating subsidiary approach.

It should be noted during the discovery phase of the two FERC proceedings that thousands of pages of studies, memoranda and other documents have been produced by MSE and the MSU companies, many of which related to the creation and history of MSE. These documents demonstrate that MSE was created for the reasons I have discussed above, and I believe it is significant that no party to either of the proceedings has contended, or even intimated, otherwise.

6. During the hearing, certain witnesses contended that AP&L has excess capacity. In fact, Mr. Larry Jegley, an attorney for the Arkansas Public Service Commission, contended that AP&L has enough capacity to "make it into the year 2000." (Tr. 99)

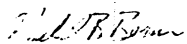
It is true that AP&L currently has more capacity than necessary to satisfy the 25 percent minimum reserve margin criteria which has been adopted by the Middle South Utilities System for planning purposes. It should be noted, however, that AP&L is selling, on a temporary basis, 1042 MW of coal capacity to other operating companies, and our customers are receiving the benefits of these sales.

Further, in response to Mr. Jegley's statements, we project that without the installation of additional capacity or an allocation of Grand Gulf, we will be short of the minimum 25 percent reserve margin by the year 1989. This projection is based upon a very conservative forecast of load growth of only 2 to 3 percent per year.

Accordingly, we do not now have, or are we forecasted to have, excess generating capacity on the AP&L system.

In conclusion, I would like to express again our appreciation for the opportunity to submit testimony to the Senate Small Business Committee with respect to this very important issue. If we can provide you or the committee with any additional information, please don't hesitate to call upon me.

Very truly yours,


Michael B. Bemis

MBB:nc
Attachments

ATTACHMENT "A"

RATE COMPARISON
INTERNATIONAL PAPER COMPANY
PULP AND PAPER MILLS*

(Domestic Locations Only)

Current Rate For Load Comparable To Camden, Arkansas Mill

<u>Power Company</u>	<u>¢ PER KWH</u>		<u>State Tax</u>
	<u>Before State Tax</u>	<u>After State Tax</u>	
Central Lincoln Peoples Utility District (Gardiner, Oregon) Bonneville Hydro	2.44	2.44	Tax Exempt
South Carolina Public Service Authority	3.62	3.62	Tax Exempt
Arkansas Power & Light Company	**3.96	***4.12	4% State Tax
Mississippi Power & Light Company	3.98	4.02	1% State Tax
Alabama Power & Light Company	4.10	4.27	Stepped Tax
Southwestern Electric Power Company (Texas)	4.14	4.14	Tax Exempt
Mississippi Power Company	4.60	4.65	1% State Tax
Louisiana Power & Light Company	4.65	4.65	Tax Exempt
Central Maine Power Company	4.90	4.90	Tax Exempt
Niagara Mohawk Power Company	5.40	5.40	Tax Exempt
Central Louisiana Electric Company	5.54	5.54	Tax Exempt
Yazoo Valley Electric Power Association	(no comparable rate)		

Camden, Arkansas Plant Is Exempt From Franchise Tax

*As listed in IP's 1983 annual report (pg. 19, second column)

**Third Lowest

***Fourth Lowest

Arkansas Democrat

Attachment B

114TH YEAR - No. 69

LITTLE ROCK, DECEMBER 9, 1984

Company	Overall		Residential		Industrial	
	Rank	Average cost/kwh	Rank	Average cost/kwh	Rank	Average cost/kwh
Gulf States Utilities (1)	1	4.23	18	6.96	2	3.75
Union Electric (2)	2	4.53	5	5.78	1	3.67
OKLAHOMA GAS & ELECTRIC (3)	3	4.63	3	5.66	7	3.95
SOUTHWESTERN ELECTRIC POWER (4)	4	4.67	8	6.04	9	4.14
Kingsport Power	5	4.75	1	5.01	8	4.12
Public Service Co. of Oklahoma	6	4.80	10	6.21	10	4.18
EMPIRE DISTRICT ELECTRIC (5)	7	4.82	2	5.43	5	3.84
ARKANSAS POWER & LIGHT (6)	8*	4.84	17	6.85	3	3.77
Missouri Utilities (7)	8*	4.84	6	5.95	4	3.79
Missouri Edison (7)	10	5.09	13	6.46	6	3.93
Louisiana Power & Light	11	5.15	4	5.72	12*	4.61
Mississippi Power	12	5.29	11	6.24	16	4.88
Texas Utilities Electric (8)	13	5.55	14	6.48	11	4.32
Southwestern Public Service (9)	14	5.59	23	7.67	17	4.92
Missouri Power & Light (7)	15	5.76	9	6.20	15	4.85
New Orleans Public Service	16	5.82	7	5.96	18	5.00
Mississippi Power & Light	17	5.91	12	6.33	21	5.30
Southwestern Electric Service	18	5.99	15	6.53	26	5.93
West Texas Utilities	19	6.00	19	7.27	23	5.64
St. Joseph Light & Power	20	6.20	16	6.62	19	5.06
Kansas City Power & Light (10)	21	6.33	20	7.34	12*	4.61
Houston Power & Light	22	6.38	26	8.25	20	5.22
Texas-New Mexico Power (11)	23	6.47	25	8.08	21*	5.30
Missouri Public Service	24	6.50	24	7.98	14	4.80
Central Power & Light	25	6.67	22	7.47	25	5.76
Central Louisiana Electric	26	6.77	21	7.41	24	5.66
El Paso Electric (12)	27	8.00	27	9.70	27	6.40

BELOW AVERAGE — A survey of regional electric rates in 1983 indicates AP&L compared favorably with 26 other investor-owned utilities. Those serving Arkansas are capitalized. Numbers in parentheses denote: 1. Serving Louisiana and Texas; 2. 1983 boundaries; 3. Serving Arkansas and Oklahoma; 4. Serving Arkansas, Louisiana, Texas; 5. Serving Arkansas, Kansas, Missouri, Oklahoma; 6. Serving Arkansas, Missouri; 7.

Now part of Union Electric; 8. Includes Dallas Power & Light, Texas Electric Service, Texas Power & Light; 9. Serving Kansas, New Mexico, Oklahoma, Texas. Figures for this company include taxes, which average about 3%; 10. Serving Kansas, Missouri; 11. Serving New Mexico, Texas; 12. Industrial rates include large commercial customers. Figures followed by an asterisk denote ties.

Arkansas Democrat/J. Michael Storey

Survey shows AP&L's rates among region's lowest in '83

BY STEPHEN BUEL
Democrat Staff Writer

Arkansas Power & Light Co. generated some of the least expensive power sold by investor-owned utilities in the region last year, an Arkansas Democrat survey of electric rates in Arkansas and surrounding states indicates.

AP&L's rates were eighth lowest of the 27 utilities surveyed, with a system average cost per kilowatt-hour of 4.84 cents. Its average industrial rate was third lowest at 3.77

cents per kwh, while its residential rates were slightly more expensive than average at 6.85 cents per kwh, which ranked it 17th.

The survey indicates AP&L's rates would remain regionally and nationally competitive if state regulators grant the utility's request for a 15 percent rate increase and a phased-in recovery of costs of the Grand Gulf nuclear plant. However, the utility's rates would climb to among the highest in the region if the full

effect of a Grand Gulf allocation were to be put into its rates at one time.

In a Feb. 3 ruling that has since become notorious to many Arkansans, a federal administrative law judge ruled that AP&L, because of its historic involvement in the reactor's construction, should help pay for 32 percent of the \$3.4 billion Mississippi nuclear plant.

The decision has been ap-

See RATES, Page 14A

Rates

Continued from Page One

pealed, but AP&L says it has been forced to seek recovery of its share of the plant's costs. The utility has proposed to phase in those costs over 10 years.

Previous rate surveys using the same methods have indicated that AP&L's electric rates compare favorably with those of other investor-owned electric utilities across the country.

A 1984 survey by two economics professors at the University of Arkansas at Little Rock ranked AP&L's 1982 rates as 20th lowest of 100 utilities surveyed. An AP&L update of that study for 1983 placed it 18th out of 113 utilities.

AP&L officials cite these surveys as evidence that they charted a wise course with their massive plant construction program of the last 16 years.

Just this week, AP&L fired up Unit 2 of its Independence Steam Electric Station near Newark, the final step in its quest to reduce its dependence upon costly oil and natural gas and generate a greater share of its load with relatively low-cost coal and nuclear fuel.

But the fury surrounding the Grand Gulf cases has tended to obscure AP&L's successful completion of this ambitious fuel diversification program.

For officials at AP&L this has been a discomfiting situation. Anxious again to don the white hats they wore in the 1960s, AP&L executives have instead seen their achievements dwarfed in the shadow of the twin Grand Gulf cooling towers.

As Arkansas awaits imminent decisions in the two nuclear plant cases, officials have again turned to rate studies for clues about where AP&L's rates would be in the event of an unfavorable ruling in either of the cases. Several recent studies were discussed Friday during a special hearing of the Senate Committee on Small Business convened by Sen. Dale Bumpers, D-Ark.

The *Democrat* survey was based upon 1983 generating costs for investor-owned utilities in Arkansas and the six neighboring states. Most of these rates have increased slightly in the intervening months. And like AP&L, several of the utilities have since requested large rate increases — as much as 65 percent in the case of Oklahoma Gas & Electric Co.

For the year 1983, AP&L was the highest-priced of the four investor-owned utilities serving Arkansas. OGE, Southwestern Electric Power Co. and the Empire District Electric Co. placed third, fourth and seventh in the survey, respectively. AP&L serves the majority of Arkansas residents.

The approximately 25 municipally owned electric companies and rural electric cooperatives in Arkansas were not included in the survey because they receive some government funds and thus are not comparable to investor-owned utilities, which are funded exclusively by customers and investors.

Of the 27 utilities surveyed, costs per kwh of electricity in 1983 varied from a low of 4.23 cents to a high of 8 cents. AP&L's average power cost was 4.84 cents per kwh, less than the median price of 5.59 cents.

AP&L excelled in industrial rates, where its 3.77 cent per kwh cost ranked it third, well below the 4.8 cent median price. The lowest cost was 3.67 cents; the highest was 6.4 cents.

In the residential column, AP&L's rates were slightly higher than the median rate of 6.48 cents per kwh. AP&L was 17th with an average residential cost of 6.85 cents. The low was 5.01 cents; the high was 9.7 cents.

The *Democrat* also surveyed commercial rates, where AP&L was ranked ninth cheapest of the 27 utilities. AP&L's average commercial cost of 5.79 cents per kwh was a good bit cheaper than the 6.5 cent median cost.

Statistical electric rate comparisons, such as the *Democrat*'s may seem to offer an objective means of comparing the service of disparate utili-

ties, but such studies are actually a poor basis for making far-reaching conclusions about utility performance.

"Really, all that such a survey can tell you is what a particular company was charging its customers for electricity," Michael Bemis, a senior AP&L vice president, said Thursday.

Bemis and others note that such comparisons cannot begin to describe the numerous service costs that vary from utility to utility or the varying rate-making formulas employed by utilities and their regulators across the 50 states.

The costs of supplying electricity to rural areas, such as much of that served by AP&L, are significantly higher than the costs of supplying dense urban areas, such as Houston.

A simple comparison of electric rates in two such areas will thus point out which utility has less expensive power, but it will not indicate which utility has done a better job of holding rates down, given the economics of its service area.

The economics of electric generation also vary significantly in different regions of the country. Electric rates are generally highest in the Northeast, lowest in the Northwest and slightly below the national average in Arkansas and the six surrounding states. Even an extraordinarily well-managed Northeastern utility is thus bound to look bad if its rates are compared to an Arkansas firm. For this reason, regional rate comparisons may offer a better picture of an electric utility's performance.

Walter Davidson, a Little Rock lawyer who has participated in many utility cases before the Arkansas Public Service Commission, said such electric rate comparisons tell too little about a utility's rate structure to serve any useful function as a means of comparing utilities.

AP&L's relatively costly residential rates seem to indicate, for instance, that other utilities subsidize their residential customers to a greater extent than AP&L. Many utilities subsidize their residential customers at the expense of their commercial and industrial consumers. However, Davidson observed that AP&L's dif-

ferent ranking in each of the three customer classifications could just as easily stem from other factors, such as rate structure or geography.

Rate surveys can show how AP&L's rates after a forced Grand Gulf rate increase would compare with the rates of other utilities. But such surveys cannot indicate the impact that such an increase would have upon the utility's customers.

Some 39 of the 40 witnesses who testified Friday during Bumpers' Senate hearing in Little Rock on the effects of a Grand Gulf rate increase predicted dire consequences for Arkansas if AP&L's rates should increase by 25 to 50 percent.

"We can realistically expect to see many industries drop off our present electrical system," Gov. Bill Clinton testified. "Other plants will shut down and unemployment will rise. Obviously, we would be unable to attract new industry to take the place of those lost."

Of the witnesses, only AP&L's Bemis was optimistic.

"I think the impact on AP&L of Grand Gulf has been greatly overstated," Bemis said. "I think that overstatement and the rhetoric that has accompanied that overstatement has hurt economic development in the state more than an allocation of Grand Gulf itself."

Bemis made the argument, born out by the *Democrat* survey, that even with a full 32 percent allocation of Grand Gulf, AP&L would have some of the country's lowest industrial rates.

One detail that has been lost in the reaction to the Grand Gulf ruling is, in fact, the very situation that gave rise to the court struggle over who should pay for the plant.

AP&L's rates in 1983 were the lowest of the four utility subsidiaries of Middle South Utilities Inc., the *Democrat* survey showed. Louisiana Power & Light Co. was ranked 11th at 5.15 cents per kwh, New Orleans Public Service Inc. was ranked 16th at 5.82 cents per kwh and Mississippi Power & Light Co. was ranked 17th at 5.91 cents per kwh.

AP&L and those three utilities are the main participants in the battle over Grand Gulf. Regulators in Louisiana initiated the skirmish when they observed that a large alloca-

tion of Grand Gulf power would drive their rates even higher in relation to those charged by AP&L.

Louisiana regulators have proposed that rates throughout the Middle South system be equalized. So, even though a loss in both cases might have disastrous effects upon some segments of the Arkansas economy, AP&L's rates would be no higher than those of its three sister companies in Mississippi and Louisiana.

Different types of rate comparison will provide different results. The *Democrat* survey employed the same methodology as that used by Stanley E. Boyle and Ralph B. Shull, two UALR economics professors who have performed national electric rate comparisons, including some but not all of the companies surveyed by the *Democrat*.

Those studies were based upon a comparison of each utility's revenue per kwh for the system as a whole and for each of the three chief customer classifications - residential, commercial and industrial. Each customer class pays a different average electric rate.

Boyle and Shull prefer this method of comparison because they argue that other techniques, such as comparing average residential bills, are not indicative of a company's overall rates and do not reflect the different rate-setting formulas used by utility regulators.

One study that has made the rounds among Arkansas officials is a comparison of hypothetical summer residential bills prepared by the Public

Service Co. of Oklahoma. This study purports to identify that utility's residential electric rates as among the lowest in a seven-state region, including Arkansas. At the same time, it identified AP&L's rates as most expensive.

But AP&L officials view this study as statistically dubious, and with some good reason. For one thing, the study ignores nine utilities in the same region, including the two cheapest.

More important, officials say, the Oklahoma study is worthless because it focuses on just one month's rates for just one segment of utility customers. As such, it does not indicate that AP&L's summer rates are intentionally higher than winter rates to encourage customers to use power when it is cheapest for the utility to produce. Nor does the study account for the effect of utility taxes, which are higher in Arkansas than in any of the other states surveyed.

Attachment C

FORECAST OF THE IMPACT OF THE GRAND GULF
SETTLEMENT AGREEMENT
CALCULATED AS OF JUNE, 1984
ARKANSAS POWER & LIGHT COMPANY
LITTLE ROCK, ARKANSAS

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FROST & COMPANY
CERTIFIED PUBLIC ACCOUNTANTS
WORTHEN BANK BUILDING
LITTLE ROCK, ARKANSAS
72201

A PROFESSIONAL ASSOCIATION

501-376-9241

BOARD OF DIRECTORS
ARKANSAS POWER & LIGHT COMPANY
LITTLE ROCK, ARKANSAS

THE ACCOMPANYING SCHEDULES SHOWING THE FORECAST OF THE IMPACT OF THE GRAND GULF SETTLEMENT AGREEMENT BETWEEN ARKANSAS POWER & LIGHT COMPANY (AP&L) AND MISSISSIPPI POWER & LIGHT COMPANY (MP&L) UNDER THE AP&L DEFERRAL PLAN AND THE SUMMARY OF SIGNIFICANT FORECAST ASSUMPTIONS IS AP&L MANAGEMENT'S ESTIMATE OF THE MOST PROBABLE EFFECT OF THE SETTLEMENT AGREEMENT BASED UPON INFORMATION AVAILABLE TO MANAGEMENT IN JUNE, 1984 WHEN THE FORECAST WAS PREPARED. ACCORDINGLY, THE FORECAST REFLECTS MANAGEMENT'S JUDGEMENT, BASED ON CIRCUMSTANCES EXISTING AT THAT TIME, OF THE MOST LIKELY SET OF CONDITIONS AND ITS MOST LIKELY COURSE OF ACTION. THE FORECAST HAS NOT BEEN UPDATED FOR ANY CHANGES IN THESE CIRCUMSTANCES THAT MAY HAVE OCCURRED SINCE THAT TIME.

WE HAVE MADE A REVIEW OF THE FINANCIAL FORECAST IN ACCORDANCE WITH APPLICABLE GUIDELINES FOR A REVIEW OF A FINANCIAL FORECAST ESTABLISHED BY THE AMERICAN INSTITUTE OF CERTIFIED PUBLIC ACCOUNTANTS. OUR REVIEW INCLUDED PROCEDURES TO EVALUATE BOTH THE ASSUMPTIONS USED BY MANAGEMENT AND THE PREPARATION AND PRESENTATION OF THE FORECAST. WE HAVE NO RESPONSIBILITY TO UPDATE THIS REPORT FOR EVENTS AND CIRCUMSTANCES OCCURRING AFTER THE DATE OF THIS REPORT.

BASED ON OUR REVIEW, WE BELIEVE THAT THE ACCOMPANYING FORECAST IS PRESENTED IN CONFORMITY WITH APPLICABLE GUIDELINES FOR PRESENTATION OF A FINANCIAL FORECAST ESTABLISHED BY THE AMERICAN INSTITUTE OF CERTIFIED PUBLIC ACCOUNTANTS. WE BELIEVE THAT THE UNDERLYING ASSUMPTIONS PROVIDED A REASONABLE BASIS FOR MANAGEMENT'S FORECAST

(CONT.)

AT THE TIME THIS FORECAST WAS PREPARED. HOWEVER, AS IS THE CASE IN ALL FORECASTS, SOME ASSUMPTIONS INEVITABLY WILL NOT MATERIALIZE AND UNANTICIPATED EVENTS AND CIRCUMSTANCES MAY OCCUR; THEREFORE, THE ACTUAL RESULTS ACHIEVED DURING THE FORECAST PERIOD WILL VARY FROM THE FORECAST. THOSE VARIATIONS MAY OR MAY NOT BE MATERIAL TO THE FINAL RESULTS AS PRESENTED IN THE FORECAST.

James H. Amory
 CERTIFIED PUBLIC ACCOUNTANTS

LITTLE ROCK, ARKANSAS
 NOVEMBER 15, 1984

ARKANSAS POWER & LIGHT COMPANY

FORECAST OF THE IMPACT OF THE GRAND GULF SETTLEMENT AGREEMENT
CALCULATED AS OF JUNE, 1984

SUMMARY OF SIGNIFICANT FORECAST ASSUMPTIONS

THIS FORECAST OF THE IMPACT OF THE GRAND GULF SETTLEMENT AGREEMENT IS BASED ON MANAGEMENT'S ASSUMPTIONS CONCERNING FUTURE EVENTS AND CIRCUMSTANCES. THE ASSUMPTIONS DISCLOSED HEREIN ARE THOSE WHICH MANAGEMENT BELIEVES ARE SIGNIFICANT TO THE FORECAST OR ARE KEY FACTORS UPON WHICH THE FINANCIAL IMPACT OF THIS SETTLEMENT AGREEMENT DEPEND. SOME ASSUMPTIONS INEVITABLY WILL NOT MATERIALIZE AND UNANTICIPATED EVENTS AND CIRCUMSTANCES MAY OCCUR SUBSEQUENT TO JUNE, 1984, THE DATE THIS FORECAST WAS PREPARED BY MANAGEMENT. THE FORECAST HAS NOT BEEN UPDATED FOR ANY CHANGES THAT MAY HAVE OCCURRED SINCE THE DATE THE FORECAST WAS ORIGINALLY PREPARED. THEREFORE, THE ACTUAL RESULTS ACHIEVED DURING THE FORECAST PERIOD WILL VARY FROM THE FORECAST AND THE VARIATIONS MAY OR MAY NOT BE MATERIAL.

1. THE SETTLEMENT AGREEMENT CALLS FOR ARKANSAS POWER & LIGHT COMPANY (AP&L) TO BE ALLOCATED 17.1% OF THE CAPACITY AND ASSOCIATED ENERGY OF THE GRAND GULF UNIT 1 NUCLEAR GENERATING STATION. IT ALSO CALLS FOR AP&L TO SELL ITS CAPACITY AND ASSOCIATED ENERGY IN THE INDEPENDENCE UNIT 2 COAL GENERATING STATION (31.5% OF TOTAL CAPACITY OF THIS UNIT) TO MISSISSIPPI POWER & LIGHT COMPANY (MP&L). A FIVE-YEAR SHORT-TERM SALE HAS BEEN CONSUMMATED WITH AN OPTION TO EXTEND THE SALE FOR AN ADDITIONAL TWENTY YEARS CONTINGENT UPON THE SETTLEMENT AGREEMENT BEING ADOPTED BY THE FEDERAL ENERGY REGULATORY COMMISSION (FERC). THIS FORECAST CONSIDERS THE ENTIRE PERIOD OF THE SHORT-TERM SALE AS PART OF THE SETTLEMENT AGREEMENT AND IS BASED UPON THE OPTION TO EXTEND THE SALE BEING EXERCISED. THE SETTLEMENT AGREEMENT IS MADE BETWEEN AP&L AND MP&L.
2. THE FORECAST FOR AP&L BASE REVENUES BEFORE ANY IMPACT OF THE GRAND GULF SETTLEMENT AGREEMENT IS BASED ON AN ANNUAL RETURN ON YEAR-END COMMON STOCK EQUITY OF 15.65% (THE RATE OF RETURN PENDING BEFORE THE ARKANSAS PUBLIC SERVICE COMMISSION AT THE TIME THE FORECAST WAS PREPARED). EXPENSES ARE FORECAST TO INCREASE BASED ON FORECASTS FOR INFLATION PROVIDED BY DATA RESOURCES, INC. (DRI). REVENUES ARE BASED ON THESE EXPENSES AND THE FORECAST FOR RETURN ON EQUITY AND CONSIDER FORECASTED SALES INCREASES DUE TO INCREASES IN THE NUMBER OF TOTAL CUSTOMERS. THIS FORECAST OF BASE REVENUE WAS BASED ON NO ALLOCATION OF GRAND GULF UNITS 1 AND 2 TO AP&L.
3. THE RETURN ON COMMON EQUITY IS NOT FORECAST TO CHANGE AS A RESULT OF THE GRAND GULF SETTLEMENT AGREEMENT. THE REVENUES REQUIRED AS A RESULT OF THIS SETTLEMENT AGREEMENT ARE THEREFORE FORECAST AS THE ADDITIONAL REVENUES NECESSARY TO RECOVER AP&L'S ALLOCATED SHARE OF THE REVENUES ALLOWED BY FERC TO BE CHARGED TO THE PARTICIPANTS IN GRAND GULF UNIT 1, ADJUSTED BY ANY FUEL SAVINGS (OR EXPENSES) AND RESERVE EQUALIZATION ADJUSTMENTS NECESSARY AS A RESULT OF THE SETTLEMENT.
4. AP&L PROPOSES TO DEFER ACTUAL COLLECTION FROM ITS CUSTOMERS OF A PORTION OF ITS SHARE OF THE EXPENSES OF GRAND GULF UNIT 1 FOR FIVE YEARS. THE AMOUNTS DEFERRED WOULD BE COLLECTED OVER THE NEXT FIVE YEARS WITH ALL THE DEFERRED EXPENSES COLLECTED BY THE END OF THE TENTH YEAR. THE EXPENSES TO BE DEFERRED, BASED ON AP&L'S DEFERRAL PLAN, ARE AS FOLLOWS:

ARKANSAS POWER & LIGHT COMPANY

FORECAST OF THE IMPACT OF THE GRAND GULF SETTLEMENT AGREEMENT
CALCULATED AS OF JUNE, 1984

SUMMARY OF SIGNIFICANT FORECAST ASSUMPTIONS (CONT.)

	<u>CURRENT YEAR</u>	<u>CUMULATIVE</u>
1985	\$103,897,000	\$103,897,000
1986	99,681,000	203,578,000
1987	74,686,000	278,264,000
1988	48,194,000	326,458,000
1989	24,845,000	351,303,000

COLLECTION OF THIS CUMULATIVE DEFERRED BALANCE WILL BE COLLECTED OVER THE NEXT FIVE YEARS AT \$70,260,600 PER YEAR.

- AP&L WILL EARN SUFFICIENT TAXABLE INCOME SUCH THAT IT WILL BE ALLOWED TO DEDUCT, FOR TAX PURPOSES, THE EXPENSES INCURRED BUT NOT COLLECTED DUE TO THE ABOVE DEFERRAL PLAN. THIS DEDUCTION WILL BE USED TO REDUCE INCOME TAXES THAT AP&L WOULD OTHERWISE BE REQUIRED TO PAY BASED ON TAXES FOR AP&L BEING COMPUTED ON A SEPARATE-RETURN BASIS.
- COST OF MONEY CHARGES ON THE EXPENSES DEFERRED BY AP&L WILL BE COLLECTED CURRENTLY. THIS COST OF MONEY WILL BE COMPUTED BASED ON THE TOTAL DEFERRED EXPENSES LESS THE AMOUNT OF INCOME TAXES SAVED AS A RESULT OF DEDUCTION OF THE RELATED EXPENSES. THE RATES AND CAPITAL STRUCTURE FORECAST FOR PURPOSES OF COMPUTING THIS COST OF MONEY ARE AS FOLLOWS:

	<u>PERCENTAGE OF TOTAL CAPITAL REQUIRED</u>	<u>INTEREST RATE OR RATE OF RETURN</u>	<u>WEIGHTED AVERAGE PRE-TAX RATE</u>
BONDS	50%	12%	6.00%
PREFERRED STOCK	13%	12%	3.07%
COMMON STOCK	37%	15.65%	11.44%
	<u>100%</u>		<u>20.48%</u>

SINCE THE RETURN ON PREFERRED AND COMMON STOCK IS NOT TAX DEDUCTIBLE, THE ABOVE RATES ARE GROSSED UP TO A PRE-TAX RATE OF RETURN. THIS CONVERTS THE STATED RATES TO THE EFFECTIVE WEIGHTED AVERAGE RATE OF 20.48% WHICH IS USED TO COMPUTE THE COST OF MONEY ON THE CUMULATIVE, NET OF TAX, AVERAGE DEFERRED EXPENSE BALANCE OUTSTANDING.

- GRAND GULF UNIT 1 COMMENCES COMMERCIAL OPERATION ON MARCH 1, 1985. CONSTRUCTION ON THE SECOND GRAND GULF UNIT STARTS IN MAY, 1985. GRAND GULF UNIT 2 IS COMPLETED AND COMMENCES COMMERCIAL OPERATION IN APRIL, 1991, BUT AP&L WILL NOT BE ALLOCATED ANY CAPACITY OF THIS SECOND UNIT.
- FUEL COSTS OF ALL THE GENERATING UNITS IN THE MIDDLE SOUTH SYSTEM ARE FORECAST USING THE PROMOD ECONOMIC DISPATCH COMPUTER SYSTEM. THIS PROMOD SYSTEM

(CONT.)

ARKANSAS POWER & LIGHT COMPANY

FORECAST OF THE IMPACT OF THE GRAND GULF SETTLEMENT AGREEMENT
CALCULATED AS OF JUNE, 1984

SUMMARY OF SIGNIFICANT FORECAST ASSUMPTIONS (CONT.)

IS A PROPRIETARY COMPUTER SYSTEM OBTAINED FROM ENERGY MANAGEMENT ASSOCIATES, INC. IT PROJECTS THE GENERATION OF EACH UNIT IN THE MIDDLE SOUTH SYSTEM ON AN HOUR-BY-HOUR BASIS, BASED ON THE RESPECTIVE FUEL COSTS AS INPUT, AND THE FORECAST FOR FUEL COST AND PURCHASED POWER EXPENSE IS DEVELOPED FOR EACH OF THE OPERATING COMPANIES. THIS INCLUDES POOL PURCHASES AND SALES BETWEEN THE COMPANIES FOR FUEL USAGE BASED ON THE MOST ECONOMICAL DISPATCH OF ALL THE GENERATING UNITS AVAILABLE TO THE MIDDLE SOUTH SYSTEM.

THE FUEL SAVINGS TO AP&L AS A RESULT OF THE SETTLEMENT IS DETERMINED BY COMPARING THE PROMOD FORECASTS OF FUEL AND PURCHASED POWER EXPENSE BASED ON THE BASE CASE, WITH NO EFFECT OF THE SETTLEMENT AGREEMENT, TO THE PROMOD FORECAST OF AP&L FUEL AND PURCHASED POWER EXPENSE AFTER CONSIDERING THE FULL IMPACT OF THE SETTLEMENT AGREEMENT.

THE FUEL COSTS USED TO DETERMINE THIS FUEL AND PURCHASED POWER EXPENSE ARE BASED ON FORECASTS MADE BY SYSTEM FUELS, INC. (SFI), A SUBSIDIARY OF AP&L AND THE OTHER OPERATING COMPANIES OF MIDDLE SOUTH UTILITIES, INC. (MSU). THESE COSTS ARE FORECASTED BASED ON CURRENT PRICES BEING PAID, CURRENT CONTRACT PRICES IN EFFECT, AND SHORT-TERM PRICE FORECASTS BY SFI PERSONNEL BASED ON THEIR KNOWLEDGE OF THE MARKET. LONG-TERM PRICE FORECASTS ARE BASED ON THESE CURRENT PRICES AS ADJUSTED FOR ESCALATIONS AND INFLATION. THESE FORECASTED INCREASES ARE BASED ON FORECASTS PROVIDED BY DATA RESOURCES, INC.

9. AP&L WILL RECOVER CERTAIN COSTS FROM MP&L DUE TO THE SALE OF ITS CAPACITY IN INDEPENDENCE UNIT 2. THIS RECOVERY OF COSTS WILL BE BASED ON DEPRECIATION EXPENSE, INTEREST COSTS, PROPERTY AND FRANCHISE TAXES, INSURANCE EXPENSE, OPERATING AND MAINTENANCE EXPENSE, AND CERTAIN ALLOCATED OVERHEAD EXPENSES OF THE COMPANY'S SHARE IN THIS UNIT. IN THE FORECAST OF THE IMPACT OF THE GRAND GULF SETTLEMENT AGREEMENT, THIS COST RECOVERY IS INCLUDED WITH THE RESERVE EQUALIZATION IMPACT.
10. UNDER THE MIDDLE SOUTH SYSTEM AGREEMENT, THE OPERATING COMPANIES HAVE A RESERVE EQUALIZATION AGREEMENT. UNDER THIS AGREEMENT, THE COMPANIES ARE RESPONSIBLE FOR THEIR PROPORTIONATE SHARE OF THE RESERVE CAPACITY UNITS BASED ON THEIR RESPECTIVE SHARE OF THE TOTAL MONTHLY LOAD ON THE SYSTEM. WHEN A COMPANY IS LONG (WHEN IT HAS MORE THAN ITS SHARE OF RESERVE CAPACITY), IT IS REIMBURSED FOR CERTAIN OF ITS COSTS RELATED TO THESE UNITS BY THE COMPANIES WHICH ARE SHORT OF THEIR SHARE OF RESERVE CAPACITY.
THE FORECAST OF THE RESERVE EQUALIZATION IMPACT OF THE SETTLEMENT AGREEMENT IS MADE BY COMPARING FORECASTS MADE UNDER THE BASE CASE, WITH NO IMPACT OF THE SETTLEMENT AGREEMENT, TO FORECASTS AFTER ADJUSTING EACH OF THE OPERATING COMPANIES' CAPACITIES FOR THE EFFECT OF THE SETTLEMENT AGREEMENT.
11. THE GRAND GULF STATION IS OWNED BY MIDDLE SOUTH ENERGY, INC. (MSE), ANOTHER SUBSIDIARY OF MSU. THE REVENUE REQUIREMENT FOR GRAND GULF UNIT 1 IS DUE FROM AP&L TO MSE. THIS REVENUE REQUIREMENT IS COMPUTED BASED ON MSE RECEIVING A 16% ANNUAL RATE OF RETURN ON ITS AVERAGE COMMON EQUITY.

ARKANSAS POWER & LIGHT COMPANY

FORECAST OF THE IMPACT OF THE GRAND GULF SETTLEMENT AGREEMENT
CALCULATED AS OF JUNE, 1984

SUMMARY OF SIGNIFICANT FORECAST ASSUMPTIONS (CONT.)

12. IN COMPUTING THE AVERAGE COMMON EQUITY OF MSE, DIVIDENDS OF 10% ON THE AVERAGE COMMON EQUITY ARE TO BE PAID TO MSU ON AN ANNUAL BASIS.
13. THE TOTAL COST OF GRAND GULF UNIT 1, INCLUDING CAPITALIZED TAXES AND ALLOWANCE FOR FUNDS USED DURING CONSTRUCTION (AFUDC), WILL BE APPROXIMATELY \$3,064,663,000 AT MARCH 1, 1985, WHEN THE UNIT COMMENCES COMMERCIAL OPERATIONS.
14. DEPRECIATION WILL BE PROVIDED USING A "UNITS OF PRODUCTION" METHOD BASED ON ACTUAL GENERATION FROM THE UNIT. IN COMPUTING THIS UNITS OF PRODUCTION FACTOR, THE UNIT'S LIFE IS ASSUMED TO BE 40 YEARS AND THE UNIT IS ASSUMED TO RUN AT AN AVERAGE ANNUAL CAPACITY OF 70%. PROVISION IS MADE IN THIS UNITS OF PRODUCTION DEPRECIATION CALCULATION FOR AVERAGE RETIREMENTS OF INDIVIDUAL ITEMS INCLUDED IN TOTAL PLANT COST.
15. OPERATING AND MAINTENANCE EXPENSES ARE FORECASTED BY NUCLEAR STATION ACCOUNTING PERSONNEL OF MP&L WHO ARE PERFORMING THE ACCOUNTING FUNCTIONS FOR GRAND GULF UNIT 1. THESE EXPENSES ARE FORECASTED BASED ON THE ACCOUNTING PERSONNEL'S MOST CURRENT EXPECTATIONS. AT THE TIME THE OVERALL FORECAST WAS PREPARED, OF THE COSTS NECESSARY TO OPERATE AND MAINTAIN THE PLANT. THE MP&L PERSONNEL COMPARED THIS FORECAST OF EXPENSES TO AVAILABLE FIGURES ON OTHER NUCLEAR GENERATING FACILITIES TO DETERMINE THE REASONABLENESS OF THE FORECASTED EXPENSES.
16. IN FORECASTING OPERATING AND MAINTENANCE EXPENSE, IT IS ASSUMED THAT 20% OF THE TOTAL EXPENSES INCURRED WILL BE CAPITALIZED IN PLANT COST. THIS ADDITIONAL PLANT COST IS ASSUMED TO REPLACE EARLY RETIREMENTS SUCH THAT TOTAL PLANT COST FOR DEPRECIATION PURPOSES DOES NOT CHANGE.
17. THE FORECASTS FOR OPERATING AND MAINTENANCE EXPENSES ARE BASED ORIGINALLY ON A ONE-UNIT OPERATION. IN ADJUSTING THESE EXPENSES FOR THE ADDITION OF GRAND GULF UNIT 2, IT IS ASSUMED THAT THE ONE-UNIT EXPENSES WOULD BE 70% OF THE TOTAL EXPENSES NECESSARY TO OPERATE AND MAINTAIN TWO UNITS AT THE SAME SITE DUE TO THE SHARING OF CERTAIN EXPENSES.
18. INSURANCE AND PROPERTY TAXES OF GRAND GULF UNIT 1 ARE BASED ON THE FORECASTED PLANT COSTS AND THE APPROPRIATE TAX AND INSURANCE RATES.
19. INTEREST EXPENSES AND PREFERRED STOCK DIVIDENDS OF MSE ARE FORECASTED BASED ON THE EXPECTED CAPITAL STRUCTURE AND INTEREST RATES OF MSE DURING THIS PERIOD. THESE ASSUMPTIONS ARE SUMMARIZED AS FOLLOWS:
 - a. INTEREST RATES ON LONG-TERM NOTES ARE FORECASTED AT 110% OF PRIME PLUS A 1.3% ADD ON AND A 0.5% COMMITMENT FEE. THE PRIME INTEREST RATE IS FORECASTED TO BE 12% FOR 1985 THROUGH 1987 AND 11% THEREAFTER. THE BALANCE IN LONG-TERM NOTES AT THE END OF 1984 IS FORECASTED TO BE \$1,827,000 WITH ADDITIONAL BORROWINGS AND REPAYMENTS FORECASTED AS FOLLOWS:

ARKANSAS POWER & LIGHT COMPANY

FORECAST OF THE IMPACT OF THE GRAND GULF SETTLEMENT AGREEMENT
CALCULATED AS OF JUNE, 1984

SUMMARY OF SIGNIFICANT FORECAST ASSUMPTIONS (CONT.)

	<u>ADDITIONAL BORROWINGS</u>	<u>REPAYMENTS</u>
1985	\$ 670,000,000	\$ 976,000,000
1986	1,538,000,000	1,599,000,000
1987	1,234,000,000	1,533,000,000
1988	997,000,000	1,161,000,000
1989	935,000,000	1,054,000,000
1990	269,000,000	878,000,000
1991	-	269,000,000

- b. FIRST MORTGAGE BOND ISSUANCES ARE FORECASTED TO BE MADE AT THE PRIME INTEREST RATE. THE FORECASTED BALANCE FOR THESE BONDS, INCLUDING POLLUTION CONTROL BONDS, AT THE END OF 1984 IS \$830,000,000. ADDITIONAL BOND ISSUANCES ARE FORECASTED AT APPROXIMATELY \$300,000,000 PER YEAR THROUGH 1991.
- c. PREFERRED STOCK DIVIDEND RATES ARE FORECASTED AT THE PRIME INTEREST RATE. THE FORECASTED PREFERRED STOCK ISSUANCES ARE \$100,000,000 PER YEAR FROM 1985 THROUGH 1989 AND \$75,000,000 IN 1990.
- d. RETIREMENTS OF COMMON STOCK ARE FORECASTED TO BEGIN IN 1991 AFTER COMPLETION OF THE SECOND GRAND GULF UNIT. AFTER THAT TIME, THE CAPITAL STRUCTURE OF MSE IS FORECASTED AS FOLLOWS:

LONG TERM DEBT AND BONDS	50%
PREFERRED STOCK	10%
COMMON STOCK	40%

20. CERTAIN INTEREST EXPENSE AND RETURNS ON EQUITY WILL BE CAPITALIZED DURING CONSTRUCTION OF THE SECOND GRAND GULF UNIT AS AFUDC. THE AMOUNT CAPITALIZED IN THIS MANNER IS BASED ON THE WEIGHTED AVERAGE EFFECTIVE RATE OF MSE APPLIED TO THE AVERAGE CONSTRUCTION WORK IN PROCESS BALANCES OF MSE. THE RETURN ON COMMON STOCK USED IN THIS COMPUTATION IS 16%.
21. THE FORECAST FOR MSE ASSUMES THAT CONSTRUCTION OF ADDITIONAL COAL GENERATING UNITS WILL COMMENCE IN 1991 FOLLOWING COMPLETION OF THE SECOND GRAND GULF UNIT. AFUDC IS ALSO CAPITALIZED AS PART OF THE COST OF THESE UNITS.
22. INCOME TAXES ON THE EARNINGS OF MSE ARE PROVIDED AT THE APPROPRIATE STATUTORY TAX RATES. INVESTMENT TAX CREDITS UTILIZED ARE AMORTIZED OVER 40 YEARS AS A REDUCTION OF THE REVENUE REQUIREMENT.
23. THE FORECAST OF THE PERCENTAGE INCREASE IN REVENUES DOES NOT CONSIDER THE POSSIBLE DECREASE IN DEMAND THAT MAY OCCUR IF RATES ARE INCREASED TO GENERATE THIS REVENUE (THAT IS, PRICE ELASTICITY).

(CONT.)

SCHEDULE A

NET COST (SAVINGS) TO THE CUSTOMERS FROM THE SETTLEMENT	CUMULATIVE PERCENTAGE CHANGE FROM BASE REVENUE (4)	ANNUAL PERCENTAGE CHANGE (5)
\$ (7,299)	(0.69%)	(0.69%)
25,402	2.25%	2.94%
40,561	3.37%	1.12%
73,045	5.58%	2.21%
84,651	6.15%	0.57%
153,600	9.48%	3.33%
176,908	10.36%	0.88%
169,893	8.96%	(1.40%)
162,506	8.01%	(0.95%)
<u>150,912</u>	6.82% (6)	(1.19%)
<u>\$1,030,179</u>	(7)	-

SCHEDULE B

NET MSE REVENUE REQUIREMENT <u>RECOVERED</u>	FINANCING COST ON AMOUNT DEFERRED (2)	TOTAL MSE REVENUE REQUIREMENT <u>RECOVERED</u>
\$ 24,153	\$ 5,400	\$ 29,553
43,479	15,982	59,461
54,614	25,046	79,660
82,138	31,433	113,571
91,783	35,229	127,012
183,373	32,869	216,242
185,857	25,565	211,422
180,517	18,260	198,777
174,564	10,956	185,520
<u>169,260</u>	<u>3,652</u>	<u>172,912</u>
<u>\$1,189,738</u>	<u>\$204,392</u>	<u>\$1,394,130</u>

ARKANSAS POWER & LIGHT COMPANY

FORECAST OF THE IMPACT OF THE GRAND GULF SETTLEMENT AGREEMENT
CALCULATED AS OF JUNE, 1984

SCHEDULE OF POTENTIAL EFFECT OF SELECTED CHANGES IN THE FORECAST

YEAR	CUMULATIVE PERCENTAGE CHANGE FROM BASE REVENUE		
	AS FORECASTED (1)	AFTER FORECASTED EFFECT OF PRICE ELASTICITY (2)	ASSUMING 10% INCREASE IN MSE REVENUE REQUIREMENT (3)
1985	(0.69%)	(0.94%)	0.52%
1986	2.25%	2.74%	3.51%
1987	3.37%	4.12%	4.45%
1988	5.58%	6.80%	6.57%
1989	6.15%	7.54%	7.00%
1990	9.48%	11.50%	10.18%
1991	10.36%	12.61%	11.04%
1992	8.96%	10.82%	9.54%
1993	8.01%	9.51%	8.53%
1994	6.82%	8.01%	7.27%
AVERAGE (4)	6.63%	7.86%	7.39%

- (1) SEE SCHEDULE A
- (2) ASSUMES THAT DEMAND WILL DECREASE BY A PERCENTAGE EQUAL TO 3% FOR A 10% INCREASE IN THE FORECASTED PRICE FOR THAT SAME YEAR.
- (3) AP&L DOES NOT EXPECT SUCH AN INCREASE IN THE REVENUE REQUIREMENT OF MSE (SEE SCHEDULE B). HOWEVER, THIS IS PRESENTED TO SHOW THE EFFECT IF SUCH A CHANGE OCCURRED. A 10% INCREASE COULD CONSIST OF INCREASED DEPRECIATION (DUE TO INCREASED TOTAL PLANT COST), INCREASED OPERATING AND MAINTENANCE EXPENSES, INCREASED INTEREST RATES AND/OR DEBT OUTSTANDING AND/OR INCREASED RETURNS REQUIRED ON COMMON OR PREFERRED STOCK.

IT WOULD PROBABLY REQUIRE A DELAY OF OVER ONE YEAR IN THE COMMERCIAL OPERATION OF GRAND GULF UNIT 1 TO CAUSE AN INCREASE OF 10% IN THE OVERALL REVENUE REQUIREMENT.

- (4) SEE FOOTNOTE (7) ON SCHEDULE A.

ATTACHMENT D

Analysis of the Significance
of Electrical Energy Costs
to Industrial Establishments
in Arkansas

Prepared by:

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and

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November 27, 1984

Preface

This research project was done in cooperation with the Arkansas Industrial Development Commission and supported through a grant from Arkansas Power and Light Company. However, neither of the above parties had access to the data gathered in the research effort, nor to the detailed analyses, beyond that included in the following pages.

The conclusions reached herein are those of the authors and not necessarily those of the Arkansas Industrial Development Commission, Arkansas Power and Light Company, or the University of Arkansas, Fayetteville.

Phillip Taylor

Mary S. Hirsch

Executive Summary

This study was undertaken to investigate: 1) the significance of electric energy costs to a sample of major industrial firms with plant locations within the Arkansas Power & Light Company (AP & L) service area in Arkansas; 2) the relative importance of electric energy costs between industries in that portion of Arkansas served by AP & L as compared to other locations; 3) the attitudes toward, and expectations for the future of, the economic climate of Arkansas among the managers of these Arkansas manufacturing facilities; and 4) their perceptions of the advantages and disadvantages of Arkansas as a location for manufacturing establishments.

Summary of Findings

Historical and current data indicate that electric energy cost for manufacturing establishments in Arkansas, and the AP & L service area, are at or below the national average. There is, however, concern expressed by the respondees about both the future cost of energy and the uncertainty created by the current Grand Gulf/System Average costing controversy. The uncertainty of the issue was cited frequently as a concern rather than the actual level of costs.

The data do not, however, suggest a catastrophic impact on industry in the state as a result of these issues. Asked to take a long term (1985-1990) outlook; approximately 42 percent of the firms expected expansion and 39 percent predicted a continuation of current levels of production. Twelve percent did anticipate cutbacks in their facilities. Over two-thirds of the respondents anticipated that any

expansion of capacity would take place in Arkansas. Of this group, over 83 percent believe expansion would be in the form of an increased investment at their present Arkansas location.

Data from the firms responding to the questionnaire indicate that electric energy accounted for an average of 4.58 percent of the total operating costs of manufacturing firms. This ranged from a low of 1.2 percent among the electric and electronic equipment manufacturers (SIC 36) to a high of 6.7 percent among the petroleum and coal products manufacturing group (SIC 29).

The strongest favorable factors listed by the survey participants indicating any expansion of their firm would likely be in Arkansas center upon both the quantity and work ethic of its labor force, the state's central location, the availability of raw materials, and the fact that facilities presently exist here and are viewed as expandable. Energy positives included availability and cost.

Generally viewed as negative determinants of expansion were dwindling or inadequate timber and oil resources, increasing labor and production cost, the level of skills of potential employees, and higher and uncertain energy cost. Overall, the positive comments concerning Arkansas as a choice for expansion outnumbered the negative ones about 2-1.

In addition to being asked about the likelihood of expansion, individuals completing the questionnaire were requested to state what, in their opinion, are the three most positive aspects, as well as the three most negative aspects, of their plant's location in Arkansas. Based on the frequency of response, labor, both the quantity and work

ethic, is the most positive factor that an Arkansas location has to offer. Indeed, this was mentioned by 79 of the respondents. However, detracting somewhat from this positive was the view by some that there was a shortage of skilled labor and perceived inadequate vocational-technical training programs.

The central location of Arkansas, its resources (raw materials), and weather were frequently listed as location advantages. On the negative side, inadequate transportation and the distance from suppliers, customers, and corporate headquarters presented problems for some firms.

Based on the survey, there appears to be no clear pattern that government, either state or local, is either an advantage or disadvantage. However, the quality of education was mentioned as a negative on several forms.

Data supplied by the participants were not sufficient to answer element 2) of the study - that is, compare AP & L electricity cost with other trade areas. However, other data indicate that current AP & L Industrial rates compare quite favorably to other parts of the nation. Whether that advantage would remain in the future depends on the level of allocation of Grand Gulf and more importantly, on whether the Company is successful in its attempt to defeat the System average costing issue. Moreover, elsewhere in the nation many large power units are "coming on-line" and, as this occurs, there will be significant rate impacts. Consequently, Arkansas and AP & L's competitive position vis a vis other states will continue to change.

Methodology

The questionnaires (see Appendix B) used in the study to gather current data were developed by personnel of the Bureau of Business and Economic Research (BBER) of the University of Arkansas, Fayetteville, with assistance from staff members of the Arkansas Industrial Development Commission (AIDC). One questionnaire was created to elicit information concerning plants located in AP & L's service area, and the other questionnaire was designed to obtain similar data from plants of the same firms but located elsewhere. Both questionnaires were divided into sections with Section II of each questionnaire requesting information concerning employment, payroll, value of shipments, etc., in a form similar to that contained in the Annual Survey of Manufactures published by the Bureau of the Census. Section III of the questionnaire sent to Arkansas plants elicited data on various forms of energy purchased, and Section IV of that questionnaire contained questions concerning levels of production, outlook for the facility, opinions concerning Arkansas as a plant location, etc.

The study and questionnaires, in preliminary form, were discussed with management personnel from two Arkansas plants prior to the finalization and distribution of the questionnaire.

The plants selected to receive the questionnaire were approximately the top ten percent of AP & L's customers in each of the manufacturing Standard Industrial Classification (SIC) groups, or a total of 181 plants. The top ten percent was measured in terms of dollar sales in 1983.

An individual at each plant was identified as the contact person for the study, and prior to the delivery of the questionnaire, David Harrington of the AIDC wrote each to tell them about the project and request their cooperation. The questionnaires were hand delivered to all the plant contacts in June/July 1984. The packages delivered included: a letter from Phillip Taylor of the BBER, a copy of the questionnaire for that plant, three copies of the questionnaire for plants outside the AP & L service area, and envelopes for returning the completed questionnaires to the University. Subsequently, two follow-up letters were sent encouraging participation in the study.

The above actions resulted in a total of 100 responses or 55 percent. Of the 100, only 76 were totally completed for a return of 42 percent of the total mailout. IT IS IMPORTANT TO NOTE THAT THE SURVEY MATERIAL COVERED WHAT MANY PARTICIPANTS CONSIDERED VERY CONFIDENTIAL AND SENSITIVE INFORMATION. THIS FACT IMPACTED THE LEVEL OF PARTICIPATION IN THAT SEVERAL FIRMS RESPONDED THAT COMPANY POLICY PROHIBITED DISCLOSURE OF THE DATA.

The analysis employed by the researchers was designed to utilize the maximum amount of information for any given variable. The responding firms represent over 33,000 employees within the AP & L service area and accounted for approximately 39 percent of the total kwh usage and revenue of the Company for the customer group (manufacturing firms) studied.

Introduction

There are a great many factors that affect the location choices (continuation and expansion of existing facilities, as well as the creation of new ones) of private firms, and these factors are, for the most part, those that will, or it is expected that they will, impact upon the expected profitability of a location. That is, a rational firm will make location choices premised upon expected contributions to long term profitability. The factors are related to both expected revenues and expected costs. Moreover, the significance of a factor will vary between firms, between industries, and over time.

The importance of the cost, and ready availability, of energy as a location factor was enhanced by the increased price of petroleum that followed the Arab oil embargo. The economic consequences of this incident varied between firms, industries, and geographic regions. The current cost of, and demand for, electric energy is one such consequence in that petroleum products (oil and gas) are frequently a factor of production of electric energy and, in many instances, its substitute. As with other industries, increases in petroleum cost, or for that matter, the cost of any factor of production, do not uniformly impact upon all electric energy producers and, consequently, upon all consumers of electric energy.

The purpose of this study is to investigate 1) the significance of electric energy costs (one location factor) among a selected group of firms with plant locations within the Arkansas Power and Light Company (AP & L) service area in Arkansas; 2) the relative importance of electric energy costs between industries in the portion of Arkansas

served by AP & L as compared to other locations, 3) the attitudes toward, and expectations for the future of, the economic climate of Arkansas among the managers of selected Arkansas manufacturing facilities, and 4) the advantages and disadvantages of Arkansas as a location for manufacturing establishments.

A Historical Perspective of Expenditures on Electric Energy
in the Manufacturing Sector

Over the four years from 1974 to 1978, the amount of electric energy purchased per employee in manufacturing industries in the U.S. decreased slightly from 32,954 kwh to 32,948 kwh. In this same time frame, the amount of electric energy purchased per employee in manufacturing industries in Arkansas increased from 34,577 kwh to 39,095 kwh. There are several possible explanations for the disparity between Arkansas and the nation. First, the mix of industries could contribute to the difference. Second, data are an average for all employees, not just production workers. Third, plants in Arkansas could be more capital intensive. Fourth, and alternatively, plants in Arkansas could be less energy efficient.

Total purchases of electric energy by U.S. manufacturing firms was \$452 per employee in 1974. In terms of value of shipments (VS) by manufacturers in 1974, electric energy purchased (EEP) accounted for \$0.0082 per dollar and, when compared to each dollar of value added, it was \$0.0187. Manufacturing firms in Arkansas spent \$503 per employee for electric energy. When compared to each dollar of value added by manufacture, electric energy purchased was \$0.0268 and, as compared to value of shipments (EEP/VS), it was \$0.0107. In 1978, the national figures were \$829 per employee; \$0.0259 per dollar of value added; and per dollar of value of shipments, \$0.0111. For that same year (1978), Arkansas manufacturing firms purchased \$921 in electric energy per employee; \$0.0344 per dollar of value added; and \$0.01356 per value of shipments dollar.

One further comparison between aggregate data for Arkansas and the U.S. should be noted. Electric energy purchased by manufacturing firms in 1974 had an average price of \$0.0146 per kwh in Arkansas and \$0.0137 per kwh in the U.S. Thus, in 1974, the average cost of electric energy in Arkansas was 6.6 percent higher than the national average. In 1978, the figure for Arkansas was \$0.0236, and for the U.S., \$0.0252, so that the average for Arkansas dropped to 6.3 percent below that of the nation. Thus, between 1974 and 1978, the cost per kwh grew at an annual (compound) rate of 12.8 percent in Arkansas and 16.5 percent in the U.S. This point introduces the possibility that the greater rate of growth in the average kwh purchased per employee in Arkansas, between 1974 and 1978, relative to the U.S., was at least partially price induced. Actually the competitive advantage (price differential) between Arkansas and the U.S. continued to widen at least through 1980. Specifically, in 1979, the cost per kwh was \$0.0251 and \$0.0278 in Arkansas and the U.S., respectively. For 1980, the two had kwh costs of \$0.0286 (Arkansas) and \$0.0331 (U.S.). The U.S. figure for 1981 was approximately \$0.0382.

While they are more inclusive than the group of Standard Industrial Classifications (manufacturing firms) referred to in the previous paragraph, estimates¹ are available for the cost of electric energy to industrial customers in Arkansas. For 1982, the cost per kwh is estimated as \$0.0371 and for 1983, \$0.0387.

¹Based upon the industrial customers of AP & L, SWEPCO and OG & E in Arkansas; member cooperatives of AECC; and the four largest municipal electric utilities.

Aggregate figures on electric energy purchased by the manufacturing sector will, quite obviously, vary between states because 1) the structure of the manufacturing sector differs between states, and 2) the amount of electric energy purchased varies between industries. Thus, one might desire to examine each industry on the basis of the share of the value of its shipments that is attributable to electric energy purchased, its employment, payroll, etc. While data on profit margins and elasticity of demand are unavailable, the value added by manufacture may, ceteris paribus, be indicative of the margin resulting from operations. In any event, value added is considered to be a better measure of manufacturing activity than value of shipments. Consequently, a discussion and detailed information pertaining to various SIC classifications in 1974 and 1978 is included in Appendix A.

Scope and Design of the Study

The questionnaires (see Appendix B) used in the study to gather current data were developed by personnel of the Bureau of Business and Economic Research (BBER) of the University of Arkansas, Fayetteville, with assistance from staff members of the Arkansas Industrial Development Commission (AIDC). One questionnaire was created to elicit information concerning plants located in AP & L's service area and the other questionnaire was designed to obtain similar data from plants of the same firms but located elsewhere. Both questionnaires were divided into sections, and Section II of each requested information concerning employment, payroll, value of shipments, etc. in a form similar to that contained in Annual Survey of Manufactures published by the Bureau of the Census. Section III of the questionnaire sent to Arkansas plants elicited data on various forms of energy purchased, and Section IV of that questionnaire contained questions concerning levels of production, outlook for the facility, opinions concerning Arkansas as a plant location, etc. The study and questionnaires, in preliminary form, were discussed with management personnel from two Arkansas plants prior to the finalization and distribution of the questionnaire.

The plants selected to receive the questionnaire were approximately the top ten percent of AP & L's industrial customers in each Standard Industrial Classification (SIC) manufacturing group, or a total of 181 plants. The top ten percent was measured in terms of dollar sales in 1983.

A person at each plant was identified as the contact person for the study, and prior to the delivery of the questionnaire, David Harrington of the AIDC wrote each to tell them about the project and request their cooperation. The questionnaires were hand delivered to the specified contact person at each plant by AP & L Customer Service Representatives in late June/early July 1984. The packages delivered to each plant included a letter from Phillip Taylor of the BBER, a copy of the questionnaire for that plant (with a sheet defining terms), three copies of the questionnaire for plants outside the AP & L service area, and envelopes for returning the completed questionnaires to the University. Subsequently, two follow-up letters were sent encouraging participation in the study.

Analysis of the Significance of Electric Energy Costs

Of the 181 questionnaires distributed, 100² were returned in various stages of completion. Thus, the number of observations varies according to the availability of answers.³ Because of the need to protect confidentiality, it is necessary to omit some groups when reporting the data classified by SIC. That, along with the fact that no usable responses were received for SIC 23 (Apparel and Other Textile Products) and SIC 38 (Instruments and Related Goods) reduces the number of SIC specific categories that can be reported.

Based on the questionnaires of 76 respondents that provided answers to all relevant questions, the average cost of purchased electrical energy was \$0.0448 per kwh. The respondents purchased 44,757 kwh per employee, at an average cost of \$2,007. Their EEP/VS ratio⁴ was 0.0185 and electric energy purchased equaled 2.84 percent of their cost of materials and services.⁵ The responding firms had a total employment of 27,752, or 365 employees per firm. These firms accounted for approximately 20 percent of the employment and 39 percent of the electric energy usage (kwh and dollars) in the AP & L service area.

²One questionnaire contained information on more than one establishment but it was treated as a single response.

³The number of respondents upon which the data are based is given in brackets [].

⁴EEP/VS is electric energy purchased divided by value of shipments. The definition for value of shipments is included with the questionnaire in Appendix B.

⁵A definition of this term is provided in Appendix B.

Using the maximum number of responses for each variable, the reported values change, but only modestly. The average cost of purchased electric energy becomes \$0.0444 per kwh [91]. The respondents purchased 48,097 kwh [85] per employee, at an average cost of \$2,256 [92]. Their EEP/VS ratio was 0.0199 [85] and electric energy purchased equaled 2.9 percent [83] of their cost of materials and services.

Based on all firms supplying the relevant data, the mean electricity expenditures as a percent of total operating costs was 4.58 [83] and the mean for total operating costs as a percent of sales was 84.70 [75]. Alternatively, the means of the SIC groups were 4.63 for electricity as a percent of total operating costs and 82.27 for total operating costs as a percent of sales.

The responding firms had a total employment of 33,364, or 363 employees per firm [93]. This amounted to 24 percent of the employment in the AP & L service area. The ninety-one firms supplying energy data used approximately 51 percent of the kwh and produced 50 percent of the revenues from the combined industries.

Food and Kindred Products (SIC 20)

From the standpoint of employment, this is the largest SIC group in the AP & L service area. Of the 35,800 employed in this sector in Arkansas, 49 percent, or 17,500, are in areas served by AP & L. The responding firms [12] had 8,201 employees (683 per firm) or 47 percent of that in this SIC within the service area.

This industry reported a mean EEP/VS ratio of 0.0137 [11] for 1983, an increase of 0.0072 over 1978.⁶ Their electric energy purchased per employee was 27,222 kwh [13], with a cost per employee of \$1,319 [14]. Usage was down 1,744 kwh per employee and cost was up \$526 as compared to 1978.

Purchased electricity was equal to 1.92 percent of the cost of materials and services [12] for the industry as a whole. The average proportion of total operating costs⁷ attributable to electricity costs for the firms was 4.4 percent [12]. Operating costs, as a percent of sales, were 81.7 percent [10] when computed as an average of firms.⁸

The average cost of electric energy for the industry was \$0.0483 per kwh [14]. These firms consumed approximately 52 percent of the kwh and provided 54 percent of the revenue in this SIC.

Lumber and Wood Products (SIC 24)

This sector employs 16,000 individuals in the AP & L area, or 82 percent of the industry total in Arkansas. Respondents [15] employed 3,457 individuals (with a mean per firm of 230) or 22 percent of the SIC total in the service area.

With an EEP/VS ratio of 0.035 [16], this industry was the third highest of any reported.⁹ This was 0.036 below that reported in 1978.

⁶This is the last year for which published data classified by SIC at the state level are available.

⁷See Appendix B for a definition of total operating costs.

⁸The Coefficient of Variation (CV) was equal to 36.0. This is a statistical measure of relative dispersion and indicates the homogeneity of the values in the data set.

⁹Based upon firms providing full information.

The industry cost per kwh was \$0.0505 [13] and electricity costs were equal to 5.4 percent [16] of the cost of materials and services.

For the total industry in Arkansas, the utilization of electric energy averaged 53,717 kwh [13] and \$2,561 per employee [16].

As an average per firm, electricity costs were 6.0 percent [15] of total operating costs. Computed in the same manner, operating costs as a percent of sales were 86.5¹⁰ [14].

Firms participating in the study [13] used 40 percent of the kwh and produced 39 percent of the revenue for this SIC within the area served by AP & L.

Paper and Allied Products (SIC 26)

In 1983, employment in this SIC classification was 9,600 and 12,300 in the AP & L service area and Arkansas, respectively.

This manufacturing sector reported a EEP/VS ratio of 0.031 [6], up 0.010 from 1978. The industry average cost per kwh was \$0.0412 [6].

Electric energy purchased per employee, for the industry, was 128,124 kwh, or \$5,274 [6]. Total expenditures on electricity were equal to 6.1 percent of the cost of materials and services [5].

The per firm average for electricity costs as a percent of total operating costs was 3.7 [6] and operating costs as a percent of sales were 92.8 [5].¹¹ Mean employment per firm was 518, for a total of 3,108 [6]. This is 32 percent of the service area employment for this SIC.

¹⁰CV = 11.0.

¹¹CV = 7.5.

The six firms supplying data accounted for 72 percent of the kwh utilized and provided 73 percent of the revenue derived from this SIC.

Chemicals, Allied Products (SIC 28)

Almost ninety percent, or 5,400, of the 6,100 individuals in this sector in Arkansas are employed within the AP & L service area. Responding establishments had a total employment of 1,510 [5] and averaged 302 per facility. Twenty-eight percent of this SIC's employment in the service area was included in the study group.

This was the second highest reported industry EEP/VS ratio at 0.0340 [5] and showed an increase of 0.0166 over 1978. Average cost per kwh for the industry was \$0.0374 [4]. This group of four firms consumed approximately 60 percent of the kwh and contributed 56 percent of the revenue AP & L derived for this industry group.

Overall, the industry spent an average of \$8,874 [5] for 232,991 kwh [4] per employee.

Expenditures on electricity from the industry were equivalent to 6 percent of the cost of materials and services [5]. On a per firm basis, electricity costs as a percent of total operating costs were 4.2 [5].¹² In relationship to sales, the average firm total operating cost was 87.6 percent [4].¹³

Petroleum and Coal Products (SIC 29)

Ninety-three percent (1,300) of this sector's employment in 1983 was within the AP & L service area.

¹²CV = 31.8.

¹³CV = 7.0.

The per employee cost of electric energy was \$10,170 [4]. The mean per firm percent of operating expenses accounted for by electric energy was 6.7 percent [4]. The four firms for which data can be reported employed a total of 643 individuals, with a per establishment average of 161. This amounted to 49 percent of SIC 29's employment within AP & L's service area.

Rubber, Miscellaneous Plastic Products (SIC 30)

Within the AP & L service area, this industry employs 4,600 workers, or about one-half the state total. The five firms responding had a total employment of 1,319 (an average of 264) for 29 percent of the service area's employment in this SIC.

The EEP/VS ratio reported by this industry [5] was 0.0167. This was an increase of only 0.0004 since 1978. The industry average cost for electric energy purchased was \$0.0441 per kwh [6].

Industry usage of electricity was equivalent to 47,577 kwh per employee [5], with a per employee cost of \$2,144 [5]. The industry average expenditure on electricity was equal to 2.3 percent [5] of the cost of materials and services.

The mean of the data reported by firms shows electricity cost to be 2.4¹⁴ percent of total operating cost [5].¹⁵ Similarly, total operating costs were 94.0¹⁶ percent [5] of sales.

¹⁴CV = 16.4.

¹⁵It is readily apparent that expenditures on electric energy as a percentage of the cost of materials and services should be less than electricity cost as a percent of total operating costs. However, for SIC 30 and SIC 33 that is not the case for data presented in this report. The source of this difference rests with the computation methods utilized. Electricity as a percent of materials and services

The six firms included in the study reported electric energy usage (kwh) of approximately 57 percent of the SIC total within the AP & L area, along with 56 percent of the revenue derived from this group.

Primary Metals Industries (SIC 33)

Within Arkansas, employment in this SIC classification totals 7,200. In the area served by AP & L, industry employment is 5,000.

Some of the largest electric energy users in this sector did not respond to the survey. Consequently, the results cannot be compared directly to those reported by the Bureau of the Census in 1978.

The industry reported EEP/VS ratio was 0.0200 [6], with an average cost of \$0.050 per kwh [7]. Utilization of purchased electric energy, per employee, for the industry was 49,502 kwh [6] with a cost of \$2,512 [6]. The electric energy expenditures reported were equal to 2.6 percent of the cost of materials and services for the industry [6].

The averages for electricity expenditures as a percent of total operating costs and total operating costs as a percent of sales were 3.1 percent¹⁷ and 97.7¹⁸ percent, respectively [6]. The six responding firms had a mean employment of 300 each, or a total of 1,799, and

was computed by summing the dollar amounts of each variable for the industry and then determining a percentage. (This procedure gives added weight to larger establishments.) Electricity cost as a percent of total operating costs was computed as the mean of reported percentages for the industry. (This procedure gives equal weights to all establishments.)

¹⁶CV = 2.9.

¹⁷Please see footnote 14.

¹⁸CV = 5.9.

accounted for about 36 percent of this industry's employment in the service area.

The firms [7] providing data used approximately 51 percent of the kwh and accounted for 55 percent of the revenue derived by AP & L from this SIC.

Fabricated Metal Products (SIC 34)

This SIC had employment in Arkansas of 14,600 in 1983. Of that number, 77 percent, or 11,300, were within the service area of AP & L. Employment of the reporting group [7] was 2,102, or 300 per firm. The firms in the study represent approximately 19 percent of the employment within the AP & L area for this SIC.

The EEP/VS ratio reported for this industry [6] was 0.0213, an increase of 0.0106 since 1978. The average per kwh cost for the industry was \$0.050 [8].

The combined group of SIC 34 firms responding to the questionnaire utilized 28,306 kwh per employee [7], or \$1,468 per job [7]. Total purchases of electric energy by the industry were equal to 4.1 percent of the cost of materials and services [6]. The averages of the cost of electricity as a percent of total operating costs and operating costs as a percent of sales for the reporting firms were 3.2 percent and 86.0¹⁹ percent, respectively [4].

Approximately 60 percent of the kwh used by this SIC is attributable to the establishments [8] in the study. This group's [8] expenditures on electric energy provided 58 percent of the revenue from the SIC.

¹⁹CV = 21.3.

Machinery, Except Electric (SIC 35)

In 1983, this industry had 8,200 workers in the AP & L service area. The total for this SIC in Arkansas was 13,800.

With an EEP/VS ratio of 0.0122 [4], this industry was one of the lowest found in the study and showed an increase of only 0.0059 since 1978. The industry utilized 17,333 kwh [4] per employee and spent \$856 [4] on electric energy for each employee. The average cost per kwh was \$0.0500 [5].

For the entire SIC, electric energy costs were 2.6 percent [4] of the cost of materials and services. As a mean of reporting firms, electric energy costs were 2.3 percent [4] of total operating costs. The reporting establishments had an average employment of 766 for a total of 1,019 employees [4]. This total was about 12 percent of the service area's employment in this SIC.

Five firms reported a total usage of 25 percent of the kwh and 22 percent of the revenues attributable to this SIC within the AP & L area.

Electric, Electronic Equipment (SIC 36)

This is the industry group with the second largest employment in both AP & L's service area and Arkansas. In the service area, 17,300 are employed in the manufacture of electric and electronic equipment, while in Arkansas the total number is 26,000. The five firms in the study had a total of 3,830 employees, or 766 per establishments. In other words, the reporting firms had 22 percent of the employment in this SIC within the geographic region served by AP & L.

The EEP/VS ratio of 0.0062 [5] for this industry was the next to lowest of any reported in the study. As compared to 1978, it was up

0.0011. The utilization of purchased electric energy by this industry averaged [6] 14,939 kwh, or \$729 per employee. The average cost per kwh was \$0.049 [6].

For the industry as a whole, electric energy costs were 0.74 percent of the cost of materials and services [5]. Calculated as an average of that reported by five firms, electricity costs as a percent of total operating costs were 1.2 percent and based on the responses of four firms, total operating costs were 91.3²⁰ percent of sales.

The firms reporting [6] utilized approximately 45 percent of the kwh attributable to this SIC within the service area. In so doing, they also supplied 45 percent of the revenue AP & L derived from this industry classification.

²⁰CV = 11.4.

Table I
Summary of Industry Averages

	SIC 20		SIC 24		SIC 26		SIC 28		SIC 29		SIC 30	
	N	Amount	N	Amount	N	Amount	N	Amount	N	Amount	N	Amount
Electric Energy Purchased/Value of Shipments (EEP/VS)	11	0.0137	16	0.0350	6	0.0305	5	0.0340		D	5	0.0167
Electric Energy Purchased/Employment	14	\$1,319	16	\$2,523	6	\$5,273	5	\$8,874	4	\$10,170	5	\$2,144
Kwh/Employment	13	27,222	13	53,717	6	128,124	4	232,991		D	5	47,577
Electric Energy Purchased/Cost of Materials and Services	12	0.0192	16	0.0541	5	0.0613	5	0.0602		D	5	0.0234
Cost per Kwh	14	\$0.0483	13	\$0.0505	6	\$0.0412	4	\$0.0374		D	6	\$0.0441

Note: N indicates the number of establishments providing information.

D indicates a limitation on the ability to report in order to protect confidentiality.

These data are computed as the total for the number of firms shown divided by the number. Large firms could bias the results.

Table I (Cont.)

	SIC 33		SIC 34		SIC 35		SIC 36		SIC 37	
	N	Amount	N	Amount	N	Amount	N	Amount	N	Amount
Electric Energy Purchased/Value of Shipments (EEP/VS)	6	0.0200	6	0.0213	4	0.0122	5	0.0062		D
Electric Energy Purchased/ Employment	6	\$2,512	7	\$1,468	4	\$856	5	\$729	4	\$764
Kwh/Employment	6	49,502	7	28,306	4	17,333	5	14,939		D
Electric Energy Purchased/Cost of Materials and Services	6	0.0258	6	0.0405	4	0.0264	5	0.0074		D
Cost per Kwh	7	\$0.0505	8	\$0.0504	5	\$0.0500	6	\$0.0488		D

Note: N indicates the number of establishments providing information.

D indicates a limitation on the ability to report in order to protect confidentiality.

These data are computed as the total for the number of firms shown divided by the number. Large firms could bias the results.

Table II
Summary of Firm Averages
by Industry

SIC	Electricity Purchased as a Percent of Total Operating Costs			Total Operating Costs as a Percent of Sales			Employment			
	N	Mean	C.V.	N	Mean	C.V.	N	Sum	Mean	C.V.
20	12	4.39	111.8	10	81.7	36.0	12	8,201	683	167.9
24	15	6.04	106.2	14	86.5	11.0	15	3,457	230	128.8
26	6	3.70	98.9	5	92.8	7.5	6	3,108	518	107.6
28	5	4.20	31.8	4	87.6	7.0	5	1,510	302	61.0
29	4	6.66	60.1		D		4	643	161	74.6
30	5	2.40	16.4	5	94.0	2.9	5	1,319	264	51.5
33	6	3.10	79.6	6	97.7	5.9	6	1,799	300	66.4
34	4	3.15	80.0	4	86.0	21.3	4	1,200	300	58.8
35	4	2.27	65.8		D		4	1,019	225	32.1
36	5	1.24	60.5	4	91.3	11.4	5	3,830	766	86.0

Note: N indicates the number of establishments providing this information.

D indicates a limitation on the ability to report in order to protect confidentiality.

These data were computed as an arithmetic mean of the firms. The data for each firm are given equal weight.

Table III

SIC Code	Description	AP & L Service Area	Arkansas	AP & L/ Arkansas
20	Food and Kindred Products	17.5	35.8	.49
22	Textile Mill Products	3.4	3.7	.92
23	Apparel, Oth. Textile Prods.	7.5	10.2	.74
24	Lumber and Wood Products	16.0	19.6	.82
25	Furniture and Fixtures	5.4	9.1	.59
26	Paper and Allied Products	9.6	12.3	.78
27	Printing and Publishing	7.3	9.7	.75
28	Chemicals, Allied Products	5.4	6.1	.89
29	Petroleum and Coal Products	1.3	1.4	.93
30	Rubber, Misc. Plastics Prod.	4.6	9.1	.51
31	Leather, Leather Products	5.7	6.7	.85
32	Stone, Clay, Glass Products	2.6	5.0	.52
33	Primary Metal Industries	5.0	7.2	.69
34	Fabricated Metal Products	11.3	14.6	.77
35	Machinery, Except Electric	8.2	13.8	.59
36	Electric, Electronic Equip	17.3	26.0	.67
37	Transportation Equipment	5.1	7.1	.72
38-39	Instruments, Related Goods and Miscellaneous	7.2	8.5	.85

Source: Arkansas Department of Labor, Employment Security Division

Table IV

Arkansas Power and Light Company
Sales of Energy by SIC Classification
Year Ending March, 1984

SIC Code	Description	KWH (1,000's)	Revenue	Revenue per KWH
20	Food and Kindred Products	446,348	\$20,766,131	\$0.0465
22	Textile Mill Products	98,511	4,143,898	0.0419
23	Apparel, Oth. Textile Prods.	33,663	2,111,350	0.0627
24	Lumber and Wood Products	412,408	21,564,793	0.0522
25	Furniture and Fixtures	9,502	650,795	0.0684
26	Paper and Allied Products	552,754	22,412,465	0.0405
27	Printing and Publishing	38,188	2,034,087	0.0532
28	Chemicals, Allied Products	529,397	21,176,876	0.0400
29	Petroleum and Coal Products	152,360	5,961,957	0.0391
30	Rubber, Misc. Plastics Prod.	127,237	5,744,698	0.0451
31	Leather, Leather Products	34,744	1,956,463	0.0563
32	Stone, Clay, Glass Products	66,034	3,687,060	0.0558
33	Primary Metal Industries	194,911	9,063,060	0.0558
34	Fabricated Metal Products	120,094	6,297,559	0.0524
35	Machinery, Except Electric	77,330	4,283,002	0.0553
36	Electric, Electronic Equip	143,294	6,933,286	0.0483
37	Transportation Equipment	53,350	2,956,168	0.0554
38	Instruments, Related Goods	15,595	760,641	0.0487
39	Miscellaneous	39,236	1,544,387	0.0396
Total		3,144,956	\$144,047,676	\$0.0458

Source: Derived from AP & L internal records.

Electric Energy Usage in Manufacturing Locations in the
AP & L Service Area as Compared to Other Locations

The data for 1978 (the most recent available from the Bureau of the Census) indicate that industries in Arkansas varied somewhat from the national averages with respect to the amount of electric energy purchased per employee, the significance of the total cost of electricity, its price, etc. Since it is obvious that most plants located in Arkansas compete on at least a regional basis, and some nationally or internationally, comparisons of the cost experience between the AP & L service area and other locations continues to be of interest.

Within Arkansas, the average cost of electric energy for AP & L's industrial customers was \$0.0368 per kwh in 1982 and \$0.0375 per kwh in 1983. These costs are \$0.0003 and \$0.0012 below the average for Arkansas in 1982 and 1983, respectively.

Data are also available on the average industrial rates of utilities that are members of the Edison Electric Institute (EEI) Rate Research Committee. In 1982, AP & L reported a mean industrial rate of \$0.03701²¹ per kwh. Of the 99 operating companies included in this study, only eleven had rates lower than that of AP & L. When the study was repeated in 1983, AP & L ranked tenth among 113 reporting operating systems, with a mean rate of \$0.0377 per kwh. The Arkansas portion of AP & L, at \$0.0375 per kwh, would have tied for the eighth position (with Gulf States Utilities Company) in 1983 had it been included in the EEI study.

²¹This number, as well as that for 1983, differ slightly from those reported in the previous paragraph. The averages used for comparisons in Arkansas reflect only the Arkansas portion of AP & L. When reporting to the EEI, the entire AP & L operating system is included.

The Tennessee Valley Authority (TVA) also collects data on industrial electric energy costs utilities in the southeastern U.S. The TVA cost estimates are based on theoretical levels of peak demand, load factors, etc., so that a given operating company's relative position may vary over the range of assumptions. However, in January 1984, the latest available study, the industrial rates estimated for AP & L were generally in the bottom one-fourth of the twenty-five utility companies included in the analysis.

As noted earlier, industrial rates are more inclusive than manufacturing firm rates. However, there is no reason to assume the relative position for AP & L with respect to rates for manufacturing firms would be substantially different than for the broader industrial grouping.

When the questionnaires for Arkansas establishments were distributed, the package of materials included three copies of a questionnaire designed to be distributed to locations outside the AP & L service area. Each recipient of the package of materials was asked to send this second questionnaire to other, similar plants owned by its parent company. Nine of these questionnaires were returned and eight of them could be matched with establishments included in the study.

The eight returned questionnaires in several instances show relatively small variations between sites in the AP & L service area and elsewhere. Except for two locations, one in the northwestern and one in the western U.S., the largest variation in per kwh cost is \$0.008. In four of the eight cases, electric energy purchases as a percent of total operating costs are less for AP & L served establishments. The ratio of EEP/VS is generally higher in Arkansas but in only two

instances is it more than \$0.01 per dollar of value of shipments higher and, in those two instances, operating costs as a percent of sales are 85 percent or less. However, large differences between firms in the AP & L service area and elsewhere do exist for kwh per employee and dollars of electric energy expenditures per employee, as well as for operating costs as a percent of sales.

It should be noted that each of these comparisons represent only one establishment outside the AP & L service area compared to one establishment within the service area. The "outside" establishment may, or may not, be representative of each firm's operations. Thus, while these data are useful, they should be utilized within the context of the entire body of available data contained within the study.

Table V
Comparisons of Manufacturing
Establishments

	<u>AP&L Territory</u>	<u>Elsewhere</u>
Company 1		
Cost per kwh. ¹	\$0.045	\$0.042
kwh/emp. ²	142,336	175,540
EEP/emp. ³	\$6,350	\$7,371
EEP/VS ⁴	0.087	0.084
EEP/Op. Cost. ⁵	11%	9.9%
Op. Cost/Sales ⁶	90%	85.1%
Company 2		
Cost per kwh.	\$0.047	\$0.046
kwh/emp.	75,210	28,634
EEP/emp.	\$3,549	\$1,312
EEP/VS	0.036	0.023
EEP/Op. Cost.	4%	4%
Op. Cost/Sales	85%	55%
Company 3		
Cost per kwh.	\$0.037	\$0.035
kwh/emp.	239,110	589,598
EEP/emp.	\$8,961	\$20,799
EEP/VS	0.030	0.030
EEP/Op. Cost	3.2%	3.3%
Op. Cost/Sales	94.9%	93.5%
Company 4		
Cost per kwh.	\$0.040	\$0.032
kwh/emp.	96,161	93,890
EEP/emp.	\$3,847	\$3,061
EEP/VS	0.032	0.025
EEP/Op. Cost	3.2%	2.9%
Op. Cost/Sales	98.9%	82.8%
Company 5		
Cost per kwh.	\$0.060	\$0.064
kwh/emp.	17,937	9,357
EEP/emp.	\$1,075	\$597
EEP/VS	0.025	0.014
EEP/Op. Cost	2.9%	3.5%
Op. Cost/Sales	84.2%	62.2%

Table V (Cont.)

	<u>AP&L Territory</u>	<u>Elsewhere</u>
Company 6		
Cost per kwh.	\$0.050	\$0.063
kwh/emp.	15,231	9,138
EEP/emp.	\$767	\$574
EEP/VS	0.013	0.007
EEP/Op. Cost	1.3%	0.8%
Op. Cost/Sales	97.6%	88.4%
Company 7		
Cost per kwh.	\$0.046	\$0.015
kwh/emp.	122,863	356,882
EEP/emp.	\$5,617	\$5,178
EEP/VS	0.020	0.021
EEP/Op. Cost	2.2%	2.6%
Op. Cost/Sales	93.4%	81.7%
Company 8		
Cost per kwh.	\$0.0390	\$0.0653
kwh/emp.	68,711	52,236
EEP/emp.	\$2,677	\$3,410
EEP/VS	0.016	0.021
EEP/Op. Cost	1.5%	2.0
Op. Cost/Sales	95.7%	104%

¹Dollar expenditures on electric energy (EEP) divided by the number of kwh.

²The number of kwh divided by number of employees.

³Electric energy purchased (EEP) divided by number of employees.

⁴Electric energy purchased (EEP) divided by value of shipments (VS).

⁵The percent of total operating costs represented by electric energy purchases.

⁶Total operating expenses stated as a percent of sales.

Industry Prepared Comparisons
of Electric Energy Costs

As a part of the study, recipients of the questionnaire were asked if their company had made a study comparing electric energy costs in various states. Twelve companies answered in the affirmative and supplied names and addresses for contact purposes. Ultimately six of the companies provided copies of their in-house studies. To protect confidentiality, the source of the data is confined to the SIC group number and locations are specified only as location A, B, C, etc., with the location in Arkansas Power and Light Company's service area noted. It is difficult to generalize from these data because of the diversity of SIC classifications and base time periods. However, they would appear to indicate that AP & L rates (cost per kwh) are average or below.

SIC 20¹

<u>Location</u>	<u>Cost per KWH</u>
A	\$0.0444
B	0.0488
C	0.0548
D ²	0.0506
E	0.0510

¹Date of Information - current (1984).

²"D" is an Arkansas location but cost shown is not exclusively for AP & L supplied energy.

SIC 24¹

<u>Location</u>	<u>Cost per KWH</u>
A ²	\$0.054 to \$0.076
B	0.038
C	0.064
D ³	0.021 to 0.031

¹Date of Information - current (1984).

²AP & L service area.

³Hydroelectric power.

SIC 26¹

<u>Location</u>	<u>Cost per KWH</u>
A ²	\$0.044
B	0.041 to 0.046
C ³	0.021
D	0.048

¹Date of Information - current (1984).

²AP & L service area.

³Hydroelectric power.

SIC 33¹

Location	Cost per KWH
A	\$.087
B	.187
C	.054
D	.081
E	.078
F ²	.051
G	.068
H	.074
I	.086
J	.046
K	.057
L	.045
M	.046
N	.051
O	.050
P	.073
Q	.083

¹ Date of Information - Unknown but referenced by sender as current.

² AP & L Service Area.

SIC 33

Service Month To	Kwh Usage	Location			
		A ¹	B ²	C ²	D ²
11/02/81	4,358,000	\$179,865.02	181,892.07	208,621.40	226,353.69
10/01/81	5,745,600	334,437.62	167,258.55	196,050.80	197,933.06
09/01/81	6,451,200	366,280.64	181,704.00	210,515.60	217,926.75
07/01/81	5,871,600	288,969.30	158,636.38	198,633.80	200,866.87
07/31/81	5,334,000	304,663.57	155,162.00	187,613.00	184,842.39
06/01/81	5,972,400	183,907.96	160,847.83	200,700.00	203,906.68
05/01/81	5,838,000	185,621.96	157,899.23	197,945.00	200,130.81
04/02/81	5,619,600	188,692.82	152,509.67	193,467.80	193,382.19
03/02/81	5,821,200	195,915.56	167,333.49	197,600.60	199,431.05
02/02/81	6,199,200	207,612.65	176,299.65	205,349.60	210,574.24
01/02/81	5,745,600	184,681.00	165,540.26	196,050.80	195,563.91
12/01/80	5,682,600	205,517.58	164,031.43	194,759.30	196,090.31

¹ AP & L Actually Billed

² These data are estimated based on the specified kwh usage.

SIC 35¹

<u>Location</u>	<u>Cost per KWH</u>
A	\$0.0285
B	0.0312
C	0.0362
D	0.0274
E ²	0.0288
F	0.0337
G	0.0317
H	0.0329
I	0.0310
J	0.0279
K	0.0378
L	0.0326
M	0.0347
N	0.0352

¹Date of Information - 1980.

²AP & L Service Area.

SIC - Various¹

<u>Location</u>	<u>Cost per KWH</u>
A	\$0.043038
B	0.047078
C	0.064821
D	0.047638
E ²	0.045920
F	0.050719
G	0.056247
H	0.051269
I	0.072801
J	0.090322

¹Date of Information - Current (1983-1984).

²AP & L Service Area.

Current Economic Conditions Among, and Outlook
for, Arkansas Manufacturing Establishments

Of those establishments responding to this portion of the questionnaire, almost 85 percent operated at production levels of 61 percent or more of capacity in 1983. Almost 48 percent of the respondents were producing at 81 percent or more of capacity in that year.

With respect to current year (1984) operations, 66 percent were at normal operating levels and over 63 percent of those expected a continuation of this condition in the near term. Almost 24 percent of the group, however, expected an upturn. About 23 percent of the responding establishments were operating at below normal levels in 1984, but one-half of that group expected an upturn in the near term. Of the eleven percent operating at above normal levels, sixty percent expected a continuation of current conditions and twenty percent expected an upturn. Overall, only seven responding establishments expected a near-term decline from current operating levels.

With respect to long-term outlook (1985-1990), approximately 42 percent of the establishments expected expansion and 39 percent a continuation of current levels of production. Over twelve percent, however, expected cutbacks at their facility.

When asked if their company should decide to expand its capacity, whether that expansion is likely to be in Arkansas, over two thirds (68.6 percent) of the respondents said yes. Of that group, over 83 percent believe expansion would be in the form of an increased investment at the responding establishment.

A tabulation of responses to Section IV of the questionnaire is contained in Appendix C.

Comments Concerning Arkansas as
a Manufacturing Location

As a part of the research project, firms were asked to comment on 1) what factors determined their belief that any expansion in capacity would or would not take place in Arkansas; 2) the three most positive aspects (if any) of their plant's location in Arkansas; and 3) the three most negative aspects (if any) of their plant's location in Arkansas. (For the specific form of the questions, please refer to questions 5, 7 and 8 of Section IV of the questionnaire.)

The responses frequently included multiple comments and, as should be expected, the comments of some firms are in direct opposition to those of others. However, at least some patterns, based upon frequency of the comments, do emerge. In the following sections, the respondents' comments are grouped and then summarized.

Factors Determining Future Location Decisions

Labor. The supply of available labor or some factor related to the workforce was mentioned positively twenty-two times. While the labor supply accounted for twelve comments (from seven SIC groups), other positive comments included wage rates, worker attitude, right-to-work law, expertise (skills), quality of labor, and favorable labor/management relations. Negatively, some aspect of the workforce was listed four times. Those things seen as negative location determinants were increasing labor costs, the presence of unions, and people skills.

Raw Materials. Exclusive of energy, raw materials were mentioned seventeen times. The availability of raw materials was mentioned

positively in twelve responses, primarily in SIC 20 and 24.

Negatively, insufficient raw materials, either timber or oil, were denoted four times and lack of water was listed by one establishment.

Energy. Either energy or utilities were mentioned fifteen times, twelve of which were negative. The instability and/or uncertainty of costs were noted, as well as the level, as considerations that would prohibit expansion occurring in Arkansas. On the positive side, energy cost was mentioned twice and energy availability was mentioned once.

Geography. Factors related to the market area and transportation were listed in twenty-eight instances, with eighteen of those being favorable to an Arkansas location. Comments concerning geography in a positive vein included area served, local business, Sunbelt location, proximity to related inter-company activities, and access to corporate management. Negative considerations mentioned were distribution channels, freight and distribution costs, better service to the market from another location, proximity of major customers, and distance from home office.

Present Facility. The condition, or fact of existence, of the facility surveyed was listed as a consideration in twenty-one instances, all but one being positive. For the most part, the positive answers could be summarized as "the present facility is here."

Other Factors. A mixture of other comments was provided on the returned questionnaires. Among them were positive factors concerning legislative climate, environmental agency attitude, financial incentives, the attitude of state government and local citizens toward

industry, an attractive tax climate, and cost of operations.

Negatively, the following factors were among those listed: high production costs, corporate tax rates, educational facilities, tax burden, and economic conditions in Arkansas.

Summary. Based on the frequency of comments, the strongest favorable factors for industrial expansion center upon Arkansas' central location, both the quantity and work ethic of its labor force, the availability of timber, and the fact that facilities presently exist here and are viewed as expandable. Generally viewed as negative determinates were: dwindling or inadequate timber and oil resources; increasing labor and production costs; and high, uncertain, and unstable energy (or utility) costs.

Overall, the positive comments outnumbered the negative ones by about 2 to 1.

Positive Aspects of Arkansas Locations

Labor. This factor was listed, in one form or other, by all responding SIC groups for a total of seventy-nine times. The availability of labor accounted for about one-half of the list. This was followed by labor costs (wages), the work ethic, and the right-to-work law. Also mentioned (either once or twice in each instance) were labor relations, quality of labor, lack of turnover, and little union activity.

Raw Materials. The availability of timber was mentioned by sixteen establishments in SIC groups 24 and 26. In addition, the availability of raw materials, or natural resources in general, was stated

was stated instances. Specific mention was also made of water supply (twice), oil and gas (twice), and land.

Energy. Competitive utilities and the availability of utilities were mentioned by three firms. Four other firms cited low energy costs as an advantage of an Arkansas location.

Geography. In one manner or other, thirty-seven responses indicated location (geography) as an advantage. Twenty-one responses across most SIC groups pointed to Arkansas as a central location. Another eleven denoted location, Sunbelt product distribution, market, proximity to customers, or some similar descriptor.

Transportation. Nearness to a freight centroid was listed by three firms, while seven others mentioned transportation in general. Two respondents, in SIC 20, commented on highway access, another in that SIC listed low freight rates as a result of river transportation, and one other mentioned location relative to the rail industry. One respondent (SIC 24) listed the availability of port facilities.

Weather. Several (eleven) respondents, from seven SIC's, listed Arkansas weather as an advantage.

Operating Costs. Competitive costs, construction costs, operating costs, occupancy costs, and favorable overhead were each mentioned as an advantage by a responding establishment.

Taxes. This factor was mentioned in several differing forms. Answers of eleven respondents could be categorized as "low taxes." Property taxes and a good tax structure were each listed by a respondent.

Other. The remaining responses centered upon state government and local leadership. At the state level, regulatory climate,

environmental attitude, cooperation, and the Arkansas Industrial Development Commission were cited. As local factors, good schools was mentioned once, community leadership was listed six times; while industrial climate was mentioned twice and industrial financing was mentioned three times. The state's environment and quality of life were noted in a total of seven responses.

Summary. The most frequently mentioned advantages were: 1) availability of labor; 2) the work ethic; 3) proximity to markets (central location); and 4) availability of resources. Low taxes, weather, environment, and quality of life were also listed by several respondents.

Negative Aspects of Arkansas Locations

More so than the list of advantages, there was a substantial diversity among the items listed as a disadvantage to an Arkansas location. Thus, it is somewhat more difficult to generalize, or group, the disadvantages.

Labor. The lack of skilled or educated labor was listed by twenty-four respondents. In addition, two responses mentioned a lack of available management personnel, with one of them specifically stating difficulty in "recruiting management personnel." Single responses included the quantity of labor, militant labor, union activity, and wage rates. Three firms noted the State's Workmen Compensation law, and two said labor cost increases were a disadvantage. One respondent simply listed "the labor market."

Raw Materials. Nine respondents mentioned raw materials. Of that number, two specified timber and two others referred to the supply of crude oil.

Energy. This was the most frequently mentioned factor in that statements concerning energy or utilities appeared forty-three times. Almost two-thirds of the statements were related to the cost of energy. The uncertainty of future costs was listed eight times, whereas the rising cost was mentioned seven times. The respondents mentioning this factor were from virtually all SIC groups.

Geography. The distance from customers, vendors, or repair facilities was noted in the responses in a total of eight instances.

Transportation. Inadequate or inferior transportation, in general terms, was listed six times. In addition, highways were mentioned by four respondents; air transportation by four; and rail service (or rates) by five. Increased costs, poor routes, and traveler logistics also appeared as disadvantages.

Taxes. Increasing state and local taxes and truck weight taxes were each mentioned by a firm. Two others listed high taxes and another noted there was no tax incentive to expand.

Government. Some aspect of either local or state government, excluding education, was mentioned sixteen times, with about one-third of the responses referring to local governments. Among the sixteen, highway regulations were noted three times, environmental controls (or costs) five times and the unavailability or uncertainty of financing, twice.

Education. The quality or lack of vocational-technical education facilities (programs) were listed as a disadvantage by four firms. A greater number of responses noted inadequate education facilities or programs (a total of eight).

Other. The remainder of the items listed included 1) poor access to cultural events/entertainment; 2) lack of technical support, 3) ACORN; 4) high chemical costs; 5) number of competitors; 6) weather; 7) health care costs; 8) lack of some services or commodities; 9) lack of international banking facilities; etc. Each of these was mentioned once, except that item (8) was listed twice.

Summary. Energy (or utilities) was the most frequently mentioned disadvantage from the standpoint of the continued increasing level and uncertainty of costs. This factor was noted both from the standpoint of level and uncertainty of cost. The lack of skilled labor or some aspect of the workforce was mentioned almost as frequently as energy. This was followed by transportation difficulties, government (state and local) and education (technical and general).

Summary

The quantity of the labor, along with the prevailing work ethic, is probably the most noteworthy of Arkansas' industrial location advantages. This is tempered, somewhat, by the lack of skilled (technical) employees and what is perceived as inadequate vocational-technical training facilities.

Raw materials, weather, and the environment are also considered to be advantages but while SIC's 20 and 24 view raw materials positively, the supply is seen as dwindling among the firms in some sectors.

Electric energy cost, as well as that of some other utilities, is viewed as a negative factor among a large proportion of the establishments. However, comments would seem to indicate that cost increases and uncertainty are of almost equal significance to the actual level of costs. Some firms do view electric energy costs, and availability, as an advantage of an Arkansas location.

The central location of Arkansas, or its proximity to markets, is a frequently mentioned advantage. The absence of adequate transportation (rail, air and, in some instances, highway) reduces this advantage, however. Similarly, an Arkansas location can be viewed as a disadvantage with respect to maintenance, customers, etc.

Government in Arkansas, both local and State, is neither clearly an advantage nor a disadvantage. This is inclusive of regulations and taxes.

APPENDIX A

Historical Data: A Synopsis of 1974 and 1978

The following sections consider each industry (2-digit SIC group) in descending order with reference to the ratio of electric energy purchased to value of shipments (EEP/VS) in 1978.

Primary Metal Industries (SIC 33)

The EEP/VS ratio in Arkansas was 0.0734 as compared to 0.0286 for the U.S. The value added margin in Arkansas was 32 percent and for the U.S. it was 38 percent. Overall, this sector purchased \$6,545 in electric energy for each of its jobs in Arkansas and, in so doing, accounted for 26.6 percent of the electric energy purchased in the state, 3.7 percent of the employment, and 4.5 percent of the payroll.

The kwh purchased per employee in Arkansas was 377,442, while the average in the U.S. for this SIC was 144,871. The cost per kwh was \$0.0173, or 14 percent less than the national industry average of \$0.0202.

In this particular sector, it is obvious that the production processes used by some firms in Arkansas in 1978 were much more heavily dependent upon electric energy than was the norm nationally. Moreover, plants in Arkansas would appear to have had lower value added margins, 32 percent as compared to 38 percent, than the national average for plants in this classification. In aggregate terms, the segment of industry in Arkansas would appear to have been operating at a disadvantage.

Paper and Allied Products (SIC 26)

The second highest EEP/VS ratio was 0.0210, or only 28.5 percent of that for SIC 33. The national average for the ratio was 0.0184. The value added margins were 39.5 percent and 42.9 percent for

Arkansas and the U.S., respectively. In this sector in Arkansas, \$2,352 in electric energy was purchased for each job. This classification accounted for 13.4 percent of the electric energy purchased, provided 5.2 percent of the manufacturing jobs and 8.1 percent of the payroll.

The average cost per kwh was \$0.0246 in Arkansas and \$0.0230 nationally. The national average amount of electric energy purchased for this sector was 71,424 kwh per employee and in Arkansas, 95,454 per employee.

This classification was more dependent upon purchased electric energy in Arkansas than was true nationally. Average cost per kwh was higher in Arkansas and the value added for plants in the state was only 92 percent of the mean for the industry nationally. Similar to SIC 26, it appears to have been operating at a disadvantage, but not to as great an extent.

Stone, Clay and Glass Products (SIC 32)

Just slightly less than SIC 26, this sector had a EEP/VS ratio of 0.0207, with a national ratio of 0.0217. (About one cent less per dollar value of shipments goes to electricity than the average nationally.) The value added margin for Arkansas was 53.4 percent and for the U.S., 54.1 percent. With respect to purchased electric energy per employee, it was \$1,490 in Arkansas. This sector made 3.9 percent of the electric energy purchases, provided 2.4 percent of the employment and 2.6 percent of the payroll for Arkansas manufacturing establishments.

In Arkansas, this sector used more kwh per employee (56,184) than was used nationally (51,235). The average cost per kwh was \$0.0265 in Arkansas and \$0.0276 for the U.S.

Like the two previously discussed SIC groups, this sector appears to be more electric energy intensive in Arkansas than nationally. However, the lower average kwh cost in Arkansas effects this difference and that, along with other factors, indicates that in Arkansas slightly less of the total value of shipment dollars goes to purchase electric energy than is typical for the industry nationally.

Chemicals, Allied Products (SIC 28)

The spread for this sector (between Arkansas and the U.S. EEP/VS ratios) was 0.0174 to 0.0242. Both Arkansas, with 46.7 percent, and the U.S., with 47.5 percent, had similar value added margins.

Firms in this sector paid an average of \$0.0271 per kwh for 80,062 kwh per employee, or a total of \$2,169 per employee, for purchased electric energy. The average rate per kwh nationally was \$0.0216 for 161,112 kwh per employee, with a total per employee of \$3,479.

This SIC accounted for 7.4 percent of the electric energy purchased, 3.2 percent of the employment, and 5.1 percent of the payroll in Arkansas.

Apparently, nationally the plants in this sector are much more dependent upon purchased electric energy than are those in Arkansas. Thus, even though cost per kwh is somewhat higher in Arkansas, purchased electric energy was less per dollar of value of shipments than it was nationally. The value added margin in Arkansas was less

than the national average for the industry, but not in proportion to the difference in EEP/VS ratios.

Rubber, Miscellaneous Plastic Products (SIC 30)

Continuing in descending order, EEP/VS ratio of \$0.0163 in Arkansas, similar to the \$0.0161 figure nationally. The Arkansas value added margin was somewhat more, at 53.2%, than the national average margin of 49.0%.

The average kwh cost was \$0.0259 in Arkansas for 35,553 kwh per employee, giving total purchases of electric energy per employee of \$922. For the U.S., the average kwh cost was \$0.0302 for 30,709 kwh per employee, and a total cost per employee of \$927.

This SIC accounted for 2.9 percent of the electric energy purchased, 3.3 percent of the employees, and 3.7 percent of the payrolls in Arkansas.

Differences in kwh costs offset what appeared to be a greater utilization of purchased electric energy in Arkansas. Moreover, the relatively greater amount of value added by Arkansas industries more than offsets the higher EEP/VS ratio.

Lumber and Wood Products (SIC 24)

At 0.0614, the EEP/VS ratio for this Arkansas industry was substantially higher, in relative terms, than the U.S. figure of 0.00932. However, the value added margin in Arkansas (41.9 percent) was higher than the national margin (40.8 percent).

Overall, the industry in Arkansas spent \$970 per employee on purchased electric energy; and nationally the figure was \$829. Both

the cost per kwh (\$0.0299) and the kwh per employee (32,507) in Arkansas were higher than the U.S. figures of \$0.0260 and 23,048, respectively.

This sector accounted for 10.4 percent of electric energy purchased, 9.9 percent of the manufacturing jobs and 9.1 percent of the payroll.

This was (and is) one of the more significant industries, relative to payroll and employment, in Arkansas. While the costs of electric energy purchased were somewhat higher than national averages, either lower costs elsewhere or higher unit values would appear to have provided the industry with a value added margin slightly better than the U.S. average. This mediated, slightly, the higher electric energy cost factor.

Textile Mill Products (SIC 22)

The EEP/VS ratio was 0.0126 in Arkansas and 0.0169 nationally. However, the value added margin was only 37.6 percent in Arkansas, as compared to 40.5 percent for the U.S.

The cost per kwh in Arkansas and the U.S. was nearly identical at \$0.0267 and \$0.0265, respectively. Similarly, the kwh per employee usages were 31,214 for Arkansas and 31,217 for the nation. As a result the electric energy purchased per employee were nearly the same in Arkansas (\$833) and the U.S. (\$827).

This sector was responsible for only 1.8 percent of the electric energy purchased, provided 2.0 percent of manufacturing employees, and 2.0 percent of the payrolls of manufacturing establishments.

Electric energy costs in Arkansas would appear to have been reasonably equal to the national experience. Thus, other factors appear to have been responsible for a lower value added ratio for Arkansas plants.

Fabricated Metal Products (SIC 34)

This sector had a EEP/VS ratio of 0.0107 in Arkansas, as contrasted to a U.S. figure of 0.0084. The value added margin was approximately equal in Arkansas and the nation with 50.8 percent and 50.2 percent, respectively.

The price per kwh in the industry was \$0.0297 in Arkansas, with per employee usage at 18,407 kwh and purchases of electric energy of \$547 per employee. Nationally, the figures for the same items were \$0.0325 per kwh, 16,226 kwh per employee, and \$527 per employee.

SIC 34's electric energy purchases were 4.3 percent of the total for manufacturing. This industry classification had 7.3 percent of the employment and payrolls in manufacturing in Arkansas.

With the cost of electric energy and the amounts purchased roughly offsetting, the higher EEP/VS ratio in Arkansas may have reflected a lower value of products shipped than is average for the industry. Whatever the cause, the higher value added ratio was not sufficient to offset the difference in EEP/VS between Arkansas and the U.S.

Furniture and Fixtures (SIC 25)

In descending order, this is the first of the industry classifications to fall below an EEP/VS ratio of 0.01, with a value of 0.0091

in 1978. The U.S. figure, however, was even lower at 0.0077. The value added margin was 50.3 percent in Arkansas and 51.8 percent nationally.

The amount of kwh used per employee in Arkansas was 10,795 and in the U.S., 8,846. In Arkansas the per kwh cost was \$0.0292 and the total electric energy purchased per employee was \$316. The comparable U.S. data were \$0.0352 per kwh and \$312 per employee.

This manufacturing sector used only 1.9 percent of the electric energy purchased but provided 5.7 percent of the manufacturing employment and 4.8 percent of the payrolls.

As compared to other industries, SIC 25 was less electric energy intensive. It did utilize more electric energy than the U.S. average. However, other factors would seem to have been the cause of its higher than national average EEP/VS ratio. The combination of a higher EEP/VS ratio and lower porportion of value added would, unless offset by other factors, indicate a competitive disadvantage for this Arkansas manufacturing sector.

Apparel, Other Textile Products (SIC 23)

At 0.0086, the EEP/VS ratio in Arkansas was substantially higher than the national figure of 0.0058. However, in absolute terms, the magnitude of the difference was small. The value added margin was 60.8 percent in Arkansas and 49.8 percent for the U.S.

Overall, the industry spent \$194 for 6,035 kwh per employee in Arkansas and \$189 for 5,102 kwh per employee as a national average. The cost per kwh purchased was \$0.0322 and \$0.0370 in Arkansas and the U.S., respectively.

This manufacturing sector was not a major electric energy user, with only 1.5 percent of the total amount purchased by manufacturers. It did provide, however, 7.0% of the employment and 4.2% of the payroll in Arkansas manufacturing categories.

Electric energy purchased per employee was somewhat higher in Arkansas but this was because the quantity utilized per employee was higher. The higher value added margin for Arkansas offsets, to some extent, the high EEP/VS ratio.

Printing and Publishing (SIC 27)

The EEP/VS ratio for the state was 0.0073, and for the U.S. it was 0.0064. Nationally, the value added margin was 63.9 percent, and in Arkansas it was 68.7 percent.

The cost per kwh was \$0.031 in Arkansas and \$0.035 for the U.S. average. This sector in Arkansas purchased 10,012 kwh, or \$312, per employee. Nationally, the figures were 9,037 kwh and \$313.

SIC 27 used 1.3 percent of the electric energy purchased, and had 3.9 percent of the employment and payroll among Arkansas manufacturers.

Like SIC 23, electric energy costs were not a large proportion of value of shipments in SIC 27 and the relatively higher costs for Arkansas are partially offset by the greater value added margin.

Petroleum and Coal Products (SIC 29)

The EEP/VS ratio in Arkansas and the U.S. were quite similar (approximately 0.0072). The average value added margin for the U.S. (15.7 percent) was somewhat lower than the Arkansas figure (16.9 percent).

At \$0.026 per kwh in Arkansas, the price of electric energy was greater than that for the national industry (\$0.025). In Arkansas, electric energy purchased was \$1.545, or 60,318 kwh, per employee and for the U.S., it was \$5.015, or 204,198 kwh, per employee.

This sector accounted for only 1.8 percent of the electric energy purchased, 1.1 percent of the jobs, and 1.3 percent of the payroll among Arkansas' manufacturing firms.

Arkansas firms in this classification appear to have been less energy intensive than the national average but value added in Arkansas was higher.

Leather, Leather Products (SIC 31)

In absolute terms, the EEP/VS ratio for Arkansas (0.0067) was similar to, but slightly higher than, the nation (0.0060). However, the value added margin for Arkansas firms was 56.1 percent, while the national average was 48.8 percent.

Arkansas establishments had an average kwh cost of \$0.035 for 5,208 kwh per employee. The U.S. averages were \$0.035 per kwh and 5,694 kwh per employee. Total purchases of electric energy were \$181 and \$202 per employee in the state and nation, respectively.

This classification was responsible for purchasing electrical energy equal to 0.7 percent of the manufacturing total. It provided 3.5 percent of the total jobs and 2.4 percent of the total payroll in manufacturing.

Per job, this was the least electric energy intensive of Arkansas' manufacturing categories. Even though electric energy as a percent of

value of shipments was higher than the national average, value added, in relative terms, was even higher.

Food and Kindred Products (SIC 20)

At 0.0065, the EEP/VS ratio for this Arkansas industry was higher than the 0.0056 U.S. ratio. The value added ratio of 21.0 percent for Arkansas establishments was less than the 29.1 percent average for the U.S.

Average cost per kwh in Arkansas was \$0.027 and for the U.S., \$0.030. In Arkansas, this sector used 28,966 kwh per employee, for a cost of \$793. Nationally, the figures were 26,198, with a cost per employee of \$785.

This industry accounted for 11.1 percent of the electric energy purchased, 12.9 percent of the employment, and 11.6 percent of the payroll in manufacturing.

This industry appeared to be somewhat more electric energy intensive in Arkansas than nationally. While per kwh costs were lower; the value added margin for Arkansas firms was also lower than the national average.

Machinery, Except Electric (SIC 35)

At 0.0063, the EEP/VS ratio for this sector was slightly lower than the national figure of 0.0067. However the value added margin for Arkansas was also lower (50.4 percent) than that of the U.S. (55.1 percent).

This industry group had a kwh cost of \$0.028 and with 12,924 kwh purchased per employee, the total expenditures per employee were \$359.

For the U.S., the figures were \$0.032 per kwh, 13,463 kwh, and \$429, respectively.

Using 2.5 percent of the electric energy purchased, this Arkansas industry provided 6.4 percent of the jobs and 7.0 percent of the payrolls in manufacturing.

This was one of the least electric energy intensive of Arkansas' manufacturing sectors, and also was less than the average for its industry nationally. The lower percent of value of shipments for electric energy costs was, however, offset by a similarly lower value added ratio.

Electric, Electronic Equipment (SIC 36)

The EEP/VS ratio in Arkansas was 0.0056, as compared to 0.0078 for the U.S. The value added margin in Arkansas was 44.8 percent and for the U.S., it was 56.9 percent. Overall, this sector purchased \$339 in electric energy for each job in Arkansas and, in so doing, accounted for 4.3 percent of the electric energy purchased by manufacturers in the state, 11.7 percent of the employment, and 11.9 percent of the payroll.

The kwh purchased per employee in Arkansas was 14,343, while the average in the U.S. for this SIC was 13,985. The cost per kwh was \$0.0236, or 22 percent less than the national industry average of \$0.0301.

Although the firms in this sector appear to have been more electric energy dependent than was true nationally, their costs per employee and EEP/VS ratio were both less. However, this was partially negated by a lower proportion of value added.

Transportation Equipment (SIC 37)

This sector had the next to lowest EEP/VS ratio in Arkansas (0.0039) and nationally (0.0051). The value added margin in Arkansas was slightly below (37.9 percent) that for the U.S. (38.7 percent).

In Arkansas, the per kwh cost was \$0.029 for 8,780 kwh per employee. The purchased electric energy cost per employee in the state was \$254. For the U.S., the average per kwh cost was \$0.030, the kwh per employee was 17,029, and the cost was \$518.

This SIC group was one of the smallest in Arkansas, utilizing only 0.8 percent of the purchased electric energy and providing 2.9 percent of the jobs and 2.8 percent of the payroll in the manufacturing sector.

This sector appeared to be less electric energy intensive in Arkansas than was generally the average nationally.

Instruments, Related Goods (SIC 38)

The EEP/VS ratio (0.0028) for this industry was the lowest of all manufacturing categories in Arkansas. The U.S. ratio (0.0055) was almost double the state figure. The value added margin for Arkansas was 46.5 percent and for the U.S., 38.6 percent.

The cost per kwh in Arkansas was \$0.028 and the industry purchased 7,060 kwh per employee. The expenditure per employee was \$200. For the U.S., the cost per kwh was \$0.033, with 9,445 kwh per job and purchase of electric energy per employee of \$309.

This sector accounted for 0.5 percent of the electric energy purchased, provided 2.4 percent of the employment, and had 2.0 percent of the payroll by manufacturing establishments in Arkansas.

Miscellaneous (SIC 39)

Because of its mixed character and small size in Arkansas, this category has been omitted.

Table VI

Electric Energy Purchased per Dollar of Value of Shipments
Arkansas (1974 and 1978) and United States (1978)

SIC Code	Description	1974	1978	
		Arkansas	Arkansas	U.S.
20	Food and Kindred Products	\$0.0043	\$0.0065	\$0.0056
201	Meat Products	0.0048	0.0065	-----
203	Preserved Fruits and Vegetables	0.0044	0.0063	-----
204	Grain Mill Products	0.0026	0.0061	-----
22	Textile Mill Products	0.0121	0.0126	0.0169
23	Apparel, Oth. Textile Prods.	0.0043	0.0086	0.0058
232	Men's and Boy's Furnishings	0.0045	0.0106	-----
233	Women's and Misses' Outerwear	0.0055	0.0066	-----
24	Lumber and Wood Products	0.0126	0.0161	0.0093
242	Sawmills and Planing Mills	0.0192	0.0231	-----
243	Millwork, Plywood, Stuc. Membs.	0.0173	0.0139	-----
249	Miscellaneous Wood Products	0.0143	0.0189	-----
25	Furniture and Fixtures	0.0073	0.0091	0.0077
26	Paper and Allied Products	0.0135	0.0210	0.0184
27	Printing and Publishing	0.0054	0.0073	0.0064
28	Chemicals, Allied Products	0.0136	0.0174	0.0242
29	Petroleum and Coal Products	0.0076	0.0072	0.0072
30	Rubber, Misc. Plastics Prod.	0.0094	0.0163	0.0161
31	Leather, Leather Products	0.0046	0.0067	0.0060
32	Stone, Clay, Glass Products	0.0159	0.0207	0.0217
33	Primary Metal Industries	0.0681	0.0734	0.0286
34	Fabricated Metal Products	0.0067	0.0107	0.0084
344	Fabricated Struc. Metal Prods.	0.0050	0.0073	-----
349	Mis. Fabricated Metal Products	0.0070	0.0139	-----
35	Machinery, Except Electric	0.0056	0.0063	0.0067
36	Electric, Electronic Equip	0.0042	0.0056	0.0078
37	Transportation Equipment	0.0062	0.0039	0.0051
371	Motor Vehicles and Equipment	0.0047	0.0034	-----
38	Instruments, Related Goods		0.0028	0.0055

Source: 1974 Annual Survey of Manufactures and 1978 Annual Survey of Manufactures, U.S. Department of Commerce, Bureau of the Census.

Table VII

Electric Energy Purchased per Dollar of Value Added by Manufacture
Arkansas (1974 and 1978) and United States (1978)

SIC Code	Description	1974	1978	U.S.
		Arkansas	Arkansas	
20	Food and Kindred Products	\$0.0253	\$0.0311	\$0.0193
201	Meat Products	0.0265	0.0355	-----
203	Preserved Fruits and Vegetables	0.0132	0.0162	-----
204	Grain Mill Products	0.0319	0.0450	-----
22	Textile Mill Products	0.0289	0.0336	0.0416
23	Apparel, Oth. Textile Prods.	0.0071	0.0141	0.0117
232	Men's and Boy's Furnishings	0.0072	0.0159	-----
233	Women's and Misses' Outerwear	0.0094	0.0111	-----
24	Lumber and Wood Products	0.0256	0.0385	0.0229
242	Sawmills and Planning Mills	0.0420	0.0492	-----
243	Millwork, Plywood, Stuc. Membs.	0.0547	0.0351	-----
249	Miscellaneous Wood Products	0.0064	0.0494	-----
25	Furniture and Fixtures	0.0148	0.0182	0.0148
26	Paper and Allied Products	0.0298	0.0531	0.0429
27	Printing and Publishing	0.0071	0.0106	0.0100
28	Chemicals, Allied Products	0.0263	0.0372	0.0511
29	Petroleum and Coal Products	0.0215	0.0427	0.0456
30	Rubber, Misc. Plastics Prod.	0.0168	0.0306	0.0328
31	Leather, Leather Products	0.0087	0.0119	0.0123
32	Stone, Clay, Glass Products	0.0258	0.0388	0.0401
33	Primary Metal Industries	0.2041	0.2278	0.0762
34	Fabricated Metal Products	0.0134	0.0212	0.0168
344	Fabricated Struc. Metal Prods.	0.0123	0.0159	-----
349	Mis. Fabricated Metal Products	0.0132	0.0283	-----
35	Machinery, Except Electric	0.0104	0.0125	0.0122
36	Electric, Electronic Equip	0.0096	0.0126	0.0137
37	Transportation Equipment	0.0163	0.0102	0.0132
371	Motor Vehicles and Equipment	0.0093	0.0086	-----
38	Instruments, Related Goods	--	0.0059	0.0085

Source: 1974 Annual Survey of Manufactures and 1978 Annual Survey of
Manufactures, U.S. Department of Commerce, Bureau of the Census.

Table VIII

Electric Energy Purchased per Employee
Arkansas (1974 and 1978) and United States (1978)

SIC Code	Description	1974	1978	
		Arkansas	Arkansas	U.S.
20	Food and Kindred Products	\$ 433.73	\$793.23	\$785.36
201	Meat Products	293.58	517.24	-----
203	Preserved Fruits and Vegetables	263.16	540.00	-----
204	Grain Mill Products	730.77	1,714.29	-----
22	Textile Mill Products	477.27	833.33	826.87
23	Apparel, Oth. Textile Prods.	70.06	194.44	188.61
232	Men's and Boy's Furnishings	65.42	228.92	-----
233	Women's and Misses' Outerwear	97.56	116.67	-----
24	Lumber and Wood Products	440.76	970.44	599.42
242	Sawmills and Planning Mills	500.00	1,310.00	-----
243	Millwork, Plywood, Stuc. Membs.	724.14	1,129.03	-----
249	Miscellaneous Wood Products	516.13	909.09	-----
25	Furniture and Fixtures	175.00	316.24	311.64
26	Paper and Allied Products	1,159.57	2,351.85	1,639.21
27	Printing and Publishing	176.47	312.50	313.42
28	Chemicals, Allied Products	1,413.04	2,169.23	3,478.53
29	Petroleum and Coal Products	545.45	1,545.45	5,014.84
30	Rubber, Misc. Plastics Prod.	444.44	922.33	927.27
31	Leather, Leather Products	81.40	180.56	202.13
32	Stone, Clay, Glass Products	529.41	1,489.80	1,413.42
33	Primary Metal Industries	5,044.78	6,545.45	2,933.18
34	Fabricated Metal Products	238.81	546.67	526.74
344	Fabricated Struc. Metal Prods.	190.48	371.43	-----
349	Mis. Fabricated Metal Products	242.42	653.06	-----
35	Machinery, Except Electric	207.92	358.78	429.23
36	Electric, Electronic Equip	171.30	338.84	420.83
37	Transportation Equipment	264.71	254.24	517.88
371	Motor Vehicles and Equipment	162.16	264.71	-----
38	Instruments, Related Goods	--	200.00	308.62

Source: 1974 Annual Survey of Manufactures and 1978 Annual Survey of
Manufactures, U.S. Department of Commerce, Bureau of the Census.

Table IX
Electric Energy Costs per Kwh
Arkansas (1974 and 1978) and United States (1978)

SIC Code	Description	1974	1978	
		Arkansas	Arkansas	U.S.
20	Food and Kindred Products	\$0.0180	\$0.0274	\$0.0230
201	Meat Products	0.0175	0.0252	--
203	Preserved Fruits and Vegetables	0.0162	0.0263	--
204	Grain Mill Products	0.0179	0.0284	--
22	Textile Mill Products	0.0182	0.0267	0.0265
23	Apparel, Oth. Textile Prods.	0.0154	0.0322	0.0370
232	Men's and Boy's Furnishings	0.0129	0.0330	--
233	Women's and Misses' Outerwear	0.0221	0.0289	--
24	Lumber and Wood Products	0.0194	0.0299	0.0260
242	Sawmills and Planning Mills	0.0202	0.0311	--
243	Millwork, Plywood, Stuc. Membs.	0.0167	0.0262	--
249	Miscellaneous Wood Products	0.0196	0.0303	--
25	Furniture and Fixtures	0.0178	0.0293	0.0352
26	Paper and Allied Products	0.0157	0.0246	0.0230
27	Printing and Publishing	0.0155	0.0312	0.0347
28	Chemicals, Allied Products	0.0141	0.0270	0.0216
29	Petroleum and Coal Products	0.0199	0.0256	0.0246
30	Rubber, Misc. Plastics Prod.	0.0133	0.0259	0.0302
31	Leather, Leather Products	0.0210	0.0347	0.0355
32	Stone, Clay, Glass Products	0.0127	0.0265	0.0276
33	Primary Metal Industries	0.0120	0.0173	0.0202
34	Fabricated Metal Products	0.0176	0.0297	0.0325
344	Fabricated Struc. Metal Prods.	0.0202	0.0311	--
349	Mis. Fabricated Metal Products	0.0193	0.0284	--
35	Machinery, Except Electric	0.0174	0.0278	0.0319
36	Electric, Electronic Equip.	0.0150	0.0236	0.0301
37	Transportation Equipment	0.0157	0.0290	0.0304
371	Motor Vehicles and Equipment	0.0119	0.0290	--
38	Instruments, Related Goods	--	0.0283	0.0327

Source: 1974 Annual Survey of Manufactures and 1978 Annual Survey of
Manufactures, U.S. Department of Commerce, Bureau of the Census.

APPENDIX B

Questionnaires Used in the Study

Arkansas Industrial Development Commission

Bureau of Business and Economic Research
University of Arkansas - Fayetteville 60

Industrial Manufacturing Survey

Please complete this questionnaire and return it to the University in the envelope provided. Individual responses will be treated as confidential material and results of this study will be released by the University in aggregated form only so that there is no disclosure of the responses provided by individual firms.

Should you have any questions concerning the Survey, please feel free to contact Phillip Taylor, Director, Bureau of Business and Economic Research, University of Arkansas, Fayetteville, AR 72701 (Telephone 501-575-4151).

Name of Company _____		
Plant location _____		
Street _____	City _____	Zip _____
Representative delivering questionnaire _____		

The following questions generally ask for information, except where specifically noted, for your fiscal year ending in 1983. Attached is a set of definitions of a selected group of terms used in the questionnaire. So that answers of all survey respondents will be comparable, please base your answers on the definitions provided.

Section I

1. Person Completing Questionnaire _____ Telephone _____
2. Is this location the headquarters of the company? ☐ Yes ☐ No (Where is your headquarters located?) _____
3. In what month does your fiscal year end? _____
4. Principal Product of Plant _____
5. Plant SIC Classification _____
6. Which best describes the major market served by this facility? ☐ State ☐ National
☐ Regional ☐ International

Section II

- | | |
|--|---|
| <ol style="list-style-type: none"> 1. Total Number of employees during pay period including March 12, 1984 _____ 2. Annual payroll (fiscal 1983) _____ 3. Employer's cost for fringe benefits (supplemental labor costs). Total fiscal 1983. _____ 4. Cost of materials and services used during fiscal 1983 (please see definition) _____ | <ol style="list-style-type: none"> 5. Inventory, including work in process
Beginning fiscal 1983 _____
End of fiscal 1983 _____ 6. Value of shipments during fiscal 1983. (see definition) _____ 7. Approximately what percent of total operating costs does electricity purchased represent? (please see definition of total operating costs.) _____% 8. Approximately what percent of sales (value of shipments) is total operating costs? _____% |
|--|---|

Section III

- | 1. Amount of each of the following purchased as energy during fiscal 1983. | Units | Cost |
|--|-------|-------|
| A. Electricity (kWh - dollars) | _____ | _____ |
| B. Natural Gas (MCF - dollars) | _____ | _____ |
| C. Oil (Gallons - dollars) | _____ | _____ |
| D. Coal (Tons - dollars) | _____ | _____ |
| E. LP Gas (Gallons - dollars) | _____ | _____ |
| F. Central Steam (MLBS - dollars) | _____ | _____ |

Section IV Business Expansion Potential

1. 1983 production level was what percentage of your normal operating capacity?

1. ☐ 1-20%
2. ☐ 21-40%
3. ☐ 41-60%
4. ☐ 61-80%
5. ☐ 81-100%

2. Describe the current and near term (1984) conditions at this facility.

a. Currently at Normal Operating Levels

1. ☐ Should Continue
2. ☐ Expect Decline
3. ☐ Expect Upturn
4. ☐ Do Not Know

b. Currently Below Normal

1. ☐ Should Continue
2. ☐ Expect Further Decline
3. ☐ Expect Upturn
4. ☐ Do Not Know

c. Currently Above Normal

1. ☐ Should Continue
2. ☐ Expect Decline
3. ☐ Expect Further Upturn
4. ☐ Do Not Know

3. What is the long-term (1985-1990 or five year plan) outlook for this facility?

- a. ☐ Favorable business conditions will probably cause expansion.
- b. ☐ Favorable business conditions will prompt a move to a larger facility.
- c. ☐ Unfavorable business conditions will probably force cutbacks.
- d. ☐ Unfavorable business conditions will probably force closing.
- e. ☐ Neither expansion nor cutbacks are anticipated.
- f. ☐ Other (Identify) _____

4. If your company should decide to expand its capacity, do you believe that expansion is likely to take place in Arkansas? ☐ Yes ☐ No

5. Please describe the factors that determined your response to question 4 above. _____

6. If your answer to question 4 was *yes*, do you believe that expanded capacity is likely to be in the form of

- a. ☐ an increase in the investment in this facility.
- b. ☐ the construction of a new facility at another site.
- c. ☐ both (a) and (b) above.

7. In your opinion, what are the *three* most *positive* aspects (if any) of your plants' location in Arkansas?

- a. _____
- b. _____
- c. _____

8. In your opinion, what are the *three* most *negative* aspects (if any) of your plants' location in Arkansas?

- a. _____
- b. _____
- c. _____

9. If A P & L has made any changes in the last two years that have impacted your company either positively or negatively, please describe those changes and explain how they impacted on your establishment.

10. If your company has made a study comparing electric energy costs in various states, please provide the address and/or telephone number of the office or person that conducted the study.

Name _____ telephone number _____
 Street or P.O. Box _____
 City _____
 State _____ Zip Code _____

Please add any additional comments you wish concerning the questions asked or the economic climate in Arkansas.

DEFINITIONS

Cost of Materials and Services

The term "cost of materials" refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. The cost of materials includes (a) the total delivered cost of all raw materials, semifinished goods, parts, components, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year; (b) the amount paid for electric energy purchased; (c) the amount paid for all fuels consumed for heat, power, or the generation of electricity; (d) the cost of work done by others on materials or parts furnished by manufacturing establishments (contract work); (3) the cost of products both and resold in the same condition. The total excludes the cost of services used, such as advertising, insurance, telephone, etc., and research, developmental, and consulting services of other establishments; it also excludes overhead costs, such as depreciation charges, rent, interest, royalties, etc.; it excludes materials, machinery, and equipment used on plant expansion or capitalized repairs which are chargeable to fixed assets accounts.

Value of Shipments

This is net selling value received or receivable, f.o.b. plant, after discounts and allowances, and excluding freight charges and excise taxes. However, if the products of an industry are customarily delivered by the manufacturing establishments (bakery products, fluid milk, and soft drinks, for example) the value of shipments can be stated as the delivered price of the goods rather than the f.o.b. plant price.

Total Operating Cost

The term "total operating cost" is defined to mean all deductions from sales in arriving at net operating income, i.e., net income before interest expense, non-operating income, and non-operating expenses.

Arkansas Industrial Development Commission

Bureau of Business and Economic Research
University of Arkansas -- Fayetteville

Industrial Manufacturing Survey

Please complete this questionnaire and return it to the University in the envelope provided. Individual responses will be treated as confidential material and results of this study will be released by the University in aggregated form only so that there is no disclosure of the responses provided by individual firms.

Should you have any questions concerning the Survey, please feel free to contact Phillip Taylor, Director, Bureau of Business and Economic Research, University of Arkansas, Fayetteville, AR 72701 (Telephone 501-575-4151).

Name of Company _____			
Plant Location _____			
Street	City	Zip	

The following questions generally ask for information, except where specifically noted, for your fiscal year ending in 1983. Attached is a set of definitions of a selected group of terms used in the questionnaire. So that answers of all survey respondents will be comparable, please base your answers on the definitions provided.

Section I

1. Person Completing Questionnaire _____ Telephone _____
2. In what month does your fiscal year end? _____
3. Principal Product of Plant _____
4. Plant SIC Classification _____

Section II

- | | |
|--|---|
| <ol style="list-style-type: none"> 1. Total Number of employees during pay period including March 12, 1984 _____ 2. Annual payroll (fiscal 1983) _____ 3. Employer's cost for fringe benefits (supplemental labor costs). Total fiscal 1983. _____ 4. Cost of materials and services used during fiscal 1983 (please see definition) _____ | <ol style="list-style-type: none"> 5. Inventory, including work in process
Beginning fiscal 1983 _____
End of fiscal 1983 _____ 6. Value of shipments during fiscal 1983.
(See definition) _____ 7. Approximately what percent of total operating costs does electricity purchased represent? (please see definition of total operating costs.) _____% 8. Approximately what percent of sales (value of shipments) is total operating costs? _____% |
|--|---|

Section III

- | 1. Amount of each of the following purchased as energy during fiscal 1983. | Units | Cost |
|--|-------|-------|
| A. Electricity (kWh -- dollars) | _____ | _____ |
| B. Natural Gas (MCF -- dollars) | _____ | _____ |
| C. Oil (Gallons -- dollars) | _____ | _____ |
| D. Coal (Tons -- dollars) | _____ | _____ |
| E. LP Gas (Gallons -- dollars) | _____ | _____ |
| F. Central Steam (MLBS -- dollars) | _____ | _____ |

Section IV Business Expansion Potential

- | | |
|---|---|
| <ol style="list-style-type: none"> 1. If your company should decide to expand its capacity, do you believe that expansion is likely to take place in your location? <input type="checkbox"/> yes <input type="checkbox"/> no | <ol style="list-style-type: none"> 2. Please describe the factors that determined your response to question 1. _____

_____ |
|---|---|

DEFINITIONS

Cost of Materials and Services

The term "cost of materials" refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. The cost of materials includes (a) the total delivered cost of all raw materials, semifinished goods, parts, components, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year; (b) the amount paid for electric energy purchased; (c) the amount paid for all fuels consumed for heat, power, or the generation of electricity; (d) the cost of work done by others on materials or parts furnished by manufacturing establishments (contract work); (3) the cost of products both and resold in the same condition. The total excludes the cost of services used, such as advertising, insurance, telephone, etc., and research, developmental, and consulting services of other establishments; it also excludes overhead costs, such as depreciation charges, rent, interest, royalties, etc.; it excludes materials, machinery, and equipment used on plant expansion or capitalized repairs which are chargeable to fixed assets accounts.

Value of Shipments

This is net selling value received or receivable, f.o.b. plant, after discounts and allowances, and excluding freight charges and excise taxes. However, if the products of an industry are customarily delivered by the manufacturing establishments (bakery products, fluid milk, and soft drinks, for example) the value of shipments can be stated as the delivered price of the goods rather than the f.o.b. plant price.

Total Operating Cost

The term "total operating cost" is defined to mean all deductions from sales in arriving at net operating income, i.e., net income before interest expense, non-operating income, and non-operating expenses.

APPENDIX C

Business Conditions and Expansion Potential

Table X

Business Conditions and Expansion Potential
Summary of Responses by SIC

		SIC				
		<u>20</u>	<u>22</u>	<u>24</u>	<u>25</u>	<u>26</u>
1.	1983 production level was what percentage of your normal operating capacity?					
1.	[] 1-20%	-	-	-	-	-
2.	[] 21-40%	-	-	-	-	-
3.	[] 41-60%	2	1	2	-	-
4.	[] 61-80%	6	1	4	1	-
5.	[] 81-100%	7	1	10	2	5
2.	Describe the current and near term (1984) conditions at this facility.					
a.	Currently at Normal Operating Levels	8	1	12	2	5
1.	[] Should Continue	3	1	9	1	4
2.	[] Expect Decline	-	-	3	1	-
3.	[] Expect Upturn	5	-	-	-	1
4.	[] Do Not Know	-	-	-	-	-
b.	Currently Below Normal	4	1	3	-	-
1.	[] Should Continue	-	-	2	-	-
2.	[] Expect Further Decline	-	-	-	-	-
3.	[] Expect Upturn	4	-	1	-	-
4.	[] Do Not Know	-	1	-	-	-
c.	Currently Above Normal	3	1	-	1	-
1.	[] Should Continue	1	1	-	1	-
2.	[] Expect Decline	-	-	-	-	-
3.	[] Expect Further Upturn	2	-	-	-	-
4.	[] Do Not Know	-	-	-	-	-
3.	What is the long-term (1985-1990 or five year plan) outlook for this facility?					
a.	[] Favorable business conditions will probably cause expansion.	8	1	3	2	-
b.	[] Favorable business conditions will prompt a move to a larger facility.	1	-	-	-	-
c.	[] Unfavorable business conditions will probably force cutbacks.	1	1	2	-	-
d.	[] Unfavorable business conditions will probably force closing.	-	-	-	-	-
e.	[] Neither expansion nor cutbacks are anticipated.	5	1	9	1	5
f.	[] Other	-	-	2	-	-

Table X (Cont.)

	SIC				
	<u>20</u>	<u>22</u>	<u>24</u>	<u>25</u>	<u>26</u>
4. If your company should decide to expand its capacity, do you believe that expansion is likely to take place in Arkansas?					
<input type="checkbox"/> Yes	11	1	12	2	-
<input type="checkbox"/> No	2	2	3	1	3
6. If your answer to question 4 was <u>yes</u> , do you believe that expanded capacity is likely to be in the form of					
a. <input type="checkbox"/> an increase in the investment in this facility.	9	1	10	-	-
b. <input type="checkbox"/> the construction of a new facility at another site.	1	-	1	1	-
c. <input type="checkbox"/> both (a) and (b) above.	1	-	1	-	-

Table X (Cont.)

		SIC				
		<u>27</u>	<u>28</u>	<u>29</u>	<u>30</u>	<u>31</u>
1.	1983 production level was what percentage of your normal operating capacity?					
1.	<input type="checkbox"/> 1-20%	-	-	-	-	-
2.	<input type="checkbox"/> 21-40%	-	1	-	-	-
3.	<input type="checkbox"/> 41-60%	-	1	-	1	-
4.	<input type="checkbox"/> 61-80%	2	1	2	1	2
5.	<input type="checkbox"/> 81-100%	-	1	2	3	1
2.	Describe the current and near term (1984) conditions at this facility.					
a.	Currently at Normal Operating Levels	2	3	3	4	2
1.	<input type="checkbox"/> Should Continue	1	3	3	3	1
2.	<input type="checkbox"/> Expect Decline	-	-	-	1	-
3.	<input type="checkbox"/> Expect Upturn	1	-	-	-	-
4.	<input type="checkbox"/> Do Not Know	-	-	-	-	1
b.	Currently Below Normal	-	1	1	1	1
1.	<input type="checkbox"/> Should Continue	-	-	1	1	1
2.	<input type="checkbox"/> Expect Further Decline	-	-	-	-	-
3.	<input type="checkbox"/> Expect Upturn	-	1	-	-	-
4.	<input type="checkbox"/> Do Not Know	-	-	-	-	-
c.	Currently Above Normal	-	-	-	1	-
1.	<input type="checkbox"/> Should Continue	-	-	-	1	-
2.	<input type="checkbox"/> Expect Decline	-	-	-	-	-
3.	<input type="checkbox"/> Expect Further Upturn	-	-	-	-	-
4.	<input type="checkbox"/> Do Not Know	-	-	-	-	-
3.	What is the long-term (1985-1990 or five year plan) outlook for this facility?					
a.	<input type="checkbox"/> Favorable business conditions will probably cause expansion.	1	2	2	2	-
b.	<input type="checkbox"/> Favorable business conditions will prompt a move to a larger facility.	-	-	-	1	-
c.	<input type="checkbox"/> Unfavorable business conditions will probably force cutbacks.	-	1	1	1	2
d.	<input type="checkbox"/> Unfavorable business conditions will probably force closing.	-	-	-	-	-
e.	<input type="checkbox"/> Neither expansion nor cutbacks are anticipated.	1	1	1	1	1
f.	<input type="checkbox"/> Other	-	-	-	1	-

Table X (Cont.)

		SIC				
		<u>27</u>	<u>28</u>	<u>29</u>	<u>30</u>	<u>31</u>
4.	If your company should decide to expand its capacity, do you believe that expansion is likely to take place in Arkansas?					
	<input type="checkbox"/> Yes	2	3	2	1	1
	<input type="checkbox"/> No	-	1	1	4	2
6.	If your answer to question 4 was <u>yes</u> , do you believe that expanded capacity is likely to be in the form of					
a.	<input type="checkbox"/> an increase in the investment in this facility.	2	2	2	2	-
b.	<input type="checkbox"/> the construction of a new facility at another site.	-	-	-	-	-
c.	<input type="checkbox"/> both (a) and (b) above.	-	1	-	-	-

Table X (Cont.)

	<u>32</u>	<u>33</u>	<u>34</u>	<u>35</u>	<u>36</u>
1. 1983 production level was what percentage of your normal operating capacity?					
1. <input type="checkbox"/> 1-20%	-	-	-	-	-
2. <input type="checkbox"/> 21-40%	-	-	-	1	-
3. <input type="checkbox"/> 41-60%	-	1	3	-	1
4. <input type="checkbox"/> 61-80%	2	4	2	3	2
5. <input type="checkbox"/> 81-100%	1	1	2	1	3
2. Describe the current and near term (1984) conditions at this facility.					
a. Currently at Normal Operating Levels	2	3	7	2	2
1. <input type="checkbox"/> Should Continue	2	2	1	2	2
2. <input type="checkbox"/> Expect Decline	-	-	-	-	-
3. <input type="checkbox"/> Expect Upturn	-	1	4	-	-
4. <input type="checkbox"/> Do Not Know	-	-	2	-	-
b. Currently Below Normal	1	2	1	3	1
1. <input type="checkbox"/> Should Continue	1	-	1	1	1
2. <input type="checkbox"/> Expect Further Decline	-	1	-	-	-
3. <input type="checkbox"/> Expect Upturn	-	1	-	2	-
4. <input type="checkbox"/> Do Not Know	-	-	-	-	-
c. Currently Above Normal	-	1	-	-	3
1. <input type="checkbox"/> Should Continue	-	-	-	-	2
2. <input type="checkbox"/> Expect Decline	-	1	-	-	-
3. <input type="checkbox"/> Expect Further Upturn	-	-	-	-	-
4. <input type="checkbox"/> Do Not Know	-	-	-	-	1
3. What is the long-term (1985-1990 or five year plan) outlook for this facility?					
a. <input type="checkbox"/> Favorable business conditions will probably cause expansion.	1	3	6	4	1
b. <input type="checkbox"/> Favorable business conditions will prompt a move to a larger facility.	-	-	-	-	1
c. <input type="checkbox"/> Unfavorable business conditions will probably force cutbacks.	1	1	-	-	1
d. <input type="checkbox"/> Unfavorable business conditions will probably force closing.	-	-	-	-	-
e. <input type="checkbox"/> Neither expansion nor cutbacks are anticipated.	1	2	2	1	3
f. <input type="checkbox"/> Other	-	-	-	-	-

Table X (Cont.)

		SIC				
		<u>32</u>	<u>33</u>	<u>34</u>	<u>35</u>	<u>36</u>
4.	If your company should decide to expand its capacity, do you believe that expansion is likely to take place in Arkansas?					
	<input type="checkbox"/> Yes	1	4	7	4	2
	<input type="checkbox"/> No	2	1	1	-	4
6.	If your answer to question 4 was <u>yes</u> , do you believe that expanded capacity is likely to be in the form of					
a.	<input type="checkbox"/> an increase in the investment in this facility.	1	3	8	3	2
b.	<input type="checkbox"/> the construction of a new facility at another site.	-	-	-	-	-
c.	<input type="checkbox"/> both (a) and (b) above.	-	1	-	1	1

Table X (Cont.)

	SIC		Total	
	37	39	Number	%
1. 1983 production level was what percentage of your normal operating capacity?				
1. <input type="checkbox"/> 1-20%	-	-	-	-
2. <input type="checkbox"/> 21-40%	1	-	3	3.19
3. <input type="checkbox"/> 41-60%	1	-	13	13.83
4. <input type="checkbox"/> 61-80%	1	1	35	37.23
5. <input type="checkbox"/> 81-100%	1	2	43	47.74
2. Describe the current and near term (1984) conditions at this facility.				
a. Currently at Normal Operating Levels	3	2	63	66.32
1. <input type="checkbox"/> Should Continue	1	1	40	63.49
2. <input type="checkbox"/> Expect Decline	-	-	5	7.94
3. <input type="checkbox"/> Expect Upturn	2	1	15	23.81
4. <input type="checkbox"/> Do Not Know	-	-	3	4.76
b. Currently Below Normal	1	1	22	23.16
1. <input type="checkbox"/> Should Continue	-	-	9	40.91
2. <input type="checkbox"/> Expect Further Decline	-	-	1	4.54
3. <input type="checkbox"/> Expect Upturn	1	1	11	50.00
4. <input type="checkbox"/> Do Not Know	-	-	1	4.54
c. Currently Above Normal	-	-	10	10.53
1. <input type="checkbox"/> Should Continue	-	-	6	60.00
2. <input type="checkbox"/> Expect Decline	-	-	1	10.00
3. <input type="checkbox"/> Expect Further Upturn	-	-	2	20.00
4. <input type="checkbox"/> Do Not Know	-	-	1	10.00
3. What is the long-term (1985-1990 or five year plan) outlook for this facility?				
a. <input type="checkbox"/> Favorable business conditions will probably cause expansion.	2	2	40	41.67
b. <input type="checkbox"/> Favorable business conditions will prompt a move to a larger facility.	-	-	3	3.12
c. <input type="checkbox"/> Unfavorable business conditions will probably force cutbacks.	-	-	12	12.50
d. <input type="checkbox"/> Unfavorable business conditions will probably force closing.	-	-	-	0.00
e. <input type="checkbox"/> Neither expansion nor cutbacks are anticipated.	1	1	37	38.54
f. <input type="checkbox"/> Other	1	-	4	4.17

Table X (Cont.)

	SIC		Total	
	37	39	Number	%
4. If your company should decide to expand its capacity, do you believe that expansion is likely to take place in Arkansas?				
<input type="checkbox"/> Yes	3	3	59	68.60
<input type="checkbox"/> No	-	-	27	31.40
6. If your answer to question 4 was <u>yes</u> , do you believe that expanded capacity is likely to be in the form of				
a. <input type="checkbox"/> an increase in the investment in this facility.	3	2	50	83.33
b. <input type="checkbox"/> the construction of a new facility at another site.	-	-	3	5.00
c. <input type="checkbox"/> both (a) and (b) above.	-	1	7	11.67

Senator BUMPERS. The committee's going to stand in recess for about 5 minutes for all the obvious reasons. [Laughter.]

[Short recess taken.]

Senator BUMPERS. The committee will come to order.

Our next witness is the chairman of the Arkansas Public Service Commission, Dr. Robert Johnston. Robert, thank you very much for being with us this morning. We look forward to hearing your testimony.

STATEMENT OF DR. ROBERT JOHNSTON, CHAIRMAN, ARKANSAS PUBLIC SERVICE COMMISSION, ACCOMPANIED BY LARRY JEGLEY, STAFF ATTORNEY, ARKANSAS PUBLIC SERVICE COMMISSION

Dr. JOHNSTON. Thank you, Senator Bumpers.

In just a moment I will summarize my testimony, but first I'd like to introduce—with me today are my two fellow commissioners. I'd ask them to stand. James Daniel of Searcy County—he may not have come in from the very needed break, Senator, thank you—and Patricia Qualls of Craighead County is here. With me also is—Commissioner Daniel just came in with a cup of coffee in the back there—with me also is staff attorney Larry Jegley, and he will make an independent statement.

I think as you're aware, Senator, the PSC is a quasi-legislative, quasi-judicial body. We operate in the judicial format, and we are expected—and do—seek to be neutral and objective on the issues coming before us, weighing the interests of the consumers and the utilities. We do not prejudge issues and I will be very careful here and somewhat circumspect in what I say, because I want to emphasize that neither I nor my fellow commissioners have made judgments on, for example, excess capacity as an issue in the case before us now and may well be in a case that AP&L has.

The staff, on the other hand, develops their positions in rate cases independently of the commissioners, and function as consumer advocates representing the consumer interest. And therefore I think Mr. Jegley, who has developed his statement independent of mine and I of his, will be somewhat less fettered than I will be here.

Before we get to Grand Gulf, yesterday a State legislator told me I ought to praise AP&L more. And I do what State legislators suggest I do, so I'm going to praise them in two different senses. First I'll praise Mike Bemis, who is one of my very favorite utility officials. I would probably say my most favorite, but I don't want to upset some of the others. Second, I congratulate AP&L on bringing in their construction of the second unit at Independence ahead of schedule. I think this shows the diligence that AP&L has had in constructing the two nuclear plants at Russellville and the four coal plants.

I'd go on to say that, leaving aside the problems of Grand Gulf and Waterford, the problems arising out of the involvements of AP&L in Middle South, AP&L in Arkansas would be in very good shape. That may be a little bit like saying, "did you enjoy the play other than that, Mrs. Lincoln?"

The Mississippi Public Service commissioner has called Grand Gulf a nightmare. The president of the National Association of Utility Commissioners has compared Grand Gulf to Pearl Harbor. A California attorney has said that Middle South is fleeing to the Federal Government to get around pocketbook regulation.

Grand Gulf is serious enough that, until I understood the implications of Grand Gulf, I had about as much hair as Governor Clinton. [Laughter.]

Grand Gulf is a problem because the Grand Gulf—and I think there have been a number of comments—were not talking only about Grand Gulf, that's shorthand for the situation involving the *System Agreement* case as well—Grand Gulf and the Waterford plants are so very expensive. And I use here, in very rough terms, \$4 billion; that's my estimate. The prices or the costs of these plants have been increased, in most instances, several times. That is a rounding off to the nearest billion. I'd be very surprised if they come in at closer to \$3 billion than \$4 billion.

It also is a problem because there is possibly, or allegedly, excess capacity in the Middle South system, and I'll talk further about each of these. It's problem because AP&L's participation in Grand Gulf potentially in Waterford was not brought to the Arkansas Public Service Commission for approval. It is a bypass, in effect, of the law passed when Governor Bumpers—when Senator Bumpers was Governor in 1973 requiring PSC approval before very expensive commitments were made by utilities. It's a further problem because the estimates you saw up here of the consequences, I think, have unreasonable estimates of the effect of price repression or price elasticity, and I'll speak about that, and that we'll see secondary and tertiary rate shock as well as initial rate shock. And finally, it's a problem because there are going to be other effects on other States that are not efficient in the national policy.

Just to undersand a little bit about the players here—and at the end of my statement is an appendix showing some of the history and some of the development of the Middle South system—Middle South Utilities, the parent holding company, has about \$11 billion in assets, about \$3 billion in annual revenues, and about \$600 million estimated in profits for the current year. And I'll come back to that in just a moment. AP&L, a wholly owned subsidiary of that, about \$3 billion in assets, about \$1.3 billion in revenues, and about \$200 million in profits. Those are what I took from the most recent SEC figures that I had; it is a doubling of the semiannual figures that were in there.

Middle South is the fifth largest utility in the United States in assets, the eighth largest in profits.

I'll put aside any discussion of excess capacity unless you ask a question, because I have to be somewhat circumspect about that.

One of the problems is that Louisiana is seeking to redistribute the costs of those very expensive nuclear plants onto Arkansas and Mississippi; and I think there is a sad irony in that because Arkansas and Mississippi, of course, are the two poorest States in the United States insofar as per capita income is concerned. There is also an irony in that Louisiana now—or in the study I used, in 1982 data—had the most attractive rate in the United States for manufacturing energy costs. Arkansas is, as Mr. Bemis points out,

above the national average—or better than the national average—with that, but Arkansas is fourth out of the four States in the south central region with whom we compete, in large measure, on the cost of manufacturing energy.

In the sketching of the history there it points out the involvement of AP&L in Grand Gulf and the Middle South system. It's my understanding that the original involvement of AP&L was not for 17 percent, but instead was for a floating percentage based on need. And by that, the participation concept, AP&L would not be responsible for any part of Grand Gulf if those agreements that had been in operation from 1973 until 1981 remained in effect.

The second agreement was zero percent for AP&L, and that agreement remained in effect from 1980 through the present. However, in that period AP&L signed an agreement for the 17.1 percent, but with the very important proviso that the other companies would compensate AP&L if AP&L had to pay that, and that had to do with the financing agreements—

Senator BUMPERS. Robert, let me interrupt you at that point. Prior to that time AP&L had also signed agreements with the lending banks, had they not, to take 17.1 percent of the costs of Grand Gulf? What year was that that they did that?

Dr. JOHNSTON. That was in 1981, I believe, Senator. This is back in my statement, in appendix A—

Senator BUMPERS. The agreement where Arkansas Power & Light took nothing, and the other States agreed to that, was in 1980?

Dr. JOHNSTON. Right. And it was also further formalized again in 1981 and 1982.

Senator BUMPERS. My question, though, is—I think it was some time well prior to that, was it not, that AP&L signed guarantees—

Dr. JOHNSTON. That was June—all right, let me do the chronology here. In July 1980, AP&L and the other companies signed a memorandum of understanding for AP&L to receive zero percent of Grand Gulf. After that, in June 1981, in the second amendment to the availability agreement, because the banks wouldn't let AP&L out of their obligation on the floating percentage basis. AP&L accepted 17.1 percent, which was, as I understand it, the best estimate at that time of what they would have been eligible for. I point out that if that floating percentage concept had remained in effect, AP&L would not be responsible for 17 percent. It would be much less and that much closer to zero, I think, today. But in that bank agreement AP&L was to be compensated, to be made whole, to be indemnified by MP&L, LP&L, and New Orleans. So AP&L did not have, under that agreement, any vulnerability, any exposure, except if the other companies went bankrupt.

Senator BUMPERS. That was the availability agreement, was it not?

Dr. JOHNSTON. That was the second amendment to the availability agreement.

Senator BUMPERS. My question goes back before that, Robert. What year was it that AP&L—

Dr. JOHNSTON. All right, I've got that.

Senator BUMPERS. That was June 20, 1977, apparently.

Dr. JOHNSTON. Well, the first availability agreement was signed in June 1974, and in June 1977 there was a first assignment of that from Middle South to the banks. AP&L agreed to that, but that was with the floating percentage.

Senator BUMPERS. OK, I'm with you now. Go ahead.

Dr. JOHNSTON. So, the point I'm trying to make here is that originally, AP&L floating percentage, which would be close to zero now, the next zero percent, clearly, in there a 17 percent, but with indemnification from the other companies. One of the other problems is that LP&L, New Orleans, and Mississippi, who signed agreements in 1980, 1981, and 1982 for zero-percent allocation to AP&L, had reneged on that. They changed their mind. They signed contracts, but for whatever reason—mainly, I think, because the cost of the plants went up so much—they changed their minds and are no longer supporting the contracts which they signed. And to some extent, there are two major questions here. One of them, the allocation among the States, and I've heard Governor Clinton refer to it this morning, that a second question is the allocation between the ratepayers and the stockholders.

To some extent Louisiana was willing to buy 70 percent of Grand Gulf when the price seemed reasonable; but as the price went up they were no longer willing to do that, and they are seeking to shove it off on Arkansas Power & Light.

In my remarks I give some results about energy costs. I think you are aware that the PSC is generally not as sophisticated as AP&L, and it certainly doesn't have the resources for outside studies as much as AP&L, so we rely on studies of others. But Alexander Grant & Co. did a survey of what manufacturing associations think is important in deciding whether to locate in a State. And that survey, and there were some 40 State manufacturing associations that participated, found that energy cost is the single most important variable in deciding whether to locate for manufacturing in a State. It ranks ahead of all the others. In that, energy costs, Arkansas is fourth out of four in the South-Central region; it is behind almost all of our neighboring States in energy costs in that situation, and particularly behind Louisiana. And that's why it's anomalous or ironical that Louisiana—

Senator BUMPERS. Are you saying that the testimony that Mike Bemis gave a while ago on this, you're saying those studies are wrong?

Dr. JOHNSTON. Senator, I don't know. I have not had an opportunity to look at them. But I'm just saying that one study in—the study was actually in 1983, based on 1982 data—was that Arkansas is not able to compete in attracting manufacturing with other States in our region because our energy costs are high. And, of course, my concern is, and this is most of the people that you'll hear after, that if energy costs go up even higher, it will be hard for existing businesses to continue and for new businesses to be attracted.

In addition to manufacturing, agriculture is very sensitive to energy costs. The Census Bureau found that the number of medium-sized farms in Arkansas is declining because they're being squeezed out by production costs going up. The cost of energy increased by about 15 percent a year over the last 4 years. Rice pro-

duction—of course, Arkansas is first in the Nation in rice production, and rice is a crop that cannot do without irrigation. A lot of crops can; although, to increase productivity, most crops are going to irrigation now. But rice has to be irrigated; irrigation requires energy; and, realistically, that is almost all electric energy.

I have a table in here, Senator, which shows a comparison of AP&L rates at the present time and what the increases would be with the case—this is on page 8 of my testimony—what the increases would be, as the staff calculates it, above the existing rates, with the case filed by AP&L in November that this Commission must decide by September of next year. And that shows that with the phase-in effect there would be roughly a 30-percent increase for AP&L over the existing rates, and that would be in effect September 1985, if not before.

It also shows a comparison with Louisiana, that both with LP&L and New Orleans, their rates are lower now, and would still be lower. This is based on the case as filed by those utilities before the Louisiana Public Service Commission and reported in the New Orleans Times-Picayune.

Rate shock of 30 percent would be followed—and I guess I'm going to try to explain for Mr. Bemis—I'm not talking about, that the effect of Grand Gulf would be a 90-percent rate increase. I'm speaking here hypothetically, that in general, if rates go up by 30 percent, that leads to a conservation effect which would, over 2 or 3 years, reduce the quantity consumed of electricity by about 30 percent. And then AP&L would be expected, if consumption of electricity goes down—and this is one of the differences of why we think their figures on the settlement are not that good of an assumption—if prices go up by 30 percent and consumers conserve 30 percent of the quantity, AP&L would probably come in for a further rate increase, which might, the second time around, be a 30-percent increase as well; maybe, again, phased in over 2 or 3 years. Again, consumers save and cut back.

Now, the conservation differs among sectors. Industries conserve greater and more quickly than do residential users; but there is price elasticity or price repression on the use of electricity effects that are not properly involved, we think, in some of the projections of AP&L.

Some can't conserve as well as others, and in general, small businesses can't conserve as well as large businesses; residences and farmers can't conserve as well as commercial and big business establishments. There is some expectation that energy costs, electric costs, as they go up significantly, that small grocers will go out of business faster than large chains, who can make the investments to conserve. The small restaurants will go out of business as their proportion of energy costs go up.

I talked about that some States will be very hesitant to permit interties of their utilities with others, which is, I think, an inefficient situation, if their fear is that other power pools in the United States will suffer system average costing as is projected, or attempted by the FERC staff here. And I do have—I do share some concerns of the Governor that there needs to be an investigation of whether the advantages of public utility holding companies outweigh the disadvantages.

And finally, I talk about that in other States—it will be very clear here, that I am distilling from what I have learned and experienced from other States, including in a report from Price Waterhouse on the public utility industry—that other States, their commissions are looking at disallowing some of the cost of construction plants based on either excess capacity or on imprudence in the construction. And I think that perhaps we will see that—perhaps Mr. Jegley can speak to that a little bit more when he comes up here.

And, finally, and this is an area in which I agree with AP&L, I mention that something that AP&L and the Commission and others in Arkansas will be looking at is the possibility of increasing, or selling some of the excess capacity. Not off systems, because most utilities don't need capacity, but on system, to existing customers and perhaps new customers in Arkansas by incentive rates, rates which would provide an incentive to existing and new customers to increase their consumption of electricity. That would have to come with it, though, perhaps some willingness to give from AP&L, and certainly an understanding from the expanded users, that those rates are interruptible; that if the capacity of AP&L or the use of the AP&L system grows to the point that we need a new generation of plants, then rather than very expensive plants in 1990, or by the year 2000, there's a way to conserve here. So those are all some alternatives.

Thank you, Senator, and if you have any questions, I'll do it; if not, we'll move on to Mr. Jegley— or if you want him——

Senator BUMPERS. Robert, thank you very much for your testimony. Where is Mr. Jegley?

Dr. JOHNSON. He's right there.

Senator BUMPERS. Come on up.

If you don't mind, Dr. Johnston, just stay until he's finished.

Mr. JEGLEY. Senator Bumpers, I really appreciate the opportunity to speak to you and this committee on behalf of the staff of the Arkansas Public Services Commission. We appreciate also Dr. Johnston allocating a portion of his time for some remarks.

I will not read my prepared statement in the interests of conservation of time. I would, however, like to make a few observations on some of the things that have been said that might be helpful to you in your consideration of this issue. I would also like to point out that it was my understanding that the focus of this hearing was to be on the effects of an allocation of Grand Gulf on farmers and small businessmen in this State, and that is something which, as a staff attorney for the Commission, representing the economists, accountants, and rate analysts, I feel a very deep and abiding concern that we feel when we go to bat against any utility in a rate case, that we're representing the farmers, the small businessmen, the grandmothers, the people on fixed incomes. That's a matter of very dear concern to us, and that primarily is the focus of my prepared statement.

A couple of things have been said about averages in AP&L rates——

Senator BUMPERS. Mr. Jegley, if I may interrupt you at this point. Does the PSC have a study showing the likely impact of any of these agreements on various small businesses that shows who's impacted more, and so on?

Mr. JEGLEY. Not that specific, no, sir. We sure don't.

Senator BUMPERS. OK. Go ahead.

Mr. JEGLEY. All right, sir. I believe Mr. Bemis of AP&L spoke of several averages, AP&L rates being at or below average in all circumstances. Well, that may or may not be true, depending on whose numbers you use. I think that the better focus in this matter is on what the rates will be if we are given any or whatever portion of the Grand Gulf or Waterford nuclear plants.

I would point out that in reviewing the result of any such calculation, it would be well to consider that Arkansas is 49th in per capita income, and is 2d only to Florida in the number of persons over the age of 65, and at least theoretically, would have a high percentage of persons on fixed incomes. These are the people that the rates affect the most.

You also probably sensed today that there is a dynamic tension as far as the relationship of Arkansas Power & Light and the staff of the Public Service Commission, and I would simply like to point out that while AP&L does not necessarily seem to enjoy the existence of that tension, I think it is a good thing because in our view, the situation with the impact of Grand Gulf would be a lot different if we had a competitive marketplace in this State for electric services. And that is our role, on the staff of the service commission. We serve as a substitute or a proxy for a competitive marketplace.

I was glad to note that there has finally been a study done on this much-heralded 17.1-percent settlement proposal. This matter came up a number of months ago, and staff has never had available to it any work papers or numbers upon which we could even pass judgment on such a settlement proposal. It may be a good thing—

Senator BUMPERS. Have you never seen this thing that we have here this morning, before?

Mr. JEGLEY. We have seen a copy—we have seen the settlement proposal, we have spoken with Arkansas Power & Light, but we have never gotten the backup numbers, the work papers that go into it. And unless we have those, we can't do our job and even comment. Of course, our position remains that zero percent is just and fair.

Senator BUMPERS. Highly desirable. [Laughter.]

Mr. JEGLEY. Another thing that was brought up is what the purpose of Middle South Energy, Inc., is. Arkansas Power & Light Co.'s position is that it was set to facilitate financing of Grand Gulf nuclear station when Mississippi Power & Light became so anemic that they could not continue it. I don't doubt that that is true, at least in part. You will also hear the countervailing argument, and I personally agree with this side, that it was intended to some extent to circumvent State regulation. One thing that I do not think that anyone, the company included, can deny is that the net effect has been that State regulation has been evaded. And I think that's important to bear in mind. Whether it was intended or not, we are in a situation that does have an adverse impact on ratepayers and results in retroratemaking decisions being thrust into the Washington arena. And that's a great concern to us.

So whether it was intended or not, the thing that really matters, the thing that shows up in Arkansas citizens' and ratepayers' pocketbooks, is the fact that the decisions are not made locally, where they rightly should be.

I don't doubt that there was any intent on the part of Arkansas Power & Light or Middle South Utilities to violate Securities and Exchange Commission rules and regulations or statutes. But I do think that while directly, the intent of those laws—was not intentionally violated, I do think the spirit has been severely abused in public utility holding company framework.

I would also point out, as you mentioned—and, I gather, completely understand—the settlement proposal would have the public believe that we would only be subjected to give, or take a few points, a 6.8-percent increase over 10 years. And as you pointed out—I believe you asked Mr. Bemis—that is not the long and short of the matter. On top of that are the various increases which may come along regardless of plant additions. For example, the largest retail rate case ever filed by a jurisdictional utility before the Arkansas Public Service Commission, just filed by Arkansas Power & Light, seeks a 15.3-percent rate increase. So right there, if you accept the company's figures, which I certainly do not, you're talking about somewhere in the neighborhood of a 22-percent rate increase, everything else being equal, at the end of 10 years, assuming that they over the years achieve a 15.3-percent increase through a series of rate cases or in one fell swoop. So we've got not just one single increase, we've got the prospect of a lot of increases as costs go up with the company. I'm sure they're going to be in with additional rate cases.

There has also been some talk about excess capacity. Mr. Bemis, understandably, is definite in his assessment that Arkansas Power & Light has no excess capacity. I'd like to point out for the record that the staff of the Arkansas Public Service Commission, in what I view to be a conservative assessment of the situation, feels that right now, Arkansas Power & Light has 470 megawatts of excess capacity. Grand Gulf, you may recall—if we are allocated 36 percent—would add 405 megawatts to that. On top of this you have the short-term sales that were mentioned by one of the witnesses previously, totaling somewhere in the range of 1,000 megawatts. If you figure back and look at AP&L's own numbers, right now they have reserved in excess of 52 percent. The Middle South system supposedly strives for a 25-percent reserve margin, so they've got more than twice the reserves right now that they need, and there's a prospect of more and more additions coming on in the future.

Senator BUMPERS. Let me interrupt you just a moment there, Mr. Jegley. Is your conclusion based on their needs to serve their own customers and not what they are selling to Louisiana or Mississippi, either one? Is that correct?

Mr. JEGLEY. Right. Excising them from the Middle South system and looking at them as stand alone.

Two final things, Senator. No. 1, Arkansas Power & Light is on record in proceedings before the Arkansas Public Service Commission—and I doubt very seriously, since they, in my view, do in large measure the beck and call of Middle South Utilities, will not change this position—the position is that stockholders of Middle

South are not going to pay for 1 cent of the Grand Gulf fiasco, and that's what I think it is, personally. I think it's a boondoggle of magnificent proportions. I don't think that's right. I think it represents the type of attitude that is detrimental to the ratepayers of Arkansas, and that if that attitude is to permeate the electric industry throughout this country, we've got some real tough times as regulators in the various States on our hands; and eventually, it may well have to be addressed at Washington with appropriate legislation.

You might also toss up a caveat to your colleagues. There are, with various other public utility holding companies right now, in the offing—one that comes to mind first is American Electric Power Co. up in Ohio and that region—

Senator BUMPERS. Is Michigan a part of that too?

Mr. JEGLEY. I don't know for sure. It's a large one; I think it probably ranks third among the public utility holding companies.

There is a move underfoot according to information that I have heard around and that I think is generally available, and there is talk that this systemwide cost-averaging problem may raise its head there before the FERC. You also have situations involving public utility holding companies setting up unregulated subsidiaries. To bring it back home Central & Southwest Services, the parent company of SWEPCO, serving western Arkansas, now has pending before the SEC an application to set up a subsidiary called CSW Credit, whose sole purpose is to buy accounts receivable from the operating companies in the Central & Southwest system. That would be a totally unregulated subsidiary of a public utility holding company; and according to our calculations—and we have been looking at this situation, incidentally—their return of equity would exceed 25 percent.

So public utility holding companies in this country are staffed with some of the brightest and most creative people that walk on the face of the Earth, in my judgment, and if they can do something that they perceive to be beneficial to their corporation, they're going to do it. And they are doing it right now, and MSE is a perfect example.

We thank you for the opportunity to just give you a little more biased assessment of the situation.

Senator BUMPERS. Thank you very much.

Let me ask you just one question, Mr. Jegley. If your calculations as to excess capacity of AP&L are right, what in your projection will be the timeframe in which it will take them to utilize that?

Mr. JEGLEY. As I mentioned in my prepared statement, the staff of the Public Service Commission feels that with some load management and conservation measures, it is not unlikely that Arkansas Power & Light could keep the native generation that they have right now—and I will say I'm sure Arkansas Power & Light will file something vehemently disagreeing with this—we think with load management and conservation measures, that they could foreseeably make it into the year 2000.

Senator BUMPERS. Let me say one thing. This is just an observation to prove that I am wrong on occasion.

When I first went to the Senate and got on the Energy Committee—as you remember, about the time that gas lines were long and

we were really facing what we thought was a major crisis on gasoline consumption in this country, or availability—all the economists who had testified before the Energy Committee consistently said that gasoline is price inelastic at any price below \$1.50 a gallon—at that time gasoline was 60 or 70 cents a gallon, and they said that it would have to go to \$1.50 before people would conserve 10 percent. And I went around making speeches, parroting all the economists that said that, and that turned out to be about as wrong as anything could be. As soon as gasoline got to \$1 a gallon people began to change their driving habits and the size of automobiles they were buying. The truth is, it turned out that demand for gasoline was quite price elastic. Of course, the availability and the price of gasoline right now has gotten us back in our old consumption habits; but there was a very dramatic decrease. You talk about price elasticity, that's a very difficult thing. Ed Muskie used to always say he'd like to have a one-armed economist before his committee so they couldn't say "on the one hand, but then on the other." [Laughter.]

Robert, and Mr. Jegley, thank you—Robert, did you want to add something?

Dr. JOHNSTON. Senator, there were three questions that you asked, and let me comment on them. I think one of them, perhaps, you had intended to ask me, on the prudence at the examination.

This was raised briefly at FERC early in the proceeding, I think in 1982, and no one really really followed it; perhaps because a plant that appeared prudent at projections that would have been in operation in early 1983, 2 years ahead of now, at \$2 billion rather than what I suspect will be \$4 billion, looks more prudent.

Another thing is that the customers at the time of the Middle South Grand Gulf project, Louisiana Power & Light, New Orleans, and MP&L, did not raise the question of prudence there. AP&L was not a customer at the time, Arkansas Public Service Commission, although it intervened, was working under the impression or the assumption it was zero percent. This points out again, perhaps, that the FERC staff and, similarly, the SEC staff, in seeking to enforce the Public Utility Holding Company Act, is either not as diligent as State commission staffs, and maybe the Commission, or is overburdened. But there's a question now about whether prudence can be raised, and we'll probably see a discussion of that.

A second point on the settlement, and I guess you asked Congressman Anthony and Governor Clinton on it—let me represent a little bit more of the PSC position. The PSC, based on advice not only from our attorneys but in consultation with the attorneys of the other Arkansas parties, including the congressional attorneys, the attorneys for the Coalition of Arkansas Industries, including Reynolds, felt it was not in the best interest of the States; partly, that we were assured it was not acceptable to the FERC staff, to the full FERC, and to the Louisiana parties, and that the effect would be to raise the floor.

A second reason is that it's very dependent on the cost of the Grand Gulf, and you've heard Mr. Bemis here say that that 6.8 percent plus or minus 3 percent is not concrete, it's variable and the costs of Grand Gulf have changed, I think, 12 different times. So we have some hesitancy about accepting those figures. It was based

on projections of load growth—in Arkansas, they have been continuously erroneous by AP&L because they are based on much more optimistic projections of price elasticity than we are willing to accept and you are. The figures that I used are an average of some 17 studies by an objective, neutral—

We also think that zero percent is not only what is fair to state, but has a very good chance of legally continuing, because that's what the Federal Power Act says. There was not politics involved in ours, and you can see that in that the Arkansas industries, including Reynolds, did not support that settlement either, and as far as I know, they didn't have political, they had economic concerns.

If the legislature and the Governor recommend that we support it, then they are in effect our bosses and we would do so.

The excess capacity—the Commission, of course, has it before it. I'm a little confused because I understood President Malden in his speech to the State chamber, to say that they did have excess capacity. But it may be on how you view it.

Thank you.

Senator BUMPERS. Robert, before you go, one other question—and I should have asked this of AP&L. I might call Mike back after while to get this on the record.

I'm also on record opposed to the settlement, but I oppose it for three reasons. First, I haven't really had a chance to study it and look at it. Second, the attorneys in Washington—they didn't much want it either. Third, there was a question as to whether or not, once we enter into those negotiations and submit the negotiations to FERC, whether or not FERC could impose a settlement other than that which was proposed, which might not be to our liking at all, even if we had agreed to the proposal. Is that a correct statement or not?

Dr. JOHNSTON. It is correct that once you move to a settlement conference, or even without a settlement conference, FERC can impose a settlement over the objections of some of the parties. There was a further objection to entering into the settlement because our legal advise is that our chances are much better—the legal arguments are better in the second case, the *System Agreement* case, and the settlement conference would occur before there was an administrative law judge decision in that case, which we thought was disadvantageous. So that's our other reasons, too.

Senator BUMPERS. I might just say that if the cases go to the court of appeals and the Supreme Court, the best argument seems to me that if the present ALJ decision were to be affirmed, you could set out about 10 scenarios which would clearly be permissible in the future, that would be clearly way beyond not only just this instance, but other scenarios that would be way beyond anything that Congress ever envisioned or intended. I'm not an eternal optimist, and I know people are pessimistic about our chances. I still believe that at some level, somebody's going to look at the Public Utility Holding Company Act and rule in our favor.

Dr. JOHNSTON. I agree with you, Senator. In 1935, Congress—the Federal Power Act and the Public Utility Holding Company Act—were seeking to prevent many of the ills that have reoccurred here, and—

Senator BUMPERS. Precisely what's happened here.

Mr. JOHNSTON [continuing]. And FERC and the SEC staff have apparently strayed a long way from enforcing the intent of both those acts in 1935. That's my estimation, and I think legally we'll come out that way.

Senator BUMPERS. Well, Dr. Johnston and Mr. Jegley, thank you very much for being with us.

Mr. JOHNSTON. Thank you, Senator.

Mr. JEGLEY. Thank you, Senator.

[The prepared statements of Dr. Johnston and Mr. Begley follow:]

STATEMENT OF
DR. ROBERT JOHNSTON
CHAIRMAN
ARKANSAS PUBLIC SERVICE COMMISSION
TO
U. S. SENATE
COMMITTEE ON SMALL BUSINESS
"THE EFFECT OF GRAND GULF ON
SMALL BUSINESS AND AGRICULTURE IN ARKANSAS"
DECEMBER 7, 1984

1. "Grand Gulf Nightmare", official says. Mississippi Public Service Commissioner Neilson Cochran has called the Grand Gulf Nuclear Plant "a financial nightmare" and asked Mississippi Power and Light to voluntarily withdraw its plan to complete the plants embattled second unit. "I think it would be prudent on their part to close down Unit II, dismantle it, and salvage what they can There is no way we can survive Unit II...the customers of Arkansas Power and Light would be expected to pay for a portion of Grand Gulf Unit II if Arkansas should lose either of two pending Federal Energy cases involving the four utilities owned by Middle South Utilities Incorporated. (Arkansas Democrat, November 21, 1984, Page 1 A.)
2. Louisiana saying Grand Gulf is just a local matter is like the Japanese saying it's just a local matter that they dropped a few bombs on Pearl Harbor. (Junie Bradshaw, President of National Association of Regulatory Utility Commissioners, Annual Meeting of NARUC at Los Angeles, November 27, 1984.)
3. Grand Gulf is an important phenomenon. Regulating utilities has been a state business for 100 years. With Grand Gulf Middle South (owners of the plant) is trying to end-run state regulation. The utility is fleeing to the federal government to get around pocketbook regulation. (Great grandson of the founder of Pacific Gas and Electric, largest electric utility in the U.S.)

Statement of Dr. Robert Johnston
 Chairman, Arkansas Public Service Commission
 To the United States Senate Committee on Small Business
 Hearing, December 7, 1984.
 Little Rock, Arkansas

"The Potential Impact of the Grand Gulf Nuclear Plant
 on Small Businesses and Farmers in Arkansas"

My statement will first outline why Grand Gulf and the entire situation involving AP&L, the Middle South System and The Federal Energy

Regulatory Commission (FERC) is a problem to Arkansas small businesses and farmers. Secondly, I'll sketch how we got here, and thirdly, discuss some consequences and possible solutions to the problems in which we find ourselves.

Grand Gulf is a problem because: 1.) The Grand Gulf I plant and the other nuclear plant being built in the Middle South System, Waterford, are very expensive; 2.) it is argued by some that there is probably excess capacity in the Mid-South System as well as in Arkansas; 3.) the siting, construction and accompanying economic consideration of Grand Gulf have never been brought before the Arkansas Public Service Commission for its approval or disapproval; 4.) Further Grand Gulf and the Mid-South situation is a problem because of price repression... secondary and tertiary rate shock as well as initial rate shock, and; 5.) due to effects on other states, there will be problems beyond Arkansas.

There are two cases before the Federal Energy Regulatory Commission involving AP&L, Middle South, Grand Gulf and other plants in the Middle South System. The first of those, the Grand Gulf case would (if the initial decision of Administrative Law Judge Ernest Liebman is upheld) apportion 36% of Middle South's 90% share of Grand Gulf (32% overall) to Arkansas which would result in substantial rate increases in the first year (or if phase-in is utilized over several years) in Arkansas. The second case, the System Agreement case would have a further effect as proposed by the Louisiana PSC and all Louisiana parties but also

supported by the FERC Staff, of averaging costs throughout the Mid-South system. That would give Arkansas not only a substantial share of the very expensive Grand Gulf nuclear plant but also of the very expensive Waterford nuclear plant which is nearing completion by Louisiana Power and Light. A further disadvantage of system average costing would be to take away from Arkansas ratepayers the lower cost generating capacity of the six plants built by AP&L in Arkansas over the last decade (the two nuclear plants at Russellville, the two coal plants at White Bluff, and the two coal plants at Newark in Independence County). The addition to the present rate base of Middle South of two new nuclear plants to the order of \$4 billion each, with a portion of each possibly going to Arkansas, is the crux of the problem.

It helps to understand the size of two of the players in this monumental game:

	<u>Assets</u>	<u>Annual Revenues</u>	<u>Annual Profits</u>
A. Middle South Utilities	\$11,000,000,000	\$3,000,000,000	\$600,000,000
B. AP&L	\$3,000,000,000	\$1,300,000,000	\$200,000,000

(NOTE: Rounded to nearest \$100 million)

Middle South is the 5th largest utility in the United States insofar as assets and the 8th largest in the U.S. ranked by profits.

Another potential explanation for the problem is that there are many who argue that the Mid-South System apparently has substantial excess capacity; and Arkansas Power and Light as a "stand-alone" company (if it

were not part of the Mid-South System) also has substantial excess capacity as well. There is a significant disagreement among the parties of exactly how to define excess capacity, i.e. "Are the reserves of Arkansas Power and Light (without Grand Gulf) 50% above the system peak? Or are they more or less than 50%?" With any portion of Grand Gulf, Arkansas Power and Light will certainly have far more capacity than it needs at the present time.

Another problem is that Louisiana is seeking to redistribute the costs of the Grand Gulf and Waterford plants onto Arkansas and Mississippi. Louisiana Power & Light (LP&L) and New Orleans Public Service (NOPs) agreed, in a number of different documents and contracts from 1980-82 to a 0% allocation of Grand Gulf to AP&L and to a System Agreement without cost averaging (see Appendix A). LP&L and NOPs are now seeking to reduce their share of the plants now that the plants have been delayed and have become so expensive. Louisiana seeks to put their share on Arkansas and Mississippi...the two poorest states in the United States, insofar as per capita income.

An industrial attractiveness study by Alexander Grant, Certified Public Accountant, finds Louisiana to be the most attractive state in the United States for manufacturers insofar as energy costs per million BTU's. That would change substantially if Louisiana paid for all of the Waterford plant and the percentage of the Grand Gulf plant that Louisiana Power and Light and New Orleans Public Service agreed to in 1980-82. The fact is that Louisiana is now unwilling to pay the piper.

Grand Gulf is also a problem because the means of constructing and financing Grand Gulf effectively by-passes state regulation. States have traditionally had the responsibility for scrutinizing the economic need for new electric generating plants. Middle South Energy (MSE) has the apparent appearance of being only a paper corporation, at least to the extent that it has no full time employees. MSE was created to take over the construction of Grand Gulf from Mississippi Power and Light when MP&L realized that it could not finance its construction. MSE also took over the construction of Grand Gulf II which was initially scheduled to be built by New Orleans Public Service after New Orleans Public Service discovered that it could not construct the plant on the site originally chosen and also perhaps because of NOPS financing problems. MSE then turned around and contracted with MP&L to construct and operate both Grand Gulf plants. MSE plans to sell power at wholesale across state lines and thus have its rates set by the FERC. Neither Arkansas nor Louisiana was ever allowed to consider the economic need for the plants.. The representation to the Mississippi Public Service Commission (MPSC) was apparently that Mississippi would be responsible only for the share of the Grand Gulf plants as needed in Mississippi. If all of the operating companies contract with MSE on "a take or pay", or "come hell or high water" basis, that they will buy power regardless of the cost of the plant, at the rate set by FERC, then there is an evasion of the traditional state regulation of a utility company's decision to make massive commitments to the order of hundreds of millions of dollars per year without state approval. The Arkansas Public Service Commission along

with the other Arkansas parties including AP&L, the Arkansas Attorney General, a coalition of Arkansas Industries, Arkansas Municipalities, and the Arkansas Congressional Delegation argues that FERC cannot under the Federal Power Act require a state utility to buy power, especially when the utility did not need and does not want to buy that capacity. If there is a gap in the federal power legislation it is a serious gap which evades the intent of permitting state PSC's to protect rate payers from unreasonable investment policies of utilities.

Energy cost is the most important factor which to manufacturing businesses consider in deciding where to locate, according to the "Business Climate Study for 1982" of the Alexander Grant & Co., Certified Public Accountants (Page 23). Energy costs rank ahead of wages, unionization, vocational educational enrollment, education, taxes, debt, population density and all other factors for the manufacturing sector in location decisions according to a survey of the Conference of State Manufacturers Associations, which are in large measure the state chambers of commerce. Energy costs are approximately 8.8% of the weighting of the decision to locate in a state, followed next by wages at 8.1%, unionization at 6.4%, WCI rates at 6.2%; all other of some two dozen other factors are less than 6%. "Only one state, Louisiana (\$1.90) had energy costs of less than \$2 per million BTU's for manufacturers" (Page 19). In fuel and electric energy costs per million BTU's for manufacturers, Arkansas ranked fourth out of the four states in the South Central Region; Louisiana was #1 in the nation in attractiveness to manufacturers in 1982

for energy costs. In overall attractiveness of the 1982 business climate study, Arkansas ranked 18th, ranking behind Louisiana (12th), Mississippi (9th), Texas (2nd), Tennessee (13th). Arkansas' 1982 fuel and electric energy costs per million BTU's for manufacturers was \$2.85 per million BTU's while Louisiana's was \$1.90. There is thus a good deal of evidence that Louisiana, which has been enjoying lower utility rates for manufacturers and, therefore, a more attractive climate for persuading manufacturers to locate in Louisiana, has realized that that situation would change drastically as their Waterford and Grand Gulf plants are built. Thus Louisiana seeks to burden Arkansas' attractiveness to manufacturers even further.

In addition to manufacturing, the agricultural industry in Arkansas is very sensitive to energy costs. Agricultural statistics for 1982, according to the Census Bureau indicate that:

the number of medium sized farms shrank...farmers with medium sized operations are being squeezed out. As for production costs, the census reported that the cost of energy and petroleum products to Arkansas farmers increased by 58.4% in the four year period (faster than inflation in land, fertilizer, and chemicals). (Arkansas Democrat, September 9, 1983, page 1B)

Arkansas leads the nation in rice production, with 37% of the total national rice production. Rice must be irrigated and irrigation requires energy, usually electric.

The higher electric rates for residential consumers in Arkansas as compared to Louisiana, both before and after Grand Gulf, is also demonstrated in the table below.

WHAT YOU'LL PAY
RESIDENTIAL RATES FOR 1000 KWH ELECTRICITY

	AP&L		LP&L*	NEW ORLEANS PUBLIC SERVICE
	<u>Summer</u>	<u>Winter</u>		
Now	\$91.32	\$77.27	\$61.09	\$65.06
Full Increase of Grand Gulf	\$134.66 (+47%)	\$121.39 (+57%)	\$105.14 (+72%)	\$112.59 (+73%)
Phased in effect of Grand Gulf	\$116.28 (+27%)	\$103.01 (+33%)	\$92.13 (+51%)	\$70.71 (+9%)

*Includes Waterford for LP&L

Sources: Arkansas: Calculations of PSC Staff from testimony filed by AP&L in 84-249-U

LP&L & NOPS: New Orleans Times Picayune, December 3, 1984

Arkansas Power and Light just filed a retail rate case with the Arkansas Public Service Commission seeking an increase of some \$460,000,000 in rates (approximately \$200,000,000 in the base case, and an additional increase of approximately \$260,000,000, depending on the share of Grand Gulf ultimately apportioned to Arkansas Power and Light). This would result in a rate shock of 27% to 33% in September, 1985, followed by other increases in subsequent years. But this "first year, first round" rate shock is only the beginning; there are secondary and tertiary rate shocks which would result as well due to "price repression of demand," (also called "price elasticity"). There are a number of studies which indicate that when prices go up, consumers, (industrial, commercial and

residential) cut down on the consumption of electricity in order to save money. There is some indication that over 2 or 3 years, there is a one-for-one reduction; that is, if rates go up by 30%, the quantity of electricity consumed goes down by almost 30%. This leads to the utility coming in for further rate increases because utilities seek to recover - and are entitled to recover according to U.S. constitutional law - a return on their investment equal to that of industries of like risk in the competitive sector. If there are fewer kilowatt hours being sold, while fixed costs remain the same, the utility seeks a rate increase in order to recover lost revenues resulting from fewer kilowatt hours being sold. If consumption goes down by 30% that could then lead to a further rate increase of 30% again, ($30\% + 30\% = 60\%$ above present rates) which would in turn lead to a further decrease in the quantity of electricity consumed of 30%, which would in turn lead to consequent increases of 30% again ($30\% + 30\% + 30\% = 90\%$ above present rates), etc. This is a vicious cycle resulting from the paradox of conservation, i.e. if any individual cuts down on consumption, then he saves dollars. However, for the state as a whole, if everybody cuts back on consumption that leads to further rate increases so that the total dollar amount paid for electricity remains the same though consumption is cut back.

"Price repression of demand", or "price elasticity" responses vary among sectors of the economy. The industrial sector cuts consumption greatest and the quickest in response to price increases. The commercial sector responds to a lesser degree and a little more slowly. The residential sector is the slowest to respond and can cut back least of

all. A recent study by the National Regulatory Research Institute ("Commission Treatment of Over-Capacity in the Electric Power Industry, September 1984"), averages 19 studies of price elasticity involving all sectors and six studies of the elasticity for the industrial sector. They find that the overall elasticity is -0.92 and the industrial elasticity value is -1.01 . Thus, using the average of 19 studies, they find that a 30% increase in overall price causes a 27.6% decrease in overall kilowatt hour demand, and a 30% increase in industrial price causes a 30.3% decrease in industrial kilowatt hour demand. Demand or price elasticity is defined as the percentage change in the quantity consumed that is induced by given percentage change in price.

Consumers will either cut down on their usage or "vote with their feet," i.e. some industrial users will leave the state or alternatively not come to the state when they might have otherwise done so. Some marginal commercial consumers (small businesses) will probably leave the state where otherwise they would have remained.

In addition to the considerable economic consequences to the state, leaving aside the political consequences which I will address later, there are significant economic and political effects on other states as well. If the Federal Energy Regulatory Commission affirms the policy recommended by Administrative Law Judge Ernest Liebman, then they will have established a national policy providing for regional averaging of prices of electricity across state lines. Such a policy would significantly

significantly reduce states rights and represent a move toward nationalization or centralization of the setting of electric rates, taking away a traditional state function. If a multi-state holding company is allowed by the FERC to evade the requirements of state siting laws (which have existed in Arkansas since 1973) before building power plants, then the national government will have announced that it not only permits but encourages the evasion by utilities of any scrutiny of economic necessity. No federal agency examines the need for power plants. But moreso, states will be very hesitant to permit or to encourage their utilities to participate in multi-state holding companies and in multi-state power pools if, in so doing, they may find that their low cost plants are, in effect, seized by higher cost states. There will be a great hesitancy from PSCs to approve power pools and construction of new plants if the plants that were built in their states, and paid for by their ratepayers, are no longer owned by their state utility, but instead are under common ownership, i.e. "socialized" by other states. That would have a serious dampening effect on the inter-ties of utilities, at a time in which there is significant excess capacity in most of the country. The NRRI study found that in 1982, electric industries in the United States had a reserve margin of 57%, while some experts contend that a reserve margin of 20% is sufficient to have reserves to meet unusual demands in the summertime and outages of plants. In other words, the electric industry in the United States in 1982 had approximately 37% excess capacity. While there is excess capacity in most of the country, as seems evident, there are small pockets that are short of capacity. Therefore, a

national policy that dissuades inter-ties will be wasteful and will lead to building additional capacity in some areas, even though there is excess capacity nationwide. Thus the fear that "tying-in" will lead to higher rates in a state than they otherwise would be, is inefficient to the country as a whole.

How did we get into this situation? The "How?" and "When?" questions deserve more than the time and space allotted today. A very brief history of the developments of the Middle South System involving AP&L, Middle South Energy, Grand Gulf and Waterford is attached as Appendix A to this statement. Hopefully the Small Business Committee or any appropriate Senate committee can conduct hearings on whether the ills of Public Utility Holding Companies have grown to the point that the disadvantages now outweigh any advantages.

What are the possible solutions to the difficulties of high cost nuclear plants for small businessmen and farmers in the 50 states? I'll speak generally rather than specifically because some of these issues may come before the PSC. I want to be very clear that neither I nor my fellow Commissioners have reached any conclusions; but I will speak about possible and probable reactions of state commissions around the country to similar situations. Almost certainly there will be some efforts beyond ratepayers paying higher rates for plants like Grand Gulf and Waterford including, stockholders paying some of the costs under excess capacity or prudence arguments, and an effort to sell excess capacity either "off the system" or "on the system". Let me speak about each of these in turn.

Ratepayers can expect to pay some additional rates for nuclear plants as they come into the rate base. However, there will be a tendency for commissions around the country to seek to phase-in rates over three, five or ten years to avoid extreme rate shocks on the order of 30% or 50%.

In a number of jurisdictions, Commissions are examining whether stockholders should pay some of the substantial costs of construction, particularly for plants in systems where there is excess capacity. The National Regulatory Research Institute (publication listed above) gives some 16 options for dealing with excess capacity, some of them with three or four variations, including disallowing some or all of the excess capacity, and/or phasing-in the excess capacity. (See Appendix B) There will be efforts in some states to look at the prudence of construction of the plants, i.e. were they necessary in the first instance? Were they prudently constructed along the way? Were the initial decisions reexamined periodically to determine whether or not it was more beneficial to continue to construct them or to cancel?

AP&L was asked in a Docket of Investigation before the PSC, "has there been discussion within Middle South about stockholders paying some of the cost of Grand Gulf or Waterford?" The answer was "No". AP&L said that it would be unfair for stockholders to pay because it is only fair that they earn a competitive return on their investment. AP&L further said that it is fair for ratepayers to pay because they benefit. Yet to be determined is whether or not there is any benefit to the Arkansas ratepayers from Grand Gulf and Waterford.

If Arkansas ratepayers are forced to pay for a portion of Grand Gulf and Waterford, then selling the excess capacity could ameliorate the impact. The sale of excess capacity would be either "off system" or "on system". Off system sales are sales in the short term, intermediate term, or the long term to other utilities who are intertwined with the Middle South system. The problem is that there are very few utilities that need capacity. The cost of the Grand Gulf and Waterford plants are very high relative to other alternatives for the purchase of capacity for other utilities. Sales of excess capacity "on-system", within the AP&L or Middle South Systems would depend on special encouragement or incentive rates to existing and new users to increase their consumption. Along with those incentive, or discount rates, would come an agreement that the provision of demand and energy would be "interruptible" when bought at a discount. If the marketing program were imminently successful and all of the excess capacity were soaked up in the next few years, it would also have to be understood that rather than build the next generation of multi-billion dollar power plants, the utility would have the option of interrupting the provision of electricity at various times, i.e. during the peak hours in the summer period in August. Present examples of interruptible rates are residential air-conditioning switches, the irrigation rates provided to farmers, and the Reynolds Metals contract. Reynolds, the largest customer by far of AP&L, has a contract that provides for lower or discount rates in return for accepting, with some forewarning, interruption at peak times.

In addition to the severe economic threat of Grand Gulf and Waterford to Arkansas businesses and farmers, there are also severe political consequences of Grand Gulf and Waterford if Arkansas ratepayers are forced to pay for them. Attached to this statement are copies of petitions circulated in two very different sections of the state -- one across the northern half of Arkansas, the other in the southern half. There are 6,500 signatures on the North Arkansas petition, and 14,500 signatures on the one circulated in Southern Arkansas. In addition to those 21,000 signatures, the Public Service Commission has received both written and oral comments from a wide variety of business and agricultural people around the state, saying in effect, "I'm mad as hell and I'm not gonna take it anymore." That includes people in the real estate business, a McDonald's dealer with three franchises in Arkansas, and a small grocery owner in Lepanto, among others. A farmer told me that anything like a 30% rate increase "would set Arkansas agriculture back into the Dark Ages...we are trying to equalize yields to increase productivity by irrigating; we won't be able to compete if the rates go up in any magnitude at all." One political and economic consequence of significant electric rate increases will be the disappearance of small businesses that are now competing with national chains. For example, we might see the disappearance of "Mom and Pop" grocery stores and hamburger stands because as electric rates go up, larger firms will conserve by making substantial conservation investments, but small operations with only one or two locations will not be able to so do. In my 14 years in Arkansas politics, I have never seen an issue which poses as great an economic threat to the state of Arkansas, or one which

has had such widespread public reaction and understanding. I suspect that that understanding will be much greater if electric rates in Arkansas increase because of the high cost of Grand Gulf and Waterford and the intertwinings of AP&L and the Middle South System.

Best wishes in dealing with a major threat to small business and agriculture in Arkansas.

MIDDLE SOUTH, AP&L,FERC, AND GRAND GULF

Middle South Utilities is a Holding Company for AP&L, MP&L, LP&L, New Orleans Public Service (NOPS), plus Middle South Energy (MSE), Middle South Services (MSS), System Fuels, Electech.

History:

1920's - consolidation of small independent companies into AP&L, which was in turn owned by a Holding Company - Electric Power and Light - (predecessor to Middle South Utilities). Electric Power and Light was organized as a holding company in Maine in 1925, and owned AP&L, MP&L, LP&L, NOPS, and United Gas.

Electric Power & Light was in turn held (owned) by Electric Bond and Share - a "super holding company" or "holding company of holding companies."

1935 - As a result of problems with holding companies the Public Utility Holding Company Act (PUHCA) was passed which gave to the SEC the power to abolish holding companies which were not in the public interest and to regulate all remaining Holding Companies (HC).

- Problems:
- 1) Holding Companies were beyond state regulation
 - 2) Milking of Operating Companies (OC) by Holding Companies: taking out dividends greater than earnings, unreasonable charges for management services.
 - 3) Overlapping directorates.

- 4) Pyramiding (HC of HC) so overly leveraged; e.g. control \$5 billion with \$10 million in equity, but if earnings went down, one bankruptcy caused widespread collapse.

1935 - Federal Power Act: created Federal Power Commission to regulate interstate wholesale electric sales (which courts had held were beyond state regulatory control.)

1949 - Electric Power & Light reformed as Middle South Utilities.

1964 - Middle South Services created - to perform computer work for four OC's.

1967 - ANO 1 begun (completed 1974)

1970 - ANO 2 begun (completed 1977)

1970 - AP&L begins plans for GG1. (Grand Gulf 1) NOPS begins plans for what will become GG2 (Grand Gulf 2) (Each of three nuclear plants have become 14-17 year projects, at a cost of \$3 - \$4 billion each rather than \$750 million.)

LP&L begins Waterford.

1973 - Construction begins on GG1.

February 1974 - Middle South Energy (MSE) formed at least in part because MP&L cannot finance GG1. New Orleans plant not feasible because of soil problems; shifted to Mississippi (MSE) and becomes GG2.

June 21, 1974 - Availability Agreement signed among MSE and OC's - provides a guaranteed market for MSE output; OC's agrees to pay cost of service; allocation to be on a floating or flexible percentage depending on need ("short" and "long" on capacity, i.e., "participation concept").

June 20, 1977 - First Assignment of Availability Agreement - MSE assigned rights to payments from OC's to banks in order to secure loans. AP&L, LP&L, NOPS, MP&L, sign assignment to banks backing up loans to MSE.

July 21, 1980 - Memorandum of Understanding signed by AP&L, MP&L, LP&L, NOPS, MSE; AP&L to receive 0% of GG.

June 15, 1981 - 2nd Amendment to Availability Agreement. Banks would not let AP&L out of obligation. AP&L accepts 17.1% of costs because that was an estimate of responsibility under floating percentage (participation concept), but separate agreement shifts that 17.1% to LP&L, NOPS, MP&L.

MSE looks to AP&L for 17% but AP&L ultimately responsible for 0% because other OC's agree to buy AP&L share (i.e., AP&L looks to other OC's to make whole through an indemnification agreement.)

November, 1981 - Reallocation Agreement - formalized Memorandum of Understanding (AP&L to receive 0% of GG). Signed by MP&L, LP&L, NOPS, MSE.

1982 - Unit Power Sales Agreement filed with FERC - Signed by LP&L, NOPS, MP&L, MSE. AP&L to receive 0% of GG.

1982 - System Agreement revision filed with FERC - dealing with payments among companies for short term sales of energy and capacity. Does not include system average costing. Signed by LP&L, NOPS, MP&L, AP&L.

1982-84 - Six Arkansas parties intervene in FERC Cases:

1. Arkansas Public Service Commission
2. Arkansas Attorney General
3. Arkansas Municipalities
4. Arkansas Industries
5. AP&L

6. Arkansas and Missouri Congressional Delegations

March-May, 1983 - Louisiana argues for smaller share of GG and for system average costing.

April, 1983 - FERC staff agrees with Louisiana Commission on system average costing.

February, 1984 - LP&L, NOPS, MP&L renege on support for contracts filed with FERC (Unit Power Sales Agreement & System Agreement).

February, 1984 - Administrative Law Judge (ALJ) Ernst Liebman in Initial Decision finds Middle South is not a coalition of independent operating companies (i.e., a confederation) - but instead a monolithic, unified "super utility" and rates should be the same throughout - holds AP&L responsible for 36% of MSE share of GG ($90\% \times 36\% = 32\%$ of total)

1984 - Six Arkansas parties appeal to full FERC (5 members) - decision expected momentarily, certain to be appealed to U. S. Circuit Court of Appeals.

1984 - 1985? ALJ Daniel Head decision expected in next several months in System Agreement case.

1985? - GG1 expected to be operational March 1985.

Waterford expected to be operational March 1985.

GG2 on hold (1/3 complete). Decision to cancel or proceed is now pending.