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REPORT
ON
NUCLEAR CANCELLATIONS FOLLOW-ON STUDY
ANL CONTRACT No. 31-109-38-6510

MASTER

JANUARY 29, 1982

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I. INTRODUCTION

A. Background

Under a prior contract, the problem of avoiding further and unwarranted (from the standpoint of the national interest) attrition of the universe of currently ongoing nuclear projects in the months and years immediately ahead, was studied. The study sought to identify actions the federal government might take to arrest such attrition. At the same time, it was hoped that such actions might also help to stimulate the renewal of new nuclear power commitments at a timing and pace consistent with projected national needs.

The serious reduction in the aggregate commitment to nuclear power by U.S. utilities over the past few years, as well as the serious stretch-out of the completion schedules for many ongoing projects, has continued. The prior study presented a substantial amount of background material on the factors that caused this massive retrenchment of utility expansion plans which are still prevalent, including:

1. Adjustment for sharply reduced electrical load growth expectations, evidenced by the fact that the load forecasts have continued to drop*. The decrease in load growth had created a situation where, in many utility systems, there appeared to exist a larger than 'normal'

* The most current forecasts of EIA are below 3% per year.

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margin of reserve generating capacity, which on its face, encourages cancellation or stretch-out not only of nuclear units but also of planned new fossil units. At the same time, the fact that this "margin" consists largely of older and inefficient units, or uneconomic (oil burning) units, threatens electric long-term supply reliability and electric system economics, leaving aside the impact on oil dependence.

2. A second, and perhaps more fundamental cause of utility retrenchment continues to be deterioration of the financial health of the electric utility industry and its ability to finance even the comparatively modest rates of expansion now forecast, without serious damage to the financial integrity of the utility companies involved. The past year and a half has produced some evidence of recognition of this problem by state regulators, and there have been a substantial volume of favorable rate actions. However, the roots are deeply embedded in regulatory policy and historic practice, and catching up is very hard to do, particularly at a time of continuing escalation in the costs projected for new capacity, especially nuclear.
3. There are still a number of factors specific to nuclear which continue to operate, and in fact, may have worsened since the prior report, including:
 - o Schedule delays and unpredictability of schedules, with attendant cost uncertainty, attributable by utilities, in the main, to complex licensing and cumbersome licensing procedures.

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- o Concern about the continuing non-resolution of discrete nuclear power issues, such as ultimate high level radioactive waste disposal.
 - o Adverse official attitudes in certain states toward nuclear power development.
 - o Public understanding or support of nuclear power, which, at least as judged by opinion polls, seems to have worsened.
 - o The serious financial consequences and risk implications growing out of the Three-Mile accident, including the prolonged shutdown of the undamaged Unit # 1, seems to be of greater concern to utility executives.
4. In the 1980 study, there was one other factor which was seen as important, namely the lack of advocacy of, and effective policy support for, nuclear power development by the Federal Administration. Clearly the attitude of the new Administration is fundamentally different in that regard, and one of the points of interest in this follow-on study was to determine whether this has as yet had any specific impact.

B. Objectives of the Present Study

The earlier study had pointed out areas where further diagnosis and study were required before one could attempt to prescribe remedies; essentially these areas are those referred to above. The specific approach in the current assignment to such further diagnosis was as follows:

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1. To extend the data bank of key financial and other characteristics for an expanded universe which encompasses 59 units of 25 utilities, (23 of them investor-owned). 25 of these units were less than 10% complete at the start of the study; these designated as type "A" units, had been the focus of the prior study, arbitrarily selected as the practical limit for cancellation candidates. The expanded universe included as deferral prospects an additional 34 units, designated Type "B", which were up to 60% complete (See Table 1.).
2. To try and subdivide this universe into some matrix of "problem categories"; cited as critical individual utilities; e.g., the matrix could presumably include such factors as: (a) financing difficulty; (b) lack of need for the power; (c) an adverse PUC attitude; (d) a perceived lack of supportive Federal policy; (e) some other adverse circumstances. One major difficulty with this approach was that the problems tend to be interlocking. Another more general difficulty is that the data base is hard to keep current, especially at this time when rate actions are being sought at an unprecedented pace, and any single action, favorable or unfavorable, can make a substantial change in a utility's financial condition and outlook.

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3. As an alternate, it was felt that perhaps a more straightforward means of categorization might well be a pragmatic breakdown along such lines as:
 - a. units less than 10% complete in which utilities in relatively poor financial condition have to date made a relatively small investment;
 - b. units less than 10% complete in which utilities in relatively good financial condition have to date made a relatively small investment;
 - c. units less than 10% complete in which utilities in relatively good financial condition have to date made a relatively large financial investment, etc., etc.

This approach also turned out to be unproductive, mainly because the distinctions tend to blur, and all of the utilities in the universe exhibit roughly similar problem characteristics and problem distribution.

4. It was also recognized that for the units more than 10% complete, the problems tend to be more individual and much harder to generalize via a sampling. Thus, it was also intended to test whether sampling would be effective, or whether one must examine each of those units further along individually, to get any real insight into remedy possibilities.

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5. To attempt to define the intrinsic limitations of Federal action in a field so importantly covered by state regulatory policies was also recognized.

The method used was to contact at least one representative utility in each of the problem categories by phone, or letter, or visit, to attempt a broad codification of possible remedies which the Federal Government might take to:

- a. induce utilities to postpone rather than cancel units less than 10% complete.
- b. induce them to complete expeditiously units in the 10-60% completion range.

The material which follows reports on this effort, and includes thoughts as to further work where such effort appears justified.

As part of this process, five relatively structured visits were held with utility executives,* selected from different regions, with early units (less than 10% complete), as well as with units further along, and including both investor-owned and publicly owned systems.

*Gulf States Utilities, Houston Industries, Public Service of New Hampshire, Puget Sound Power & Light, Washington Public Power Supply System.

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II. FINDINGS

A. Universe and Data Base

The utilities and nuclear power units in the universe are given in Table 1. They represent an aggregate of some 67,000 megawatts of previously planned nuclear capacity, distributed among 25 utilities of which 23 were investor-owned companies (representing some 51,000 megawatts or 76% of the total), and 2 were public power entities.

B. Interviews with Utilities

An extensive data bank of financial data through 1980, with certain specific points indicated for 1981 where data was available to us, has been compiled.* The data do not reveal any substantial change in the general circumstances over the year since the last study was completed. The utilities in the study universe are still in generally poorer condition in terms of the key financial indicators than their peers (the other utilities in the one hundred largest investor-owned utility universe); the data is presented in Tables 2 - 6. Many of the utilities in the universe are currently seeking remedial rate action, and a substantial increase could importantly change the financial condition reported in those data.

* The books were essentially closed on this assignment as far as substantive data collection work by October 1981.

NERC REGION	UTILITY	NERC SUB-REGION	TYPE A PLANTS, ≤ 10% COMPLETE				TYPE B PLANTS, ≥ 10% but ≤ 60% COMPLETE				A + B MWE
			PLANT	SERVICE DATE	% COMPLETE	SIZE, MWE	PLANT	SERVICE DATE	% COMPLETE	SIZE, MWE	
NPCC	Niagara Mohawk	NY					Nine Mile Point 2	1986	30	1080	1080
	Northeast Utilities	NE					Millstone 3	1986	33	1159	1159
	P.S. of New Hampshire	NE	Seabrook 2	1985	8	1194	Seabrook 1	1983	44	1194	2388
	Total Capacity					1194				3433	4627
MAAC	Pennsylvania P&L						Susquehanna 2	1983	07	1052	1052
	Philadelphia Elec.						Limerick 2	1987	28	1065	1065
	P.S. E&G						Hope Creek 1	1986	24	1067	1067
	Total Capacity						X Hope Creek 2	1989	24	1067	1067
ECAR	Cleveland Electric									4251	4251
	Duquesne P&L										
	P.S. of Indiana		Marble Hill 2	1987	6	1130	Perry 2	1988	40	1205	1205
	Total Capacity					1130	Beaver Valley 2	1986	40	852	852
MAIN	Commonwealth Ed.		X Carroll County 1	1992	Ord.	1120	Marble Hill 1	1986	20	1130	2260
			X Carroll County 2	1993	Ord.	1120				3187	4317
	Illinois Power		X Clinton 2	1991	3	933	Byron 2	1984	59	1120	2240
	Total Capacity					3173	Braidwood 1	1985	59	1120	2240
SERC	Carolina P&L	VACAR	Harris 2	1988	4	900	Braidwood 2	1986	48	1120	1120
			X Harris 3	1990	1	900				933	6530
			X Harris 4	1988	1	900					
	Duke Power	VACAR	X Cherokee 2	1992	1	X1280	Harris 1	1985	38	918	1815
			X Cherokee 3	1990	1	1280	Cherokee 1	1990	15	1280	2560
			X Perkins 1	no date	Ord.	1280	Catawba 2	1985	37	1145	2425
			X Perkins 2	1990	Ord.	1280				1280	1280
			X Perkins 3	1990	Ord.	1280				1280	1280
	Virginia E&P	VACAR	North Anna 3	1986	8	907				907	907
	Georgia P&L	South	Vogtle 2	1987	4	1110				1110	2220
	TVA	TVA	X Yellow Creek 2	1993	3	1285	Vogtle 1	1985	12	1110	2220
			X Phipps Bend 2	1994	5	X1220	Bellefonte 2	1986	52	1235	2520
			X Hartsville B-2	1996	7	X1205	Hartsville A-1	1987	31	1205	2425
							Hartsville A-2	1988	25	1205	2410
							X Yellow Creek 1	1988	18	1285	1285
							Phipps Bend 1	1989	17	1220	1220
	Florida P&L	Florida				14827	X Hartsville B-1	1995	17	1205	1205
	Total Capacity						St. Lucie 2	1983	59	842	842
										11740	26567
ERCOT	Houston L&P		Allens Creek 1	1988	Ord.	1150	South Texas Project 1	1984	62	1250	2400
	Texas Utilities						South Texas Project 2	1986	25	1250	1250
	Total Capacity					1150	Comanche Peak 2	1984	50	1150	1150
										3650	4800
SPP	Gulf States Util.		River Bend 2	no date	5	934	River Bend 1	1984	23	934	1868
	Mississippi P&L		X Black Fox 1	1985	<1	1150	Grand Gulf 2	1988	22	1250	1250
	P.S. of Oklahoma		X Black Fox 2	no date	<1	1150					1150
	Total Capacity					3234				2184	5418
WSCC	Arizona P.S.	Az-NM					Palo Verde 2	1984	50	1304	1304
	Puget Sound P&L	NWPP	X Skagit 1	no date	Ord.	1277	Palo Verde 3	1986	12	1304	1304
			X Skagit 2	no date	Ord.	1277					1277
	BPA-NPPSS	NWPP	X Wash. Nuclear 5	1987	3	1240	Wash. Nuclear 1	1986	38	1267	2507
							Wash. Nuclear 3	1986	15	1242	1242
							X Wash. Nuclear 4	1987	15	1267	1267
						3794				6384	10178
						27217				39474	66691
Total Capacity - All Regions											

Sources: "Nuclear Cancellations Follow-On Study, Statement of Work," B/6/81; Table II-1, SMSC 1980
 "Assessment of Nuclear Unit Cancellations"; NERC 1980 Annual Report: Nuclear Engineering.

TABLE 2

Comparison of Financial Ratios

Utility Sample	Market/Book Ratio %				Dividend Payout Ratio %				Times Inter- est Coverage Before FIT			Rate of Return on Average Common Equity %		
	Averages													
	1st Half 1981	1980	1979	1978	1st Half 1981	1980	1979	1978	1980	1979	1978	1980	1979	1978
100 Largest Utilities	NA	78	80	86	NA	77	75	73	2.83	2.93	3.07	11.88	11.69	11.80
77 Utilities Excluding the 23 Utilities in the Universe ¹	NA	81	81	86	NA	77	72	71	2.90	2.98	3.08	11.89	11.76	11.76
4 Utilities with Type "A" Plants only - $\leq 10\%$	74	71 (-10) ²	77 (-4)	91 (+6)	77	79 (-2)	82 (-10)	73 (-2)	2.74 (-.16)	2.83 (-.15)	3.21 (+.13)	11.80 (-.09)	10.79 (-.97)	12.19 (-.43)
8 Utilities with Type "A" and Type "B" Plants - $\leq 10\%$ and $\leq 60\%$	77	65 (-16)	80 (-1)	87 (+1)	81	72 (+5)	87 (-15)	78 (-7)	2.80 (-.10)	2.98 (0)	3.24 (+.16)	12.58 (+.69)	12.07 (+.37)	12.10 (+.34)
11 Utilities with Type "B" Plants Only - $\leq 60\%$	70	72 (-9)	76 (-5)	81 (-5)	84	81 (-4)	77 (-5)	75 (-4)	2.42 (-.48)	2.60 (-.38)	2.84 (-.24)	11.33 (-.56)	11.25 (-.51)	11.67 (-.08)

¹The utilities in this universe are those listed in Table II-1.²Difference in parentheses indicates better (+) or worse (-) than remaining 77 utilities.

NA - not available.

Source: Dean Witter Reynolds, Inc., and Value Line.

TABLE 3

FINANCIAL RATIOS

<u>NERC REGION</u>		<u>MARKET/BOOK RATIO</u>			
		1981 Est. III Qtr.	1980	1979	1978
NPCC	Niaqara Mohawk Power	57	0.64	0.73	0.82
	Northeast Utilities	58	0.59	0.68	0.68
	Public Service of New Hampshire	74	1.01	0.92	0.84
MAAC	Pennsylvania Power & Light	64	0.63	0.69	0.77
	Philadelphia Electric	71	0.67	0.72	0.80
	Public Service Electric and Gas	69	0.62	0.71	0.74
ECAR	Cleveland Electric Illuminating	72	0.74	0.82	0.86
	Duquesne Light	71	0.73	0.77	0.81
	Public Service of Indiana	80	0.83	0.95	1.06
MAIN	Commonwealth Edison	76	0.67	0.69	0.88
	Illinois Power	83	0.82	0.86	1.04
SERC	Carolina Power & Light	80	0.75	0.76	0.88
	Duke Power	84	0.79	0.78	0.91
	Virginia Electric & Power	56	0.56	0.56	0.73
	Georgia Power & Light	72	0.73	0.68	0.78
	Florida Power & Light	75	0.75	0.73	0.80
ERCOT	Houston Industries	79	0.81	0.84	0.83
	Texas Utilities	82	0.86	0.85	0.94
SPP	Gulf States Utilities	71	0.74	0.71	0.76
	Mississippi Power & Light	68	0.94	0.90	0.81
	Public Service of Oklahoma	78	0.75	0.86	0.97
WSCC	Arizona Public Service	78	0.80	0.76	0.90
	Puget Sound Power & Light	78	0.70	0.79	0.90

Source: Dean Witter Reynolds, Seventh Annual Survey of the 100 Largest Utilities - 1981 edition. First-half 1981 based on actual data reported by Value Line Investment Surveys.

TABLE 4

FINANCIAL RATIOS

ave = 77 1/2

<u>NERC REGION</u>		<u>DIVIDEND PAYOUT RATIO</u>			
		<u>1981 First Half</u>	<u>1980</u>	<u>1979</u>	<u>1978</u>
NPCC	Niaqara Mohawk Power	58	80.21	72.00	72.22
	Northeast Utilities	87	83.97	86.89	76.97
	Public Service of New Hampshire	92	76.53	82.81	59.69
MAAC	Pennsylvania Power & Light	64	79.55	61.45	67.13
	Philadelphia Electric	84	90.00	96.77	96.26
	Public Service Electric and Gas	89	71.12	77.19	70.51
ECAR	Cleveland Electric Illuminating	1.06	88.50	79.34	83.64
	Duquesne Light	1.07	98.90	97.24	115.44
	Public Service of Indiana	93	76.01	60.16	72.95
MAIN	Commonwealth Edison	81	87.54	103.59	72.73
	Illinois Power	83	81.18	84.44	83.21
SERC	Carolina Power & Light	66	79.12	66.01	60.32
	Duke Power	61	63.31	63.54	66.67
	Virginia Electric & Power	111	72.54	84.66	69.15
	Georgia Power & Light	81 ¹	69.96	101.99	106.21
	Florida Power & Light	1.08	94.28	68.12	53.80
ERCOT	Houston Industries	82 ²	56.90	48.76	50.36
	Texas Utilities	69	54.40	65.71	58.66
SPP	Gulf States Utilities	82	67.80	78.16	71.68
	Mississippi Power & Light	60	78.61	71.36	58.54
	Public Service of Oklahoma	64	61.22	62.56	59.56
WSCC	Arizona Public Service	91	74.91	66.90	54.92
	Puget Sound Power & Light	48	102.50	96.39	68.52

¹First Quarter. Estimated first half equals 1.14.

²Estimate for 1981 equals 53, due to jump in earnings in third quarter.

Source: Dean Witter Reynolds, Seventh Annual Survey of the 100 Largest Utilities - 1981 edition. First-half 1981 based on actual data reported by Value Line Investment Surveys.

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TABLE 5

FINANCIAL RATIOS

<u>NERC REGION</u>		<u>TIMES INTEREST COVERAGE BEFORE FIT</u>		
		<u>1980</u>	<u>1979</u>	<u>1978</u>
NPCC	Niaqara Mohawk Power	2.47	2.61	2.58
	Northeast Utilities	2.02	2.00	2.19
	Public Service of New Hampshire	2.34	2.31	2.92
MAAC	Pennsylvania Power & Light	2.10	2.72	2.98
	Philadelphia Electric	2.14	2.20	2.44
	Public Service Electric and Gas	2.93	3.35	3.76
ECAR	Cleveland Electric Illuminating	2.36	2.67	2.65
	Duquesne Light	2.69	2.62	2.57
	Public Service of Indiana	4.54	5.56	4.85
MAIN	Commonwealth Edison	2.10	2.01	2.81
	Illinois Power	3.31	3.21	3.42
SERC	Carolina Power & Light	2.43	3.01	3.73
	Duke Power	2.71	2.96	3.04
	Virginia Electric & Power	2.19	2.23	2.45
	Georgia Power & Light	2.51	2.12	2.24
	Florida Power & Light	2.80	3.30	3.80
ERCOT	Houston Industries	3.32	3.51	3.58
	Texas Utilities	3.27	2.99	3.41
SPP	Gulf States Utilities	2.34	2.42	2.75
	Mississippi Power & Light	1.62	1.65	2.11
	Public Service of Oklahoma	3.40	3.68	4.34
WSCC	Arizona Public Service	2.26	2.46	2.77
	Puget Sound Power & Light	2.07	2.20	2.63

Source: Dean Witter Reynolds, Seventh Annual Survey of the 100 Largest Utilities - 1981 edition

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TABLE 6

FINANCIAL RATIOS

<u>NERC REGION</u>		RETURN ON AVERAGE COMMON EQUITY		
		1980	1979	1978
NPCC	Niagara Mohawk Power	10.76	11.43	11.06
	Northeast Utilities	9.83	9.21	10.05
	Public Service of New Hampshire	13.43	12.11	14.35
MAAC	Pennsylvania Power & Light	10.18	12.74	11.66
	Philadelphia Electric	10.56	9.80	9.71
	Public Service Electric and Gas	11.85	10.29	10.88
ECAR	Cleveland Electric Illuminating	11.27	11.50	11.24
	Duquesne Light	10.54	9.70	8.40
	Public Service of Indiana	12.73	15.59	12.60
MAIN	Commonwealth Edison	10.54	8.91	11.78
	Illinois Power	13.44	12.46	12.80
SERC	Carolina Power & Light	11.13	12.31	12.62
	Duke Power	13.55	13.49	12.77
	Virginia Electric & Power	10.26	8.42	9.63
	Georgia Power & Light	12.91	8.90	8.43
	Florida Power & Light	11.11	12.62	14.51
ERCOT	Houston Industries	13.41	14.25	13.37
	Texas Utilities	15.19	12.22	13.13
SPP	Gulf States Utilities	12.94	10.91	10.93
	Mississippi Power & Light	10.98	11.82	14.19
	Public Service of Oklahoma	14.51	13.72	15.09
WSCC	Arizona Public Service	12.32	12.40	13.53
	Puget Sound Power & Light	9.00	8.55	11.24

Source: Dean Witter Reynolds, Seventh Annual Survey of the 100 Largest Utilities - 1981 edition

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C. Cost and Escalation.

The interviews have made it clear that there is an increasing tendency on the part of U.S. utilities to put finite annual dollar limits on total construction expenditures. As construction plans are projected forward, generally for at least five years, where it becomes evident those dollar limits will be exceeded, construction is either being postponed, or cancelled.

The decision as between postponement or deferral and cancellation depends upon many factors, importantly including the magnitude of the sunk cost, and the expectations of regulatory treatment of those sunk costs. A summary of current State regulatory attitudes in this regard is incorporated as Attachment 1.

D. Electric Reliability and Reserve Margins

Cost estimates to complete a nuclear plant have continued to escalate, and there is not yet confidence that these costs are predictable. This is illustrated in Table 7, where it can be seen that projections of capital costs for nuclear plants have increased by more than an order of magnitude in the last decade. The data reflect examination of a number of cost estimates.

While these data are obviously approximate, since each project has a unique history of cost impacts, they are believed to be a reasonable representation for perspective purposes. This continuing escalation

TABLE 7

CAPITAL COST OF A NUCLEAR POWER PLANT
1000 MWe LWR SINGLE UNIT STATION

ESTIMATE DATE	6/69	1/71	1/73	1/75	7/80
Base Cost 6/69 Dollars	168	208	265	309	547
Escalation from 6/69 to Estimate Date	-	17	66	140	642
Total Cost in \$ of Estimate Date	168	225	331	449	1189
Effective Future Inflation Param- eters Rate %/yr/yrs	5.7%/yr/ 3.2 yr.	6.1%/yr/ 3.7 yr	4.8%/yr/ 4.72 yr	7.6%/yr/ 5.72 yr	9.5%/yr/ 7 yr
Future Inflation Factor\$/kw Current Dollars	1.194/ 201	1.245/ 280	1.248/ 413	1.520/ 683	1.888/ 2244
Effective Future AFUDC Parameters Rate %/yr/yrs	6.1%/yr/ 2.8	6.9%/yr/ 3.3 yr	6.9%/yr/ 3.3 yr	6.7%/yr/ 4.3 yr	10%/yr/ 5
AFUDC Factor/ Total \$/kw Includ- ing AFUDC	1.180/ 237	1.246/ 349	1.246/ 515	1.322/ 903	1.611/ 3614

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of cost estimates, as it soaks up more of this limit of the "available" utility funds, has a cascading effect in deferring plans for including not only nuclear but also fossil units. This is a very dynamic situation and makes the outlook as to future supply capability very difficult to judge from the data reported by utilities.*

E. Federal Government's Involvement

The problem of realistically assessing future electric system supply reliability from the publicly available information on reserve margin is very difficult. As above, the internal system planning by utilities, constrained by spending limits, may be substantially different than reported to NERC and others for publication. It was made quite clear in the interviews that utilities have a spectrum of system plans; i.e. if favorable and sustained rate treatment is not assured or if the "next" estimate of cost to complete a nuclear unit is destined to increase substantially, the internal plans may include massive cutbacks in planned additions. The reserve margins by region as determined by NERC, reflect data the utilities provide, including

-
- * The interviews suggest that utilities may have alternate contingency plans wherein the construction plan may not be altered in their public reporting, but are recognized internally to depend upon PSC actions which cannot realistically be expected; e.g., in one case, the need for 20% /year increase for the next five years.

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the individual utilities estimate of load growth, essentially without any "normalization", and is thus likely to mask, and may well overstate the margin. That reserve margin, with such discounts as appear reasonable to apply, may be uncomfortably low in many regions and on many systems.

Clearly, there are corollary concerns. The amount of oil and gas being burned will not decrease, and in fact may well increase in the years immediately ahead to make up further loss of nuclear and coal fired units; that, coupled with increased usage of older inefficient units, or peaking units, could result in higher rates in the future.

A cursory examination of the "quality" of the reserve margin, basically a reprise of the work done in the earlier study, has been made. This is presented in Tables 8 to 11, and Figures 1 to 5. These tables and the corresponding figures perturb the reported NERC data as of July 1981, on the basis of certain arbitrary assumptions, i.e., excluding nuclear plants less than 10% complete; arbitrary imposing delays of two years in the installation dates, etc., to illustrate the points made above.

F. Regulatory Reform

In terms of actions the Federal Government might take, clearly any remedy must mirror the problems perceived to exist. The overwhelming problem cited in the interviews is the unpredictability of nuclear

TABLE 8

PROJECTED U.S. AVERAGE RESERVE MARGINS - 1990

<u>Reserve Margins Under the Following Conditions:</u>	<u>Winter</u>		<u>Summer</u>	
	<u>Wtd. Avg.</u>	<u>Arithmetic Avg.</u>	<u>Wtd. Avg.</u>	<u>Arithmetic Avg.</u>
	<u>%</u>	<u>%</u>	<u>%</u>	<u>%</u>
Including nuclear units in jeopardy in service as scheduled at time of peak demand	39.1	41.8	28.3	30.1
Excluding nuclear units in jeopardy	37.3	39.9	26.6	28.2
Excluding nuclear units in jeopardy and oil-fired combustion turbines and combined cycle units	29.1	30.0	20.1	20.5
Excluding nuclear units in jeopardy and oil-fired and gas-fired combustion turbines and combined cycle units	27.6	28.8	18.8	19.5
Excluding nuclear units in jeopardy and all oil and gas-fired generating capability	2.4	2.5	-4.7	-4.2
Excluding nuclear units in jeopardy and all oil-fired generating capability	11.8	12.5	4.1	4.6

TABLE 9

Projected Regional Reserve Margins for the Summer Season
for the years 1981-1990 with the Nuclear Units in Jeopardy and without the Nuclear
Units in Jeopardy included in the Total Generating Capability at the Time of Peak Demand

YEAR	REGIONS AND SUBREGIONS	ECAR	ERCOT	MAAC	MAIN	MARCA	SPP	NEW YORK	NEW ENGLAND	FLORIDA	SOUTHERN	TVA	VACAR	NWPP	MPA	AZ-NM	CA-NV
1981	Reserve Margin	38.8	29.9	31.6	19.4	41.4	25.4	46.4	40.0	32.0	40.9	35.6	27.8	35.5	30.1	32.8	21.2
	Adjusted Reserve Margin																
1982	Reserve Margin	38.8	29.3	31.7	18.4	35.9	28.2	45.0	38.5	29.8	41.0	33.4	29.1	39.7	32.7	28.4	27.2
	Adjusted Reserve Margin																
1983	Reserve Margin	35.0	26.6	31.1	21.1	37.5	31.0	46.8	43.2	38.1	32.7	35.4	26.5	36.0	29.9	31.6	31.7
	Adjusted Reserve Margin																
1984	Reserve Margin	37.0	27.1	30.4	24.2	32.8	28.2	44.6	39.9	33.5	30.9	39.8	30.5	42.6	33.6	32.2	29.7
	Adjusted Reserve Margin																
1985	Reserve Margin	38.4	21.4	29.3	24.6	30.2	28.8	45.5	44.1	39.0	34.0	35.5	26.2	40.0	29.8	37.6	27.8
	Adjusted Reserve Margin								36.7								
1986	Reserve Margin	39.4	20.9	26.8	25.2	30.1	26.5	43.6	46.7	37.6	30.1	33.6	27.8	40.9	31.0	34.3	26.0
	Adjusted Reserve Margin								40.1								
1987	Reserve Margin	37.3	21.4	26.0	25.2	27.3	23.1	53.0	43.4	43.2	30.8	29.5	25.6	51.4	25.1	38.0	23.5
	Adjusted Reserve Margin								36.3								
1988	Reserve Margin	35.7	20.7	30.2	21.0	25.4	24.3	50.4	39.1	41.6	30.1	34.2	24.4	56.3	31.5	39.2	21.8
	Adjusted Reserve Margin	34.3							32.2		26.0	29.5	22.1	52.6			
1989	Reserve Margin	35.8	22.1	29.0	19.2	23.9	21.3	47.7	35.3	42.1	31.0	38.3	20.9	53.9	30.2	37.2	18.4
	Adjusted Reserve Margin	34.4	19.7						28.7		27.0	29.3	18.6	50.3			
1990	Reserve Margin	32.8	22.4	29.1	15.9	20.4	19.7	45.8	34.9	37.9	25.7	33.2	21.5	51.0	33.3	40.2	18.0
	Adjusted Reserve Margin	31.5	20.0						28.3		21.8	24.6	17.0	47.5			

Source: July 1981 Summary Report of the National Electric Reliability Council

Vulnerable Nuclear Units

ECAR	-	Marble Hill	1130 MW	12/87	SOUTHERN	-	Vogtle 2	1110 MW	11/87
ERCOT	-	Allen Creek	1150 MW	12/88	TVA	-	Phipps Bend 1	1223 MW	2/89
							Yellow Creek 1	1285 MW	4/88
NEW ENGLAND	-	Seabrook 2	1200 MW	2/85	VACAR	-	Harris 2	900 MW	3/88
							North Anna 3	907 MW	10/89
					NWPP	-	WNP 5	1240 MW	9/87

TABLE 10

Projected Regional Reserve Margins for the Winter Season
for the years 1981-1990 with the Nuclear Units in Jeopardy and without the Nuclear
Units in Jeopardy included in the Total Generating Capability at the Time of Peak Demand

YEAR	REGIONS AND SUBREGIONS	ECAR	ERCOT	MAAC	MAIN	MARCA	SPP	NEW YORK	NEW ENGLAND	FLORIDA	SOUTHERN	TVA	VACAR	NWPP	RMPA	AZ-NM	CA-NV
1981	Reserve Margin	40.8	64.9	56.0	45.7	57.0	66.0	60.7	35.7	24.8	62.6	34.4	29.8	12.2	37.2	82.0	53.9
	Adjusted Reserve Margin																
1982	Reserve Margin	40.2	74.0	56.6	50.7	50.9	70.7	62.0	33.9	23.9	57.5	41.8	26.3	8.4	33.9	75.1	61.2
	Adjusted Reserve Margin																
1983	Reserve Margin	38.3	66.9	54.7	54.0	50.7	74.3	59.2	37.2	30.2	52.4	41.3	29.0	14.3	38.0	79.6	66.2
	Adjusted Reserve Margin																
1984	Reserve Margin	41.3	61.3	52.9	55.6	44.5	73.6	59.7	33.5	26.4	51.9	36.2	27.9	9.4	37.2	83.8	64.8
	Adjusted Reserve Margin																
1985	Reserve Margin	40.6	54.8	50.6	53.5	45.7	73.5	55.5	36.1	31.1	55.9	35.9	30.2	9.3	30.6	82.3	61.6
	Adjusted Reserve Margin								29.3								
1986	Reserve Margin	40.2	61.5	46.2	53.1	40.7	70.6	59.4	39.2	34.0	48.0	33.1	29.2	15.3	31.8	79.7	58.1
	Adjusted Reserve Margin								26.3								
1987	Reserve Margin	36.3	58.0	43.8	48.8	35.6	65.6	64.2	34.8	36.3	54.5	29.2	24.6	21.3	28.3	84.9	54.3
	Adjusted Reserve Margin	34.9							28.3		49.6						
1988	Reserve Margin	37.7	62.3	47.8	43.8	35.3	66.4	61.0	30.8	33.7	50.0	34.7	24.2	20.1	30.8	89.9	50.2
	Adjusted Reserve Margin	36.3							24.5		45.2	30.1	21.7	17.4			
1989	Reserve Margin	35.0	62.9	45.4	39.6	31.3	63.2	58.3	29.8	33.7	50.4	39.6	21.5	17.7	29.3	83.2	48.6
	Adjusted Reserve Margin	33.7	59.7						23.7		45.7	30.7	16.9	15.0			
1990	Reserve Margin	32.2	59.1	44.8	37.0	27.4	60.5	55.3	26.1	28.1	44.3	37.2	20.9	18.5	38.2	90.7	47.9
	Adjusted Reserve Margin	31.0	56.0						20.2		39.8	28.5	16.6	15.8			

Source: July 1981 Summary Report of the National Electric Reliability Council

Vulnerable Nuclear Units

ECAR	-	Marble Hill	1130 MW	12/87	SOUTHERN	-	Vogtle 2	1110 MW	11/87
ERCOT	-	Allen Creed	1150 MW	12/88	TVA	-	Phipps Bend 1	1223 MW	2/89
							Yellow Creek 1	1285 MW	4/88
NEW ENGLAND	-	Seabrook 2	1200 MW	2/85	VACAR	-	Harris 2	900 MW	3/88
							North Anna 3	907 MW	10/89
					NWPP	-	WNP 5	1240 MW	9/87

TABLE 11

Projected Reserve Margin During Season of System Peak Demand

Based Upon: 1. Cancellation of nuclear units less than 10% complete
 2. Two-year slip in projected coal fired additions
 3. Two-year slip in projected nuclear additions remaining

<u>REGION OR SUB REGION</u>	<u>PEAK SEASON</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>
ECAR	W	37.4	32.7	31.3	30.6	30.2	32.9	30.9	30.4	26.5	28.0
ERCOT	S	29.9	23.4	20.5	19.1	13.5	14.7	13.9	15.1	15.5	15.5
MAAC	S	27.2	24.6	25.2	25.8	23.9	23.9	23.2	20.7	21.2	25.5
MAIN	S	19.4	15.6	9.8	10.1	13.9	16.8	17.2	17.4	17.9	14.5
MARCA	S	30.8	25.9	29.7	24.4	27.6	24.0	22.5	22.7	19.1	17.5
SPP	S	16.8	11.4	15.5	17.4	18.8	17.0	18.8	16.9	12.4	13.5
NEW YORK	S	46.4	45.0	37.1	31.4	37.0	37.5	43.9	39.3	44.3	45.5
NEW ENGLAND	W	27.7	26.0	28.9	21.9	22.9	23.0	22.1	24.5	21.0	17.5
FLORIDA	W	22.4	21.6	20.7	17.2	24.3	23.1	27.3	28.9	29.5	24.5
SOUTHERN	S	32.3	28.4	28.7	27.5	22.4	22.1	25.8	20.3	21.6	16.5
TVA	S	30.1	16.9	19.3	34.9	29.9	23.4	24.9	25.0	20.5	20.5
VACAR	W	23.6	15.5	16.4	17.1	20.5	22.2	23.5	19.5	14.8	14.5
NWPP	W	12.2	8.4	8.7	4.0	6.6	5.7	7.6	11.1	12.2	15.5
RMPA	W	29.8	20.1	23.4	24.9	26.3	26.2	20.5	19.7	16.4	24.5
AZNM	S	26.1	17.9	14.5	9.1	21.1	20.3	20.4	25.4	32.6	35.5
CANV	S	18.3	17.3	21.5	26.5	26.8	21.9	18.2	16.7	11.7	12.5

FIGURE 1

PROJECTED 1990 RESERVE MARGINS OF NERC REGIONS

Nominal - As Projected

SOURCE: Based on July 1981 Summary Report of NERC.

Over 30%

20-30%

Less than 20%

FIGURE 2

PROJECTED 1990 RESERVE MARGINS OF NERC REGIONS

Without Nuclear Units Less Than 10% Completed

SOURCE: Based on July 1981 Summary Report of NERC.

Over 30%

20-30%

Less than 20%

FIGURE 3

PROJECTED 1990 RESERVE MARGINS OF NERC REGIONS

Without Nuclear Units Less Than 10% Completed; Coal Slipped 1 Year,
Remaining Nuclear Slipped 2 Years

SOURCE: Based on July 1981 Summary Report of NERC.

Over 30%

20-30%

Less than 20%

FIGURE 4

PROJECTED 1990 RESERVE MARGINS OF NERC REGIONS

Without Nuclear Units Less Than 10% Completed; Coal Slipped
2 Years. Remaining Nuclear Slipped 2 Years

SOURCE: Based on July 1981 Summary Report of NERC.

Over 30%

20-30%

Less Than 20%

FIGURE 5
PROJECTED 1990 RESERVE MARGINS OF NERC REGIONS

Without Nuclear Units Less Than 10% Completed; Coal Slipped 2 Years,
 Remaining Nuclear Slipped 2 Years. Without All Oil and Gas Generating
 Capability

SOURCE: Based on July 1981 Summary Report of NERC.

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plant costs and schedules, as shown earlier in Table 7, with an apparently inevitable history of costs and schedules always substantially increasing as the project proceeds. It is quite clear that the key to short-term relief lies with State regulators and their actions to increase internal cash generation, and to put in place regulatory policies which encourage long-term capital intensive system additions. The attitude of the public service commission toward financial accommodation of the utilities is a factor in the evaluation by investors of the desirability of purchasing utilities securities. The financial community follows the decisions of the PSC's and ranks the commissions by gradations of favorable and unfavorable; the ability to raise capital, and the cost of that capital is therefore affected by the historical experience of individual Public Service Commission decisions. These rankings have been summarized for the universe of utilities and loosely correlated with the general financial condition, (also ranked) in order to highlight the correspondence between Public Service Commission attitudes and financial condition. Table 12 shows that there is a noticeable positive relationship between a good Public Service Commission ranking and good financial condition.

Realistically there are limits to the extent that Federal Agencies can act to influence state bodies. However, there are certain actions which the utility industry has consistently recommended as helpful. These have been summarized in Table 13 following . Unfortunately, and again as made clear in the interviews, utilities facing cancellation

TABLE 12

RANKING OF FINANCIAL CONDITION COMPARED WITH RANKING OF PUBLIC SERVICE COMMISSION ATTITUDE

Utilities Grouped by Relative Financial Condition			Public Service Commission Attitude		
	Utilities With Type A Plants, $\leq 10\%$	Utilities With Type B Plants, $> 10\%, \leq 60\%$	PSC Ranking By Utility ¹	Average Attitude for Financial Group	
NERC REGION	<u>A: Much Better Than Average</u>				
		Texas Utilities 124	A	] A: Much Better	
	<u>B: Better Than Average</u>				
	NPCC-NE ECAR MAIN SERC- VACAR ERCOT SPP	P.S. New Hampshire 106 P.S. of Indiana 119 Illinois Power 108 Duke Power 108 Houston Industries 117 P.S. of Oklahoma (Cent. & S.W.) 116	P.S. New Hampshire 106 P.S. of Indiana 119 Duke Power 108 Houston Industries 117	C+ A C+b B- A C-	] B: Better
	<u>C: Average</u>				
	MAAC NERC-So. SPP	Georgia P&L (Southern Co.) 100 Gulf States U 100	P.S. E&G 99 Georgia P&L 101 Gulf States U 100	C+ D B-	] C: Below Average
	<u>D: Below Average</u>				
	SPP USCC Az-Nm		Mississippi P&L (Middle So.) 92 Arizona P.S. 98	C-b C+	] C: Further Below Average
	<u>E: Further Below Average</u>				
	NPCC-NY MAAC " ECAR " SERC VACAR " SERC Fla.	Carolina P&L 93 Virginia E&P 85	Niagara Mohawk Power 89 Pennsylvania P&L 84 Philadelphia Electric 84 Cleveland Elec. Illum. 90 Duquesne Light 89 Carolina P&L 93 Florida P&L 93	C C- C- B- C- B- C B+	] C+: Average ^c
<u>F: Far Below Average</u>					
APCC-NE MAIN USCC- NMPP	Commonwealth Edison Puget Sound P&L 79	Northeast Utilities 81 Commonwealth Edison 84	C+b C+b C	] C: Below Average	

¹ Salomon Brothers, August 27, 1981^b Recently upgraded^c This group is below average without Florida P&L

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TABLE 13

ACTIONS THE FEDERAL GOVERNMENT COULD CONSIDER TO HELP

THE NUCLEAR POWER INDUSTRY

I. Policy Statements and Actions from the President's Office

1. A presidential statement warning against allowing deterioration of the nation's electric utility systems through short-sighted rate-making decisions which fail to allow full recovery of costs.
2. The President's continued strong endorsement of nuclear power.
3. Appointment of reasonable qualified regulators to FERC who are familiar with the electric utility financial situation.

II. Tax Policies Affecting the Utility Industry

1. Tax legislation that will allow deduction of current provisions for costs of decontamination and decommissioning of nuclear equipment.
2. Preservation of the existing federal income tax regulations with respect to:
 - a) Normalization of investment tax credits.
 - b) 15-year carry-forward period for investment tax credits.
 - c) Tax deferred dividend reinvestment on new issue common stock of electric utility companies.
3. Preserve the ability of the electric utilities to sell unused tax benefits under the provisions of the Economic Recovery Act of 1981.

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- a) Urge FERC and Treasury to intervene in the FASB's announced intention to consider an accounting rule that would require flow-through of the proceeds from the sale of tax benefits in the year received. Sale of tax benefits makes sense to utilities only if the proceeds are normalized. If FASB adopts a flow-through requirement, the utilities would have to fall back on the FASB regulatory practice exemption rule. This means that a PUC would have to mandate normalized accounting, even though flow-through was considered to be the generally accepted accounting treatment, before the utility could sell its unused tax benefits.
 - b) Resist legislative efforts to rescind this provision of the Act.
4. Leadership by FERC in adopting rules and practices including:
- a) Rate basing of CWIP
 - b) Realistic returns on equity (200 to 300 basis points over the marginal cost of senior debt)
 - c) Measures to limit attrition, i.e., make-whole proceedings, advance ten-year determinations, attrition allowances, etc.
 - d) Recovery of estimated costs for spent nuclear fuel disposal on a current basis
 - e) LIFO depreciation
 - f) Current cost (inflation) accounting.

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III. Regulatory and Licensing Procedures

1. Have NRC take further initiative to speed up licensing of nuclear power plants now under construction.
2. Have DOE allow the electric utility industry a reasonable period of time to complete its arrangements through NEIL and other carriers for nuclear property damage insurance including coverage for decontamination and decommissioning costs. Up to \$1.0 billion of protection is expected to become available in 1982.
3. It is vital that the NRC establish a safety goal and a standardized methodology to utilize it in combination with probabilistic risk analysis techniques. There is a major industry-NRC effort underway in this area.
4. Development of a backfitting regulation that recognizes priority and value/impact trade-offs.
5. The so-called list of "unresolved safety issues" must be reviewed, prioritized, and resolved, if, in fact, they are truly safety concerns.
6. The area of operator and shift supervisor qualifications must be resolved; the approach suggested by the industry through INPO seems reasonable.
7. In terms of legislative changes necessary to improve long-term licensing, the principal issues, long-recognized, which need to be pursued are elimination of the hearing for an operating license, and elimination of the need for a hearing on minor license amendments if no safety hazard is involved.

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or deferral decisions are not likely to wait for such remedies, most of which will inevitably take some time to put in place via our political processes, and further time before they impact on the utilities balance sheet or income statement. Thus, it does not appear likely that there will be any reversal of the attrition of the nuclear power universe, or any resumption in the U.S. nuclear power growth.

Of the number of factors which contribute to this general problem, the single primary cause, and the most frustrating, in the eyes of the utility executives is the regulatory process. Thus, the matter of regulatory reform, and its demonstration, to which this Administration is clearly committed, emerges as the key action the Federal Government can take.

ATTACHMENT 1

Policies of Utility Regulatory Authorities Related to Recovery of Costs of Cancelled Projects

SUMMARY

The purpose of this memorandum is to summarize the policies of utility regulatory authorities with respect to rate recovery of the costs of cancelled or abandoned generating projects.

The preponderant trend among state regulatory authorities, as well as the Federal Energy Regulatory Commission, is to allocate the costs of an abandoned project between shareholders and ratepayers by permitting amortization of prudently incurred costs over a period of years but denying rate base treatment, or comparable carrying charges, on the unamortized balance. Denial of capital costs is most often defended on the basis of the "used and useful" doctrine or on equitable grounds. Generally, the amount to be amortized is reduced by the tax savings associated with the loss. In some cases, any accrued allowance for funds used during construction

(AFUDC) associated with equity investment is also excluded from recovery as a capital cost to be borne by shareholders.

At least four states--Florida, Louisiana, New York and Wisconsin--however, have allowed rate base treatment of unamortized project costs. This practice is under attack in New York in a proceeding on the cancelled Sterling nuclear project, but the presiding administrative law judge in that case recently recommended to the Commission that rate base treatment be allowed for unamortized project costs.

At the other extreme, in Arizona, Minnesota, North Dakota, and Ohio, utilities have been denied any recovery of costs associated with cancelled nuclear projects. Denial of recovery in the first three jurisdictions may be explained by the fact that in each case abandonment of the project, at least in part, arose out of regulatory action by another jurisdiction in which the utility operated. In Ohio the Public Utilities Commission initially allowed amortization of project costs as an expense for ratemaking purposes, but it was reversed by the Ohio Supreme Court. That decision has been appealed to the United States Supreme Court.

In a potentially interesting twist of policy, last year the North Carolina commission allowed rate base treatment for the costs of a project cancelled at an early stage. A few years before with regard to the costs of a

nuclear project cancelled at a more advanced stage, the same Commission had ordered amortization but no inclusion in rate base of the unamortized balance.

A. Federal Energy Regulatory Commission

The policy of the Federal Energy Regulatory Commission (FERC), which has jurisdiction over wholesale electric rates, generally has been amortization of abandoned project costs in conjunction with denial of rate base treatment for the unamortized portion of the costs. The FERC's application of this policy in New England Power Company, Docket Nos. ER76-304, et al., Opinion No. 49 (1979), was recently affirmed by the United States Court of Appeals. NEPCO Municipal Rate Committee, et al. v. FERC, No. 80-1343, et al. (D.C. Cir, October 15, 1981).

In the New England Power proceeding, the FERC permitted a five-year amortization of the gross, rather than after-tax, loss (\$12.9 million) from cancellation of NEPCO's oil-fired generator at its Salem Harbor station, finding that there would be no undue burden on ratepayers. According to the FERC, the company was entitled to recoup costs of what had been a prudent investment at the time. Moreover, the FERC reasoned that unless investors were protected against aborted project losses through inclusion in cost of service, higher rates of return would have to be

allowed to attract capital, and ratepayers thus would bear the burden indirectly. Nevertheless, the FERC also found that no precedent existed for affording rate base treatment to this type of cost and refused to create a new precedent requiring a return on plant that had not become used and useful.

On appeal, NEPCO argued that capital prudently invested in a generating facility is taken for public use and therefore must be included in rate base. The Court of Appeals, however, found that the "amount prudently invested" formula has not become the prevailing rule for ascertaining rate base, and it reaffirmed its position that the FERC may adopt any method of rate base valuation, including the "used and useful" rule, so long as the end result of the rate decision cannot be said to be unjust and unreasonable. Slip Opinion at 8-9. The court also specifically held that it was not inconsistent or irrational for the FERC to allow recovery of project expenditures but deny rate base treatment. In the court's view, the FERC position represented a balancing of competing policy objectives to protect both investors and consumers.

In at least one proceeding, however, the FERC has denied any recovery of project losses and indicated that the prudence of abandonment may be determinative. In Southern California Edison Company, Docket No. ER76-205,

Opinion No. 62 (1979), the FERC denied the utility recovery of losses associated with its abandoned Vidal nuclear plant because the company had not presented specific evidence justifying the write-off, but merely "vague generalizations about problems inherent in all building projects." However, in the same decision, the FERC permitted inclusion of losses from abandonment of a fossil-fuel plant where the prudence of the abandonment had not been in dispute.

In an Initial Decision issued December 4, 1980 in Northern States Power Co. (Minnesota), et al., Docket No. ER79-616, an FERC law judge ruled that the initiation, development and termination of the 1100 MW Tyrone Energy Park nuclear project has been prudent.^{1/} However, instead of a five-year amortization period for recovery requested by the companies--which had not sought rate base treatment or carrying charges--the judge adopted a variable period projected at 10 years. Moreover, the judge adopted two adjustments not made by the FERC in New England Power, supra. First, he disallowed recovery of the equity portion of the AFUDC that had accrued on the project before termination. This followed from his interpretation that FERC policy requires shareholders to bear the risk of non-recovery

^{1/} The Tyrone Energy Park project was cancelled when the Wisconsin PSC refused to grant it certification.

of a return in equity investment. Second, the judge held that, since gross losses rather than after-tax losses were to be amortized, ratepayers should share the tax benefits of the loss by having rate base reduced by the unamortized amount of tax deductions.

Recently, the FERC reversed the two adjustments recommended in the judge's Initial Decision. Northern States Power Co., Docket No. ER79-616, Opinion No. 134 (December 3, 1981). The FERC will allow the affiliated companies to recover the common equity portion of the Tyrone Park AFUDC. The FERC stated that, consistent with its NEPCO decision, it was "unnecessary to analyze the conceptual make-up" of project expenditures, and indicated that it found "quite disturbing" the idea of singling out one component of costs, equity AFUDC, for separate unfavorable treatment. The Commission also held that the utility need not reduce rate base by the unamortized balance of its deferred tax account. The FERC pointed out that it intended to require a rate base reduction only if the tax benefits were related to an actual rate base item.

B. State Policies

1. Arizona. The Arizona Corporation Commission exhibited a decidedly hostile attitude toward project loss recovery in the one recent rate proceeding in which it appears to have been presented with the issue. In Arizona

Public Service Co., Decision 51001 (issued May 29, 1980), the Arizona Commission completely rejected the utility's proposed three-year amortization of its expenditures in the cancelled Palo Verde Units 4 and 5, which had been a joint project with California utilities. The Commission stated that the company had failed to adequately justify and explain both the undertaking and termination of the project. Moreover, the Commission considered the planning of the project a management function under the control of stockholders, of which they should therefore bear the risk.

However, the Commission's principal justification for refusing any cost recovery appeared to be its finding that the cancellation was a result of California regulatory action. Since California regulatory conditions precipitated the abandonment, the Commission reasoned that it was inappropriate to require Arizona ratepayers to bear the loss. Moreover, the Commission suggested that the company should have contractually protected itself from this contingency and that it should now look to the California participants for recovery.

2. California. In San Diego Gas & Electric Co., Decision No. 90405, 31 P.U.R. 4th 435 (June 5, 1979), the California Public Utilities Commission allowed amortization of expenditures in the cancelled Sundesert nuclear project. It also segregated the abandonment costs (\$90.3 million) of the Sundesert plant into site-related and nonsite-related

costs and accorded them differing rate base treatment. The PUC found that the site-related costs (purchasing land, etc.) were properly includable in plant held for future use accounts and in rate base, subject to future review of the viability of the site for alternate use.

Nonsite costs, such as equipment procurement and engineering, were permitted to be amortized over five years but the unamortized balance was excluded from rate base. Although the PUC was mindful of the carrying costs, it considered this approach to be an equitable distribution of the Sundesert loss. The PUC also disallowed recovery of AFUDC on the project, consistent with its past practice.

3. Florida. The Florida Public Service Commission not only allowed a five year amortization of the costs of a cancelled fossil fuel station in Gulf Power Co., Docket No. 800001-EU(CR) Order No. 9628 (November 10, 1980), but also allowed the unamortized portion to be included in rate base, although it made the associated collection of revenues subject to refund. The utility had justified its cancellation of the troubled project with the relative economic advantage of a proposed purchase of a share of a generating station being built by Georgia Power Company. The PSC made its allowance of the return on the unamortized balance contingent upon Gulf's actual purchase of the alternate source on appropriate terms.

4. Iowa. Although no rate decision appears to have been made by the Iowa Commerce Commission on the question, a favorable accounting ruling was issued in 1975 in Union Electric Co., et al., Docket No. U-558, which permitted above-the-line accounting write-off for that utility's abandonment of coal-fired generators. In the ruling, the Commission stated that it "formally acknowledge[d] that that which is dedicated to the public service is the invested capital, not what that capital purchases . . . the investor is entitled to a fair return on the invested capital. . . ." Id. at 3.

5. Louisiana. The Louisiana Public Service Commission, in an order in Gulf States Utilities Co., Docket No. U-14495 (November 17, 1980), found that "no evidence exists to show imprudence or negligence on the part of the company initiating [its abandoned Blue Hills nuclear] project." At 4. On that basis, the LPSC allowed a ten-year amortization of the loss allocable to the company's Louisiana service (\$8 million after tax savings) and authorized Gulf States to include the unamortized balance of the loss in rate base.

6. Maine. The Maine Public Utilities Commission in Central Maine Power Co., Docket Nos. 80-25, et al. (October 31, 1980), permitted the utility to amortize over five years the loss realized as a result of abandonment of its Sears Island nuclear project (\$3.4 million). However,

primarily on equitable grounds, the MPUC denied a return on the unamortized balance and also eliminated AFUDC associated with the project from the amount to be amortized. Central Maine recently lost its challenge before the Maine Supreme Judicial Court of the exclusion of AFUDC from recovery. Central Maine Power Co. v. P.U.C., Decision No. 2679 (July 30, 1981). The company did not challenge the denial of rate base treatment.

7. Massachusetts. The policy of the Massachusetts Department of Public Utilities seems to be well settled regarding unrecovered plant balances. The Department has consistently excluded from rate base investments which are not used and useful, but has permitted their amortization over a period of years. Boston Edison Co., D.P.U. 18515 at 11 (1976), aff'd Boston Edison Co. v. Dept. of Pub. Utils. 375 Mass. 1, 20-21 (1978); Fitchburg Gas & Electric Light Co. v. Dept. of Pub. Utils., 371 Mass. 881, 886 (1977). This policy was most recently applied in Western Massachusetts Electric Co., Docket No. D.P.U. 558 (July 31, 1981), where the DPU excluded from rate base the unamortized investment in two gas turbines being retired, but allowed continued amortization. According to the DPU, under this policy "[s]hareholders are protected against loss of actual investment, while ratepayers are not required to provide a return on useless property but do have to pay the costs thereof." Id. at 14. Specific application of this policy

by the DPU to investment in a project which never became used or useful has not been found.

8. Michigan. The Michigan Public Service Commission also appears to follow the major rule. In The Detroit Edison Co., Decision No. F-762 (July 26, 1976), the MPSC allowed the company to amortize its loss on the cancelled Enrico Fermi Unit No. 3 project over a ten year period, but the MPSC denied a request that the unamortized declining balance be included in its rate base.

Consistent with this, a proposed decision by the trial judge in a current proceeding, The Detroit Edison Co., Docket 46474, would permit Edison to write-off over 10 years a \$70 million loss on its Greenwood nuclear project, but would exclude the loss from rate base during that period. The MPSC has not acted on the decision.

9. Minnesota. The Minnesota Public Utilities Commission in Northern States Power Co. (Minnesota), Docket No. E-002/GR-80-316 (April 30, 1981), recently denied that company's request to recover its share (\$40.5 million) of the loss on the cancelled Tyrone Energy Park nuclear project.

Northern States (Minnesota), its affiliate Northern States (Wisconsin), and three smaller utilities were forced to terminate the project when the Wisconsin Public Service Commission failed to certify it. The two Northern States affiliates estimated their total losses at \$75 million

(before tax adjustments) and sought confirmation by the FERC in the proceeding mentioned above of a proposed allocation of the loss between them under an existing Coordinating Agreement, which governed allocation of generation and transmission costs in the Northern States system. Under that allocation, the Minnesota company's share of the loss would be about 87%, and thus the bulk of the Tyrone project loss would be assessed against customers in Minnesota and the Dakotas, its service territory.

Consistent with its position before the FERC, the Minnesota utility requested a five-year amortization and did not seek carrying charges or rate base treatment for the unrecovered balance. The Minnesota Commission ruled that, regardless of any FERC decision concerning allocation of the loss, its authority to set retail rates had not been preempted and it retained the power to determine the applicability of the FERC-approved coordinating agreement for retail ratemaking purposes.

Further, the Commission found that the cancellation of the project by the Wisconsin government was inconsistent with the unified system concept underlying the Coordinating Agreement. It concluded that Wisconsin had acted without consideration of the needs of Minnesota ratepayers and that the cancellation had not been of benefit to Minnesota. On those grounds, the Minnesota Commission completely disallowed the Tyrone losses from the utility's cost of service.

This action has been appealed to the courts and should present the issue of whether losses allocated to a utility by FERC action must be treated as recoverable costs by retail rate authorities.

10. New Jersey. An indication of the attitude of the New Jersey Board of Public Utilities can be found in its 1980 acceptance in Public Service Electric and Gas Co., Docket No. PUC 877-79 (April 11, 1980) of a stipulation of the parties which allowed the utility to amortize over 20 years, with no return on the unamortized balance, approximately \$301 million (before tax adjustments) of its \$320 million loss on the Atlantic Generating Station project which was cancelled in 1978.

It should be noted that the Board did not accept the recommendation of the trial judge to disallow \$11.5 million of the project losses. He had concluded the utility did not act prudently in its earlier renegotiation of the construction contract and should have secured more control over project costs in view of the possibility of termination. However, the Board found that the company had acted reasonably under the circumstances.

11. New York. The New York Public Service Commission has typically held that a utility is entitled to amortization of a property loss and carrying charges on the unamortized balance if the expenditures in question were

prudently incurred and the loss occurred through no fault of the utility. See New York State Electric & Gas Corp., 15 NY PSC 1564 (1975) (favorable treatment of abandonment of Bell Station nuclear project); Consolidated Edison Co. of New York, Opinion No. 81-4 (March 12, 1981) (allowing "normal" rate base treatment of extraordinary property loss of \$43 million from premature retirement of Indian Point No. 1 nuclear plant).

In a recent recommended decision in Rochester Gas and Electric Corporation, et al., Case 27794 (Phase I-A) (issued Sept. 8, 1981), relating to the abandonment of the Sterling nuclear project, the presiding administrative law judge determined that the PSC should not deviate from its "long established principle of permitting the recovery from ratepayers of prudently incurred costs, including related capital costs." The PSC, however, has not acted on this recommendation; moreover, the prudence and permissible level of expenditures are being examined in a separate phase of the proceeding.

12. North Carolina. The approach taken by the North Carolina Utilities Commission has been at least as favorable as the majority rule, and in one instance, it granted the utility essentially full recovery.

In Carolina Power & Light Co., Docket No. E-2, Sub 366 (April 22, 1980), the NCUC allowed the utility not

only a five-year amortization of the costs of its cancelled South River nuclear project (\$7 million) but also inclusion of the unamortized balance in rate base. This treatment appeared to be predicated on the finding that the company had acted prudently and in the best interests of its customers by cancelling the project at an early stage.

By contrast, the NCUC earlier had permitted Virginia Electric and Power Company to amortize the costs of its cancelled Surry nuclear units over ten years, subject to VEPCO demonstrating satisfactory planning for future needs, but had denied rate base treatment for the unamortized balance. The distinction between the two cases seems to be that the Surry project was cancelled at a more advanced stage and thus involved greater investment.

13. North Dakota. Similar to the action taken in Minnesota, in Northern States Power Co., Case No. 10,097 (December 31, 1980), the North Dakota Public Service Commission last year refused to allow the utility to begin to recover the Tyrone Energy Park loss in its retail rates. The Commission was able to avoid confronting, at least for the time being, the possible controlling effect of FERC action under the Coordinating Agreement by noting that the FERC had not, at the time, issued a final ruling in the Northern States proceeding.

14. Ohio. The sharpest rejection of a utility's request to recoup abandoned project losses had come from the Supreme Court of Ohio. In The Cleveland Electric Illuminating Company, et al., Case No. 79-537-EL (issued July 10, 1980), the Ohio Public Utilities Commission authorized as a part of allowable expenses the 10-year amortization of planning, engineering, and initial construction costs associated with four nuclear units (Davis-Besse Nos. 2 & 3 and Erie Nos. 1 & 2) which had been cancelled by a consortium of utilities in January 1980. The Commission explicitly found that CEI had acted prudently in incurring such costs. Following what has been described above as the majority rule, the Commission allowed amortization of \$56 million in such expenses, but denied any return on capital invested in the projects.

The Office of Consumers' Counsel and other consumer groups appealed that decision to the Supreme Court of Ohio. On July 15, 1981 that Court in a 5-2 decision reversed the Commission rate order, holding that even where an investment in planning for future utility service was prudent, the Commission could not under Ohio law allow a utility to recover from its ratepayers any capital "invested in failed projects." Office of Consumers' Counsel, et al., v. Public Util. Comm. of Ohio, 67 Ohio St. 2d 153 at 167.

CEI has appealed the decision to the United States Supreme Court on the grounds that constitutionally the Ohio Code may not require a public utility to invest its capital to provide future service to the public and then later deny recovery of capital even where it is found that the capital was prudently and reasonably invested for the convenience of the public. CEI argues that the Ohio action, by doing so, is a violation of federally guaranteed due process.

On September 11, 1981, the Ohio Supreme Court refused to stay the effect of its decision--and thus refused to allow interim collection--pending appeal to the U.S. Supreme Court.

15. Texas. In 1979 the Texas Public Utilities Commission permitted Gulf States Utilities Company to amortize over five years the portion of the Blue Hill project loss allocable to the company's Texas operations. The TPUC, however, denied rate base inclusion of the unamortized balance. Gulf States Utilities Co., Docket No. 2677 (December 3, 1979). However, last year in a settlement agreement concluding Gulf States' most recent rate case, the parties specifically excluded all Blue Hills expenditures from the cost of service.

The TPUC again followed the majority rule in Houston Lighting and Power Company, Docket No. 2676, 36

P.U.R. 4th 94 (January 9, 1980), in which it disallowed the utility's request to include in rate base amounts representing the unamortized balances of cancellation charges associated with the Allen's Creek Unit No. 2 nuclear plant and with a New Mexico uranium development project which had been cancelled in 1978.

16. Virginia. The majority rule has been followed by the Virginia State Corporation Commission. In Virginia Electric & Power Co., Case No. PUE-810025 (August 24, 1981), VEPCO was permitted to amortize over ten years the loss from cancellation of its North Anna Unit No. 4 nuclear plant (\$165 million). Based on the "used and useful" doctrine, however, VEPCO was denied a return on the unamortized portion of the loss.

17. West Virginia. Similar treatment was earlier accorded VEPCO's Surry project cancellation by the West Virginia Public Service Commission. Virginia Electric & Power Co., Case No. 9322 (February 1, 1980). The Commission found that the cancellation was prudent, and relying on its precedent, held that a sharing of the loss by shareholders and ratepayers was reasonable because neither group was responsible for the cancellation.

18. Wisconsin. Although--or perhaps, because--the Wisconsin Public Service Commission's denial of certification was responsible for the cancellation of the

Tyrone Energy Park nuclear project, the WPSC has accorded the project losses reasonably favorable ratemaking treatment.

In Northern States Power Co., et al., Docket No. CA-5447, 2 CCH Nuc. Reg. Rptr. ¶20,179 (Feb. 6, 1981), the WPSC permitted Northern States (Wisconsin) to recover from its Wisconsin customers under a five-year amortization the share of the Tyrone loss apportioned to it under the participation ratios of the FERC-approved Coordinating Agreement described above. Consistent with the position taken before the FERC, the utility did not seek rate base inclusion of the unamortized balance. However, in the same proceeding Lake Superior District Power Company, one of the smaller participants in the Tyrone project, was not only permitted to amortize over the same five-year period its after-tax loss, but also given rate base treatment for its unamortized balance, after adjustment for unamortized tax savings.