

PUBLIC COMMUNICATIONS WORKSHOP

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THE INVESTMENT COMMUNITY'S
NEED FOR INFORMATION
ON NUCLEAR WASTE

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The needs of the investment community for information on nuclear waste derive very simply from the fact that investor-owned utilities in the United States had invested \$198 billion in nuclear electric generating stations at the end of 1980. The continuing nature of this need for information is also illustrated, very dramatically, by the fact that in 1981 an additional \$8.6 billion of financing was effected in the public market by electric utilities with nuclear construction programs. When investors have this much money at stake and are continuing to receive offerings of securities from utilities building nuclear facilities, it is obvious that investors need adequate information on all phases of the nuclear power cycle in order to evaluate the risks involved.

As many of you already realize, 16 nuclear generating stations were cancelled in 1980 and 70 more units were delayed. In 1981 an additional six nuclear units were cancelled and 44 delayed. Also in 1981 investors witnessed the first legal rejection of a public utility commission's order to permit an Ohio utility to recover from customers the cost of a cancelled nuclear plant. Thus we would expect to find substantial questions in the minds of investors today as to the safety of investments in utilities with existing nuclear plants or plants under construction.

In order to try to gauge more precisely investor attitudes at the present time with respect to utilities with nuclear generating facilities, I asked the Kidder, Peabody Utility Research Department to compare the stock prices of certain

electric utilities having nuclear power plants to the New York Stock Exchange Utility Common Stock Index on March 27, 1979 (just prior to the Three Mile Island incident) and again on February 10, 1982. On March 27, 1979, the New York Stock Exchange Utility Index stood at 39.13 compared to 38.275 on February 10, 1982 - 98% of its value three years earlier. Looking next at the common stock prices of 24 electric utilities with significant current or future nuclear generation, we gave the common stock price of each of these utilities on March 27, 1979 a value of 100%. Three years later, while the general utility average was at 98% of its 1979 value, the average for this group of nuclear utilities had slipped to 89.24% of 1979 values. Our study also showed that the nuclear utility group's disadvantage in comparison to the utility industry generally had actually deteriorated substantially from October of 1979, seven months after the Three Mile Island incident, when it was only three points worse. The nine point disadvantage today is distressing in view of the fact that Three Mile Island is now almost three years behind us.

Our recent study of investor attitudes also showed that New England utilities, which have been leaders in nuclear power development and have accumulated considerable operating experience, and utilities with Babcock and Wilcox plants, are both at about 89% of their values on March 27, 1979, just about the same as the national group of 24 nuclear utilities. Utilities without nuclear generation showed a value of 98% of their March 27, 1979 common stock values on February 10, 1982, virtually identical to the New York Stock Exchange Utility Index performance over the same time span. We conclude from this study, obviously and unfortunately, that investor attitudes toward nuclear utilities are adverse, still deteriorating and generally unwilling or unable to distinguish better nuclear operating companies.

It seems to me that there is undoubtedly a direct relationship between investors' attitudes towards utilities with nuclear power capacity and the opinion of the public towards

nuclear power generally. A recent study by William Rankin of Battelle Human Affairs Research Center reports on an extensive study of 228 different opinion polls over a number of years and concludes that there is still more support than opposition for constructing nuclear power plants, but ... "the support is significantly lower now and the opposition is significantly higher now than before the TMI incident".

Investors, like the general public, get a significant amount of information they use in making investment decisions from the general news media, as well as from the research reports, evaluations and advice emanating from Wall Street. Accordingly, when a major article in Fortune on February 22, 1982 is entitled "A Nuclear Fiasco Shakes the Bond Market", investors tend to lump the financing and planning problems of nuclear power together with the safety problems and vote to invest their funds in alternative opportunities that present more understandable risks.

At the present time it seems to me there are three major events that have Wall Street and the public worried over the adequacy of their knowledge about nuclear power plants and the consequent investment risks.

The three examples that have received considerable attention in recent months are:

1. The continuing technical problems of Three Mile Island Units 1 and 2
2. The financing problems of the Washington Water Power Supply System
3. The suspension of Diablo Canyon's operating license shortly after issuance

In two of these three cases, I think, we have examples of press reports and releases suggesting to the public that regula-

tors were unfairly preventing utility managements from getting on with their jobs. The NRC was the object of some criticism in the cases of TMI and Diablo Canyon, where investors got the impression that bureaucratic inertia and excessive concern with irrational opposition to nuclear power was preventing these two plants from operating. As we know today, however, just as an operating license suspension seemed about to be lifted at Three Mile Island, there were "tube flaws" represented by 153 known leaks and possible leaks in 4,000 of the 31,000 tubes in Unit 1's steam generators. We now understand that it will take GPU at least six months and probably longer to repair the faulty tubes. But why, investors wonder, did these leaks go undetected for three years while the company seemed to be putting pressure on the NRC to reissue its operating license. Similarly, investors had the impression that Diablo Canyon had been reinforced for the additional earthquake exposure that had been discovered after substantial construction was completed, and were pleased when at last the NRC responded with an operating license. Again unfortunately, however, investors learned within a matter of days of the NRC action that the plans that had been the basis for the NRC approval had not been properly understood and followed in the reinforcement construction. In both cases the damage in the minds of investors is not that leaks developed or plans were not followed, but that both managements and the NRC seemed surprised by these events at the last minute. In the case of WHOOPS, investors got the impression of a determined effort to maintain growth forecasts because of the momentum of a construction program, rather than cutting construction to more realistic growth patterns as conditions changed.

I mention these three recent problems for investor credibility because I think they illustrate a central problem equally applicable with respect to the question of investor needs for information on nuclear waste. Fortunately, we do not yet seem to have suffered any dramatic blow to investor confidence on the question of nuclear waste. In recent years, however, the utility industry has generally been saying that disposal is "no problem" because the technology for safe disposal is proven and

has been used by the military and by Europeans for many years. On the other hand, there seem to be many other reports suggesting that it may take several more years before we can be sure of how to dispose of nuclear waste safely. Investors see clearly that the public in various geographical areas is reluctant to have nuclear wastes stored in its territory. This public attitude itself seems to be creating problems in deciding which specific geologic sites should be studied in depth with respect to long term storage.

Some scientists seem to be uncomfortable with corrosion and earth movement data based on relatively short time studies, particularly when standards for long term storage have not even been established. An article in the New York Times on February 4 summarized the Battelle Institute Study of site selection, depository design and packaging criteria and concluded that "no one at the project is saying the technological questions have been settled".

My point here is not to suggest that Battelle is right and the industry wrong, or that the industry should now have the requisite waste disposal technology. It is important, however, for the industry not to minimize or oversimplify any real disposal problems. Furthermore, the industry must be careful to avoid attacking regulators and bureaucrats as the parties responsible for our lack of knowledge, even though it is probably part of the truth of the total problem. Investors can actually absorb quite a good deal of complicated and often conditional information. They become suspicious, however, when claims are made that exceed reasonable knowledge levels and when strawmen are created for public opprobrium in an attempt to take the spotlight off the really difficult problems that do exist.

The kinds of information that investors need with respect to nuclear waste is a subject that deserves some special attention. Most importantly, of course, investors are concerned about the costs of alternative waste disposal methods and the possibility that all nuclear power will be eliminated prematurely if some

safe disposal system is not adopted. At the present time the cost problems of disposal seem relatively unexplored, and this is an area that probably deserves considerable study. Investors should also be given safety information about existing and promising technologies and disposal sites. The questions of on-site storage and transportation to permanent depositories also need attention, since these questions appear to generate much political heat.

With respect to both waste disposal technology and sites, the advantages and disadvantages of each should be pointed out, so that investors can appreciate the range of problems and solutions under consideration. It would be particularly helpful to explain the experience of the military and European disposal technologies and disposal sites in some detail. Conclusive statements that others have solved the waste disposal problem, without chapter and verse explaining what exactly has been done, should be avoided. Treat the investor with respect.

Finally, in view of the current on-site storage program that is our de facto waste disposal solution, investors need to know more about the size of the buildup and the safety of on-site solutions and the period that on-site solutions may reasonably continue to operate safely. In all cases, I think, it is better to give too much information than appear to be talking down to investors and the general public.

In conclusion, let me say only that the need of investors for reliable and current information on the nuclear power industry is very great because the demands of that industry for capital are very great. We must all take care in our natural urge to supply that information that we not create false impressions or paper over any real gaps in technology that may exist. With reliable and fair information, consistently supplied, we can expect continued investor support if utility managements themselves understand and accept the risks involved. Investing involves risk taking, so it is not necessary to try to persuade investors that no risks exist. If the risks are not

measured accurately, however, the market will assume the worst and raise the cost of capital to the worst case probability. That is why there is a great need for fair and current disclosure on all aspects of the nuclear fuel cycle, including the disposal of nuclear waste.

3/27/79 to 2/10/82 Price Study
Selected Utilities with B & W and/or "Down" Nuclear Plants

	3/27/79	10/22/79		2/10/82	
	Price (100%)	Price	Ratio	Price	Ratio
New York Utility Index	39.130	35.520	90.770%	38.375	98.0%
General Public Utilities	17.875	8.375	46.850	5.125	28.7
Central Maine Power	15.375	13.250	86.180	12.125	78.9
Duke Power	19.250	16.875	87.660	21.250	110.4
Duquesne Light	15.625	14.250	91.200	13.250	84.8
Florida Power Corporation	30.875	27.375	88.660	15.875	102.8
Middle South Corporation	15.250	13.125	86.070	13.125	86.1
Toledo Edison	22.375	18.375	82.120	15.750	70.4
Virginia Electric & Power	13.250	11.625	87.740	11.875	89.6
Company Average (including GPU)	100		82.060%		81.46%
Company Average (excluding GPU)	100		87.090%		89.00%

SUMMARY

	<u>3/27/79</u>	<u>10/22/79</u>	<u>2/10/82</u>
New York Utility Index	100%	90.77%	98.0%
General Public Utilities	100	46.85	28.7
Selected Utilities with B&W and/or "Down" Nuclear Plants (a)	100	87.09	89.0
Selected Utilities with Significant Current or Future Nuclear Generation	100	87.78	89.24
New England Electric Utilities	100	92.58	88.98
Selected Utilities without Nuclear Generation	100	93.33	97.16

(a) Excluding GPU

3/27/79 to 2/10/82 Price Study
Selected Utilities with Significant Current or Future Nuclear Generation

	3/27/79	10/22/79		2/10/82	
	Price (100%)	Price	Ratio	Price	Ratio
New York Utility Index	39.130	35.520	90.770%	38.375	98.0%
Arizona Public Service	20.500	18.125	88.410	18.50	90.2
Baltimore Gas & Electric	24.625	21.750	88.320	24.00	97.5
Carolina Power & Light	21.875	18.875	86.290	20.375	93.1
Cleveland Electric	18.500	15.875	85.810	15.25	82.4
Commonwealth Edison	25.875	21.125	81.640	20.25	78.3
Consumers Power	22.875	19.250	84.150	16.625	72.7
Duke Power	19.250	16.875	87.660	21.25	110.4
Florida Power & Light	27.875	24.250	87.000	29.00	104.0
Iowa Electric Light & Power	14.375	13.250	92.170	12.875	89.6
Iowa-Illinois Gas & Electric	20.750	18.250	87.950	18.625	89.8
Iowa Resources	25.000	22.125	88.500	22.375	89.5
Middle South Utilities	15.250	13.125	86.070	13.125	86.1
Northeast Utilities	9.375	9.375	100.000	9.250	98.7
Northern States Power	25.125	22.000	87.560	25.500	101.5
Pacific Gas & Electric	24.000	22.125	92.190	21.625	90.1
Philadelphia Electric	16.375	14.875	90.840	13.750	84.0
Portland General Electric	17.750	14.375	80.990	12.000	67.6
Public Service Co. New Hampshire	19.875	17.375	87.420	13.875	69.8
Public Service Electric & Gas	22.000	19.000	86.360	19.125	86.9
Rochester Gas & Electric	17.000	15.125	88.970	13.250	85.2
Southern California Edison	27.125	24.125	88.940	28.750	106.0
Toledo Edison	22.375	18.375	82.120	15.750	70.4
Virginia Electric	13.250	11.625	87.740	11.875	89.6
Wisconsin Electric Power	26.500	23.750	89.620	28.750	108.5
Company Average	100%		87.780%		89.24%

3/27/79 to 2/10/82 Price Study
New England Electric Utilities

	<u>3/27/79</u>	<u>10/22/79</u>		<u>2/10/82</u>	
	<u>Price</u> (100%)	<u>Price</u>	<u>Ratio</u>	<u>Price</u>	<u>Ratio</u>
New York Utility Index	39.130	35.520	90.770%	38.375	98.0%
Boston Edison	23.750	20.625	86.840	20.375	85.8
Central Maine Power	15.375	13.250	86.180	12.125	78.9
Central Vermont P.S.(a)	15.813	16.063	101.580	15.875	101.6
Commonwealth Energy System	15.875	14.500	91.340	13.375	84.3
Eastern Utilities	15.000	13.125	87.500	11.750	78.3
Green Mountain Power(a)	12.375	12.125	97.980	12.375	102.1
Maine Public Service	18.750(a)	17.500(b)	93.330	15.000	80.5
New England Electric Sys.	21.500	20.000	93.020	25.000	116.3
Northeast Utilities	9.375	9.375	100.000	9.250	98.7
P.S. New Hampshire	19.875	17.375	87.420	13.875	69.8
United Illuminating	23.750	22.125	93.160	19.625	82.6
Company Average					88.98%

(a) Prices shown are the average of the bid and asked.

(b) Maine Public Service did not trade on 3/27/79, 4/9/79, 5/18/79, 8/6/79, 9/17/79 and 10/22/79. Prices and ratios shown are for 3/26/79, 4/6/79, 6/15/79, 8/1/79 and 9/14/79, 10/19/79 respectively.

3/27/79 to 2/10/82 Price Study
Selected Utilities without Nuclear Generation

	3/27/79	10/22/79		2/10/82	
	Price (100%)	Price	Ratio	Price	Ratio
New York Utility Index	39.130	35.520	90.770	38.375	98.0%
Allegheny Power	16.375	14.625	89.310	17.125	104.6
Central Illinois Light	16.625	15.250	91.730	15.000	90.2
Central Illinois P.S.	12.625	12.500	99.010	11.750	93.1
Hawaiian Electric	26.125	24.375	93.300	24.750	94.7
Idaho Power	25.000	23.000	92.000	20.625	82.5
Indianapolis Power & Light	22.625	21.500	95.030	21.375	94.5
Kansas Power & Light	19.500	16.875	86.540	19.625	100.6
Kentucky Utilities	19.750	19.000	96.200	16.750	84.8
Louisville Gas & Electric	20.750	18.750	90.360	18.250	88.0
Minnesota Power & Light	20.125	18.375	91.300	18.875	93.8
Montana-Dakota Utilities	17.000	16.750	98.530	18.750	110.3
Nevada Power	21.125	25.500	120.710	20.625	122.0
Oklahoma Gas & Electric	17.000	13.875	81.620	14.000	82.4
Potomac Electric	13.250	11.750	88.680	15.000	113.2
Southwestern P.S.	13.625	12.000	88.070	12.750	93.6
Tampa Electric	17.625	16.250	92.200	18.250	103.5
Utah Power & Light	18.875	17.375	92.050	18.875	100.0
Company Average	100%		93.330%		97.16%