2/13/81

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of

THE CINCINNATI GAS AND ELECTRIC COMPANY, ET AL.

(Wm. H. Zimmer Nuclear Power Station)

Docket No. 50-358

TESTIMONY OF MICHAEL L. KARLOWICZ, JR. ADDRESSING THE FINANCIAL QUALIFICATIONS OF THE CINCINNATI GAS AND ELECTRIC COMPANY, COLUMBUS & SOUTHERN OHIO ELECTRIC COMPANY, AND THE DAYTON POWER & LIGHT COMPANY TO OPERATE THE ZIMMER FACILITY

State of Maryland)
) SS
County of Montgomery)

Michael L. Karlowicz, Jr., Having first been duly sworn, hereby state as follows:

I am employed as a Financial Analyst by the U. S. Nuclear Regulatory Commission. My principle duty is the performance of the financial qualifications review of applicants during the nuclear licensing process. This review includes an analysis of estimated construction costs in construction permit proceedings and operating and decommissioning expenses in operating license matters. Concomitantly, the financial review encompasses the projected financing methods by which the required funds will be obtained. I also review the climate and trends of state utility commissions. In this regard, I have prepared financial testimony for

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inclusion in supplements to the Staff's Safety Evaluation Report and for presentation at Atomic Safety and Licensing Board Hearings.

My responsibilities also include the monitoring and keeping abreast of the money and capital markets, particularly those affecting the publicly and investor-owned electric utility sector of the economy. In this respect, I maintain a regular course of communication with the financial community. This includes utility securities officers and specialists representing the major rating firms, investment banking institutions, brokerage houses, and the Securities Exchange Commission. Additionally, I serve as liaison for the NRC in financial matters with the Federal and State Utility Commissions.

I received a Bachelor of Science Degree with a major in Mathematics in 1972 from Saint Peter's College. In 1976, I received my Juris Doctorate from the Delaware Law School. Thereafter, I attended the post-graduate L. L. M. tax law program at New York University in 1976 through 1977. Presently, I am undertaking studies in finance in the post-graduate program at the American University School of Business Administration.

Prior to my joining the U. S. Nuclear Regulatory Commission in December 1977, I spent three years with the New Jersey Department of the Public Advocate, Division of Rate Counsel. As both attorney and economist, my responsibilities included the representation of the public interest in proceedings involving proposals of increases in rates or discontinuance of service by regulated industries. From 1969 through 1974, I was

employed by Public Service Electric and Gas Company in their System Planning and Development Department and the Office of the Corporate Economist. There, I was responsible for conducting short, medium, and long-range studies in financial planning, the preparation of expert testimony, the implementation and development of financial modeling, and the performance of economic analysis.

The Commission's regulations 10 CFR §§ 50.33(f) and 10 CFR Part 50 Appendix C provide that an applicant for an operating license shall demonstrate reasonable assurance of obtaining funds to operate and close down the facility.

The Licensing Board admitted a contention of Miami Valley Power Project which states:

> "The equipment used in the construction and operation of the plant will be excessively costly and, in effect, beyond the financial capability of the Applicant. Applicants are financially unqualified to operate the plant because of escalating costs."

In addition, the licensing Board, in its September 17, 1980, memorandum requested the staff to address the following matters:

1. the ability of the Applicants to finance their respective shares of the cost of construction and operation of items mandated as a result of the TMI accident and not previously reviewed at the construction permit stage (including in particular the items required by NUREG-0694 ("TMI-Related Requirements for New Operating Licenses"), dated June 1980); and

2. the ability of the Applicants to fund estimated operating costs for the period of the license, and the estimated costs of permanently

shutting down the facility and maintaining it in a safe condition (see 10 CFR § 50.33(f) and Part 50, Appendix C, I.B.); and

3. the ability of the Applicants to withstand the costs of various contingencies, including extended shutdowns of the reactor caused either by problems arising at the Zimmer reactor (up to a maximum of a TMI-type accident) or by generic problems similar to those which have arisen at existing reactors and which have caused shutdowns at other reactors potencially subject to those problems.

This testimony addresses the above matters and supersedes the staff's analysis of the applicants' financial qualifications that appeared in the January 1979 Safety Evaluation Report (NUREG-0528) issued in conjunction with this proceeding, and addresses the financial qualifications of the Cincinnati Gas & Electric Company, Columbus & Southern Ohio Electric Company, and the Dayton Power and Light Company (Applicants) to operate and permantly shut down and maintain in a safe condition the William H. Zimmer Nuclear Power Station.

The Nuclear Regulatory Commission's requirements for the determination of an applicant's financial qualifications for an operating license are stated in its regulations at 10 CFR 50.33(f) and Appendix C to 10 CFR part 50. The former regulation states "[i]f the application is for an operating license, such information shall show that the applicant possesses the funds necessary to cover estimated operating costs or that the applicant has reasonable assurance of obtaining the necessary funds, or a combination of the two. 10 CFR 50.33(f). The latter restates the former with the additional proviso that "For purposes of the latter requirement, it will ordinarily be sufficient to show at the time of

filing of the application, availability of resources sufficient to cover estimated operating costs for each of the first five year of operation plus the estimated costs of permanent shut down and maintenance of the facility in a safe condition." 10 CFR Part 50, Appendix C(I)(B). This subsection concludes with the expectation that "in most cases the applicant's annual financial statements contained in its published annual reports will enable the Commission to evaluate the applicant's financial capability to satisfy this requirement."

Upon review by the Commission in Public Service Co. of New Hampshire, et.al. (Seabrook Station, Units 1 & 2) CLI-78-1, 7 NRC 1 (1978), the "reasonable assurance" requirement for financial qualifications was interpreted to be that "the applicant must have a reasonable financing plan in light of relevant circumstances." 7 NRC at 18. The Commission further expressed that "a reasonable assurance does not mean a demonstration of near certainty that an applicant will never be pressed for funds...." Ibid. Other considerations led the Commission to believe that "... a utility cannot provide more than a reasonable assurance that funds will be available through the course of a multiyear construction project. The number of variables - such as interest rates, the state of the stock and bond markets, the regulatory climate and the cost of fuel that operate over the period required to construct a nuclear power plant make financial forecasting over a ten-year period uncertain." Id at 19. While Seabrook specifically considered the financial qualifications of an applicant for a construction permit, it sheds substantial guidance upon the financial qualifications requirement for operating licenses.

The Commission's standard for financial qualifications as enunciated in Seabrook was affirmed by the U.S. Court of Appeals for the First Circuit. New England Coalition on Nuclear Power vs. USNRC. 582 F. 2d 87,93 (1978).

On November 19, 1980, in response to our request submitted pursuant to Appendix C (IV) to 10 CFR Part 50, Cincinnati Gas and Electric, Columbus and Southern Ohio Electric Company, and Dayton Power and Light Company submitted the necessary financial information. This information addresses the applicants' financial qualifications to operate and shut down, if necessary, and maintain in a safe condition, the Zimmer Nuclear Power Station. The financial information provided by the applicants furthermore addresses the financial contention admitted to this proceeding, this Board's inquiries as to TMI Lessons Learned requirement costs and the ability of the applicants to finance them, as well as the required financial data of estimated facility operating expenses, shut down costs, and projected maintenance expenses to keep the facility in a safe shut down condition.

The following analysis constitutes the NRC staff's evaluation of the applicants' submittal and addresses the financial qualifications of each applicant to operate the Zimmer facility, shut it down, if necessary, and maintain it in a safe condition while also addressing Contention 13 and inquiries of the Licensing Board.

BUSINESS OF APPLICANTS

Cincinnati Gas & Electric Company is a corporation organized and operating under the laws of the State of Ohio with its principal place of business located at Fourth and Main Streets, Cicinnati, Ohio, 45202. It is an investor-owned public utility whose primary business is to meet the electric and gas service requirements of some 583,000 electric customers and 361,000 gas customers in southwestern Ohio.

Columbus & Southern Ohio Edison Company is a corporation organized and operating under the laws of the State of Ohio with its principal place of business located at 215 North Front Street, Columbus, Ohio, 43215. Likewise, it also is an investor-owned public utility whose primary business is to meet the electric requirements of some 457,000 customers in central and southern Ohio.

Dayton Power & Light Company is a corporation organized and operating under the laws of the State of Ohio with its principal place of business located at 25 North Main Street, Dayton, Ohio, 45401. It is also an investor-owned public utility whose primary business is to meet the electric and gas service requirements of some 417,000 electric and 263,000 gas customers in southwestern Ohio.

ESTIMATED OPERATING COSTS OF FACILITY

For the purpose of estimating the facility's operating costs, the applicants have assumed that 1983 will be the first full year of commercial operation. Estimates of the total annual cost of operating the

Zimmer plant for each of the first five years are presented in Table 1, below. As an element of conservatism, we requested that the applicants provide additional estimates of operation expenses for the facility's first five years under separate capacity factors with the assumptions of 50 percent and 60 percent. These are likewise stated in Table 1, below. All operating estimates for Zimmer cost are based upon a peak net electrical capacity of 792 megawatts and total estimated construction costs of $1,067.3 million. As of October 15, 1980 the Zimmer facility was 94.2 percent complete in construction. Operating costs include all costs associated with the capital investment and operation and maintenance including nuclear fuel.

TABLE 1

ESTIMATE OF TOTAL ANNUAL COST OF OPERATION
OF WILLIAM H. ZIMMER NUCLEAR GENERATING STATION

Year	1983	1984	1985	1986	1987
Applicants' Estimate					
Plant Capacity Factor (percent)	52.0	63.0	76.0	74.0	78.0
Annual Cost of Operation (millions)	$252.5	$273.1	$260.7	$252.8	$260.4
Alternative I					
Plant Capacity Factor (percent)	50.0	50.0	50.0	50.0	50.0
Annual Cost of Operation (millions)	$251.2	$263.4	$243.9	$236.9	$242.1
Alternative II					
Plant Capacity Factor (percent)	60.0	60.0	60.0	60.0	60.0
Annual Cost of Operation (millions)	$255.9	$270.0	$248.7	$242.9	$245.4

ESTIMATED SHUTDOWN COSTS OF FACILITY

The Applicants based their estimate of decommissioning costs upon a report published in November 1978 by the Atomic Industrial Forum (AIF) entitled, "An Engineering Evaluation of Nuclear Power Reactor Decommissioning Alternatives." This study provided cost estimates in 1975 dollars for several decommissioning alternatives for BWR plants of both 1160 MWe and 550 MWe sizes. The AIF study concludes that the most economical mode of decommissioning would be either temporary mothballing or temporary entombment for a cooling period of about 104 years, followed by dismantling and removal of the radioactive structures of the facility.

If it is assumed that a security force will be required to guard a temporarily mothballed facility for the entire 104 year cooling period, then temporary entombment becomes the more economical choice. For purposes of these cost estimates, it was assumed that such a security force would be required for temporary safe storage without physical entombment.

There are four components of total decommissioning cost under the applicants' proposal: (1) Cost of prompt dismantling and removing non-radioactive structures at the end of the 33 year life; (2) initial entombment cost; (3) annual surveillance and maintenance costs for the next 104 years; and (4) cost of dismantling and removing remaining structures at the end of the 104 year cooling period. No further expenses are expected to be incurred after the final dismantlment and removal. The AIF estimates for these four components for an 1160 MWe BWR and for a 550 MWe BWR were

interpolated by the applicants to obtain the estimates for the 800 MWe Zimmer plant. Credit for the value of the land after completion of the decommissioning project was also estimated. These applicant estimates are listed in Table 2 in 1983 dollars. A 6% annual inflation rate has been assumed from 1975 through 1979. A 6.5% annual inflation rate has been assumed after 1979.

TABLE 2

ESTIMATED DECOMMISSIONING COSTS FOR ZIMMER UNIT 1*
(Dollars in Millions)

a.	Prompt dismantling and removal of non-radioactive structures	$ 7.8
b.	Initial temporary entombment	$11.0
c.	Total surveillance and maintenance for 104 years	$ 9.9
d.	Dismantling and removal of remaining structure after 104 years of cooling	$ 9.0
	Sub-Total decommissioning cost	$37.7
	Land Credit	($ 1.8
	Net-Total decommissioning Cost*	$35.9

At the request of the NRC, an in-depth review of the AIF report "An Engineering Evaluation of Nuclear Power Reactor Decommissioning Alternatives" (AIF/NESP-009 and -009 SRs) was performed by Battelle Pacific Northwest Laboratories. In Battelle's November 18, 1977 review, particular attention was paid to the estimation of costs, their bases, and the methodology used. As to the overall reasonableness of the AIF decommissioning

* All costs are stated in 1983 dollars.

cost estimates, Battelle concluded that "[w]hile some of the individual cost calculations appear to be inconsistent and appear to omit certain cost items, the total costs do appear to be realistic."

In June 1980 the Pacific Northwest Laboratory operated by Battelle Memorial Institute published a detailed study entitled "Technology, Safety and Costs of Decommissioning a Referenced Boiling Water Reactor Power Station. (NUREG/CR-0672) Using a large 1155 megawatt electric boiling water reactor power station as the basis for the study, the report concluded that decommissioning costs are estimated to be approximately $64.5 million in 1978 dollars for an initial entombment and deferred dismantlement decommissioning method. This cost estimate assumes a 100 year period between initial entombment and the starting of dismantlement. Although the applicants may realize some reduction in costs due to the smaller size of the Zimmer facility (792 megawatts electric versus the 1155 megawatt electric unit considered in the Battelle report), these cost savings are difficult to quantify and should not be significant. Nonetheless, some offset will occur to any potential savings when the above amount is restated in 1983 dollars. Since the above amount appears more conservative than the applicants' data as shown in Table 2, it has been adopted for use herein.

COSTS OF TMI-2 LESSONS LEARNED REQUIREMENTS FOR THE ZIMMER FACILITY

In response to the NRC staff's request for information regarding this Board's September 19, 1980 memorandum inquiry as to the financing of the

TMI-2 lessons learned requirements of NUREG-0694, "TMI-Related Requirements for New Operating Licenses" (June 1980) and NUREG-0738, "Clarification of TMI Action Plan Requirements' (November 1980), the applicants submitted the following estimate of capital and operating costs for the Zimmer Facility, shown in tables 3 and 4, respectively.

TABLE 3

ESTIMATE OF COSTS TO BE CAPITALIZED FOR THE ZIMMER FACILITY AS A RESULT OF TMI-RELATED REQUIREMENTS FOR NEW OPERATING LICENSES

Group No. 1	Special training, studies, and one-time administrative costs	$ 3,000,000
Group No. 2	Preparation of emergency plan and related facilities, including required communication equipment	$ 4,600,000
Group No. 3	Specially constructed onsite and offsite buildings and offices such as the emergency operating facility and technical support center	$ 8,400,000
Group No. 4	Post-accident monitoring facilities including core coalition monitoring, radiation sampling, and related computer system	$ 9,400,000
Group No. 5	Various plant modifications including control room changes, additional shielding, and isolation.	$ 4,600,000
	Total Capital Cost Estimate-TMI Items*	$30,000,000

* Of the above estimated capital costs, $1,498,000 (approximately 5%) have been expended as of December 31, 1980. These are one-time costs.

TABLE 4

ESTIMATE OF ANNUAL OPERATING COSTS ASSOCIATED WITH TMI-RELATED REQUIREMENTS FOR NEW OPERATING LICENSES
(Dollars in Millions)

Operating Labor	$1.50
Operations Material & Expenses	68
Maintenance Labor	74
Maintenance Materials & Expenses	40
Total Annual Operating Expenses*	$3.32

FINANCIAL ANALYSIS - SOURCES OF FUNDS

As indicated earlier, the Commission has interpreted the "reasonable assurance" requirement of financial qualifications to be "a reasonable financing plan in light of relevant circumstances." Seabrook, 7 NRC 18 (1978). In consideration of the foregoing cost estimates, the following analysis will evaluate the reasonableness of the applicants financial plans in covering the various amounts that will result from the operation of the facility.

In general, an evaluation of the financing plans of the applicants to meet operational expenses, TMI facility modification and operating costs, and decommissioning costs cannot be viewed in a vacuum but can only reasonably be considered in a relative to other costs. Thus, the

* These Annual Operating Expenses will be expended after the starting o the facility. The costs are stated in 1982 dollars and will be expended during each year of the facility's operation.

amounts to be financed must be considered in light of the operational characteristics and financial capabilities of the applicants. This financial perspective includes the applicants' nature of business, their size in revenue, assets, net income, and financial strength. Because the applicants are ongoing entities, such an evaluation requires a review of the financial results of their operation over a sustained period of time. As is the case with most any financial review, emphasis is placed upon recent performance. The near term financial outlook of the applicants is also given consideration. However, the near-term planning horizon is limited to the issue of how the projected costs of operation of the facility will fit into the general scheme of their operations.

Long term financial considerations are also important in the financial review since some costs will occur over an extremely long time. However, the number of variables such as interest rates, the state of the stock and bond markets, inflation, and the cost of fuel and labor, among many others, makes long-term financial forecasting inherently uncertain. The operational characteristics of the applicants' financial condition gives a good indicator of their capabilities and therefore is important for long-term forecasts. In consideration of those relevant circumstances, the following evaluates the reasonableness of the applicants' financial plan.

Financing Plan - Zimmer Costs of Operation

The applicants plan to recover all costs of operation through revenues derived from their customers in their system-wide sales of electricity.

Under the applicants' Joint Operation Agreement the total costs of the facility's operation will be recovered in proportion to each applicant's ownership interests as follows: Cincinnati Gas and Electric Company - 40 percent, Columbus and Southern Ohio Electric Company - 28.5 percent, and Dayton Power and Light Company - 31.5 percent. By reason of rate regulation, their rates may only be increased upon approval by the Ohio Public Utility Commission.

Inherent in the operation of the Zimmer facility will be the production of electricity for the service of the applicants' customers. Because such capability will qualify the facility as a productive asset, from an accounting viewpoint such property will reasonably be expected to qualify as "property used and useful in public utility service."

As a consequence of this, the facility's cost of construction, including amounts allowed for funds used during construction, will be included in the rate base of each applicants for regulatory ratemaking purposes in the amount of their respective investments in it.* Under Ohio rate regulation, rate base inclusion of the facility will allow the applicants' recovery of the capital costs associated with its construction such as interest on debt, and dividends on preferred and common stock associated with and in addition to investment amounts formerly applied towards Zimmer's construction. The same regulatory treatment also allows recovery of amounts associated with operation and maintenance expenses necessary for

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* Each of the applicants is presently allowed approximately 50 percent of the Zimmer facility's construction costs as a part of their present rate bases in their last ratemaking proceedings before the Public Utilities Commission of Ohio.

the production of power that will be used by the applicants' customers. These amounts normally include all reasonable fixed and variable costs including the return of the original investment in the form of depreciation.

Since the applicants have demonstrated a historically consistent recovery of such amounts in capital and operating costs for all other significant facilities they have formerly constructed and have both formerly and presently operated, it is reasonable to conclude that the applicants' plan to finance the facility's operation through internally generated amounts in the form of revenues derived from rates charged to customers for utility service, both produced overall and especially that generated by the Zimmer facility, represents a reasonable financing plan in light of relevant circumstances.

FINANCING PLAN - DECOMMISSIONING COSTS

The applicants presently plan to obtain the funds required for both intermediate and ultimate decommissioning of the plant through revenues derived from their customers to reflect annual depreciation charges during the service life of the facility to produce amounts which will be deposited with a trustee. The sum of the amounts so deposited plus earnings accruing thereon during the operating life of the facility would be the source of funds to meet decommissioning costs. Based on a 6.5 percent annual inflation rate from 1983 through the final dismantlement/removal of the remaining structures in the year 2120, and a 6 percent tax-free interest rate on funds deposited with the decommissioning trustee, the annual payments to the decommissioning trustee over the 33 year plant

life required to provide the necessary funds for each of the four components of decommissioning along with the land credit as well as the total annual payment are shown in Table 3.

TABLE 3

ANNUAL AMOUNTS TO BE DEPOSITED WITH DECOMMISSIONING TRUSTEE OVER THE 33 YEAR OPERATING LIFE REQUIRED TO PROVIDE ESTIMATED NECESSARY FUNDS FOR DECOMMISSIONING*

a.	Prompt dismantling and removal of non-radioactive structures	$ 639,874
b.	Initial temporary entombment	$ 903,374
c.	104 years of surveillance and maintenance	$1,041,489
d.	Dismantling and removal of remaining structures after 104 years of cooling	$1,209,490
	Sub-Total annual decommissioning fund deposit over 33 year operating lifetime	$3,794,227
	Land Credit	($ 242,617)
	Net-Total annual decommissioning fund deposit over 33 year operating lifetime	$3,551,610

By utilizing the assumptions made by the applicants, I have verified the computation of the sinking fund amounts stated by the applicants above in Table 3.

* The estimated annual payments shown above are based on the decommissioning cost estimates shown in Table 2, a 6.5 percent annual inflation rate after 1983, and a 6 percent tax-free interest rate on funds deposited with the decommissioning trustee.

As stated earlier, each of the applicants intends to reflect its respective proportionate share of estimated decommissioning costs as a component of its annual depreciation expenses to be attributable to the Zimmer facility is operation. Using the ownership interest proportions of the applicants in the Zimmer facility, the total annual required payments for each of the applicants to meet their estimated $3.6 million annual payment to accrue $35.9 million of total decommissioning expenses in 1983 dollars is shown in Table 4 below.

TABLE 4

ANNUAL PAYMENTS REQUIRED BY THE ZIMMER FACILITY CO-OWNERS TO MEET DECOMMISSIONING EXPENSES OF $35.9 MILLION THROUGH A 33 YEAR ANNUAL SINKING FUND PAYMENT OF $3.6 MILLION

Facility Co-Owner	Annual Payment Amount (Millions)
Cincinnati Gas & Electric Company	$1.44
Columbus and Souther Ohio Electric Company	1.03
Dayton Power and Light Company	1.13
Total	$3.60

As stated earlier, however, this analysis bases total estimated decommissioning costs upon the Batelle Pacific Northwest Laboratories projection of

$64.5 million. By utilization of a sinking fund method of financing under a 6 percent tax-free yield accruing on all amounts so deposited, the annual aggregate payment requirement increases to $4.53 million. The required payment amounts for each of the applicants to meet the above decommissioning expense estimate is shown in Table 5 below.

TABLE 5

ANNUAL PAYMENTS REQUIRED BY THE ZIMMER FACILITY CO-OWNERS TO MEET DECOMMISSIONING EXPENSES OF $64.5 MILLION THROUGH A 33 YEAR ANNUAL SINKING FUND PAYMENT PAYMENT OF $4.5 MILLION

Facility Co-Owner	Annual Payment amount (Millions)
Cincinnati Gas & Electric Company	$1.8
Columbus and Southern Ohio Electric Company	1.3
Dayton Power and Light Company	$1.4
Total	$4.5

Under a sinking fund method of financing the sum of the amounts annually deposited with tax-free interest earnings accruing over the operating life of the facility appreciate to meet the estimated future costs to

decommission the Zimmer facility. Since these amounts are proposed to be derived through revenues as a recovery of costs for each of the applicants during the operating life of the facility, they must be approved by the Public Service Commission of Ohio. Approval for the inclusion of such amounts in revenues charged to customers for utility service, require that they be used for the production of the service. Since the NRC requires that any operating reactor be safely decommissioned when retired, it is reasonable to assume that those amounts are necessary and reasonable expenses, expecially when they are also incurred for the protection of the public health and safety. Accordingly, because decommissioning costs will be a necessary component in the providing of utility service from the Zimmer facility, it is reasonable to believe that the applicants' plan to finance these expenses from customer revenues through approval by the Public Utility Commission of Ohio constitutes a reasonable financing plan in light of relevant circumstances.

Since the co-owner applicants will be sharing all costs arising out of the operation of the Zimmer facility, the impact of any cost increases will be shared among them. The relative magnitude of any such cost increase impact may be seen from comparison of Table 4 and 5 above. Under a $30 million increase in decommissioning expenses the co-owner having the largest interest in the Zimmer facility - Cincinnati Gas and Electric at 40 percent - would need only an additional $400,000 annual payment requirement to its share of the tax-free sinking fund. From a relative viewpoint this would cause less than one percent dollar impact to its 1979 gross electric operating revenues of $518.9 million

and less than one half of one percent to its total operating revenues for 1979 of $825.8 million. The impact of any such increase in decommissioning costs would be similar for both Dayton Power and Light Company which realized total annual operating revenues of $535.8 million in 1979 and Columbus and Southern Ohio Electric Comany which realized $416.8 million.

Moreover, although the NRC requires no specific plan to fund decommissioning expenses, I believe that the applicants' plan to fund such amounts in an independent tax-free investment vehicle with a trustee provides an additional element of assurance in that it constitutes an especially liquid method for obtaining the necessary amounts of proceeds to meet decommissioning costs. Because there is always a ready market for tax-free securities, there will be little difficulty in liquidating the investment when the need arises. Furthermore, should additional amounts be needed over and above those invested and accrued in the tax-free trustee account, the applicants have two other traditional sources of funds available to meet any such expenses. The first source is the applicants' internal cash generation attributable to: (1) depreciation expenses for all utility plant; (2) retained earnings; and (3) normalized tax depreciation and levelized investment tax credits. These are non-cash expenses which utilities normally recover through revenues to meet their capital requirements on an internal basis. The second source of funds is the external capital market. As public utilities constitute the most capital-intensive industry in the United States, they have long had access to funds in the public securities market. To access such additional external funds the applicants would issue debt in the form of

bonds or issue additional preferred or common stock, or a combination of each. A three year summary of each of the applicants' recent internal and external financings is shown in Table 6 below:

TABLE 6

SUMMARY OF ZIMMER FACILITY APPLICANTS' INTERNAL AND EXTERNAL FINANCINGS FOR THE PERIOD 1977 TO 1979
(Dollars in Millions)

	Year		
Facility Co-owners	1977	1978	1979
Cincinnati Gas & Electric Company			
Internal Financings	$ 58.6	$ 5[illegible]	$ 54.6
External Financings	$ 33.7	$147.3	$205.2
Columbus and Southern Ohio Electric Company			
Internal Financings	$ 31.3	$ 6.4	$ 44.3
External Financings	$114.1	$106.8	$ 59.0
Dayton Power and Light Company			
Internal Financings	$ 32.3	$ 27.9	$ 23.8
External Financings	$ 81.5	$113.8	$176.1

The historic ability of the applicants' successful access to these markets provides an even further degree of assurance that the necessary funds will be available to meet decommissioning costs when necessary.

FINANCING PLAN - TMI REQUIREMENTS COSTS

As stated earlier, the applicants estimate that one-time costs to be capitalized will be expended in the amount of $30 million for the Zimmer

facility as a result of NUREG-0694, "TMI-Related Requirements for New Operating Licenses" (June 1980) and NUREG-0738, "Clarification of TMI Action Plan Requirements." As a further consequence of this, the applicants also estimate that they will be required to incur additional operating expenses in the amount of $3.32 million on an annual basis.

The applicants plan to finance their respective shares of the $3.32 million of operating costs mandated by NUREG-0694 in accordance with the Joint Operating Agreement. Accordingly, they will each share in these costs, as with all other costs of Zimmer's operation, in proportion to their amount of ownership interest in the facility.

The applicants intend to recover these amounts as operating expenses incurred in the production of utility service. As discussed previously under the sections "Operation Expenses" and "Decommissioning expenses," it is likewise reasonable to conclude that this method of financing these expenses constitutes a reasonable financing plan in light of relevant circumstances.

The applicants plan to obtain the former $30 million for costs to be capitalized as an integral part of their ongoing financing plans to meet each of their total capital requirements. As they have in the past, they intend to meet their respective shares of the necessary costs through a combination of internal and extenal sources of capital. As indicated below, the applicants have two other traditional sources of funds available to meet any such expenses. The first source is the

applicants' internal cash generation attributable to: (1) depreciation expenses for all utility plant; (2) retained earnings; and (3) normalized tax depreciation and levelized investment tax credits. These are non-cash expenses which utilities normally recover through revenues to meet their capital requirements on an internal basis. The second source of funds is the external capital market.

The following sections states the specific plans of each of the applicants to raise their respective capital requirements to complete the TMI-Requirements for New Operating Licenses as well as addressing the specific financing necessary to obtain their respective shares of the remaining construction costs of the Zimmer facility.

NEAR-TERM FINANCING PLAN - CINCINNATI GAS ELECTRIC COMPANY

The total estimated outstanding costs (including $11.4 million of unexpended capital costs exclusive of Allowance for Funds Used during Construction (AFUDC) for CG&E's Cincinnati Gas & Electric Company's (CG&E) $12 million share of TMI-requirements, above) to complete the construction of the Zimmer Station is $204 million. Of these costs, $81.4 million represents share. Additional AFUDC will amount to $32.1 million and the balance of $49.3 million represents additional money that will have to be raised.

Construction costs for Zimmer Station are included in the overall requirements for capital and have been or will be financed as a part of

CG&E's overall needs. In 1980, CG&E issued 500,000 shares of 10.20% series $100 par value perferred stock, an additional 3.4 million shares of common stock at a price of $16.125 per share, and $100 million of 12% first mortgage bonds to finance part of its construction program including Zimmer Station. The issuance of additional common stock through the Employee Incentive Thrift Plan, Employee Stock Ownership Plan and Dividend Reinvestment and Stock Purchase Plan raised approximately $14 million in 1980 and is expected to raise $16 million in 1981. In January, 1981, CG&E issued 300,000 shares of 12.52% series $100 par value preferred stock. Presently, the Company is raising capital through the issuance of short-term debt obligations at interest rates ranging from 17-7/8% to 30-1/2%. However, this amount has not been specifically raised for construction of the Zimmer Station.

Present estimates indicate that CG&E will sell approximately 2,500,000 shares of common stock in the first half of 1981 and will sell debt securities later in the year. It presently is expected that any additional capital which may be required in 1981 would be provided from short-term bank loans or the issuance of commercial paper. Prices and terms of these securities would be determined by the financial market at the time of the sale.

The unexpended costs necessary to complete construction of Zimmer will be incurred during 1981 and 1982. CG&E's share of these costs, $81.4 million compares to the Company's total estimated construction costs of

$411 million for 1981 and 1982. For these years, costs to complete Zimmer Station will represent approximately 19.8% of total estimated construction costs.

NEAR-TERM FINANCING PLAN - COLUMBUS AND SOUTHERN OHIO ELECTRIC COMPANY

The total estimated, unexpended costs (including $8.1 million of capital costs (exclusive of AFUDC) of Columbus & Southern Ohio Electric Company's $8.6 million share of the TMI-Requirement Costs above) to complete the construction of Zimmer Station is $204 million. Of these costs, $57.1 million represents C&SOE's share. Additional AFUDC will amount to $22 million and the balance of $35.1 million represents additional money that will have to be raised.

Like Cincinnati Gas & Electric, construction costs for Zimmer Station are included in the overall requirements for capital and have been or will be financed as C&SOE's overall needs. In 1980, this applicant issued $80 million of 13-5/8% first mortgage bonds, $30 million of which was new capital, and received a $30 million capital contribution from its parent company, American Electric Power Company, Inc. (AEP) to finance part of its construction program including Zimmer Station. Presently, the Company is raising capital through the issuance of short-term debt obligations at interest rates ranging from 14.50% to 20.88%.

However, this money has not been specifically raised for construction of the Zimmer Station.

Present estimates indicate that C&SOE will sell approximately $60 million of first mortgage bonds in the first half of 1981 and will receive a $40 million capital contribution from AEP some time during the year. It presently is expected that any additional capital which may be required in 1981 would be provided from short-term bank loans. Prices and terms of these securities would be determined by the financial market at the time of the sale.

The unexpended costs to complete construction of Zimmer will be incurred during 1981 and 1982. Of these costs, $57.1 million repesents C&SOE's share and compares to the Company's total estimated construction costs of $302 million for 1981 and 1982. For these years, costs to complete Zimmer Station will represent approximately 18.9% of total estimated construction costs.

NEAR-TERM FINANCING PLAN - DAYTON POWER AND LIGHT COMPANY

The total estimated unexpended costs (including Dayton Power & Light Company's $9 million unexpended TMI-Requirement capital costs exclusive of AFUDC, above) to complete the construction of the Zimmer Station is $204 million. Of these costs, $65.5 million represents this applicant's share of Zimmer's construction costs. Approximately $46 million of the $65.5 million will have to be raised with the remainder being non-cash AFUDC. The cash requirements to complete this construction are estimated at $46 million.

Like the other applicants, construction costs for Zimmer Station are also included in the overall requirements for the Company's capital and have been or will be financed as a part of Dayton Power & Light Company's overall needs. This applicant's future needs will be fulfilled by the issuance of varying types and amounts of securities, including debt, common and preferred equity, leasing arrangements, and, in the interim, short-term borrowings.

The above amounts will be incurred during 1981 and 1982. During this period, Dayton Power & Light Company's total estimated construction costs are $521 million. Therefore, the unexpended costs will represent about 12.6% of the overall construction budget for the period involved.

EVALUATION - APPLICANTS' PLANS TO FINANCE TMI - REQUIREMENTS COSTS

As shown by Table 6, the applicants' respective amounts financed over the last several years are well in excess of those stated above for completion of the Zimmer facility. The $30 million due to TMI-Requirements is a 3% increase in the $1.067 billion required to complete Zimmer and is not a prohibitive element to the financing of Zimmer's completion. Given the level of financing needed to incorporate TMI-Requirements in the applicants' overall financial plans in the near-term, I conclude that they have satisfied the requisite demonstration of a reasonable financing plan in light of relevant circumstances.

FINANCING - FORCED OUTAGE OF ZIMMER FACILITY

Extended shutdowns whether ordered by NRC as a result of Generic safety concerns or required due to Zimmer specific problems are additional operating costs. These costs are traditionally treated by state and federal regulatory commissions as legitimate costs of doing business and are normally recoverable through the rates of reactor owners. The duration of the shutdown does not affect the method of treatment.

Should capital costs be required before operation could be resumed after a required shutdown, financing would be arranged in the same fashion as capital raised by the applicants for any other purposes. If it were assumed that the reactor were to be permantly shutdown and maintained in a safe condition, the ability of the applicants to fund decommissioning is addressed in response to Board question 2. Attempts to analyze an applicant's ability to finance the cost of an accident which would go beyond shutdown and decommissioning, such as TMI, is speculative and without meaningful parameters. Applicants for NRC operating licenses are not required to submit financial information regarding their ability to withstand costs of accidents. (See 10 CFR 50.33(f) and CFR Part 50 Appendix C).

CONCLUSION

In accordance with the regulations cited herein an applicant must demonstrate that it has reasonable assurance of obtaining the necessary funds to

cover the estimated costs of the activities contemplated under the license. As stated earlier, the Commission has determined in Seabrook that the reasonable assurance requirement for financial qualifications is a reasonable financing plan in light of relevant circumstances. Based upon the preceeding analyses of their proposed financing plans, I conclude that Cincinnati Gas and Electric Company, Columbus and Southern Ohio Edison Company, and Dayton Power and Light Company have reasonable financing plans in light of relevant circumstances to operate, and shutdown, if necessary, and maintain the Zimmer facility in a safe condition.

Accordingly, I have determined that the applicants have a reasonable assurance to obtain the estimated funds necessary to perform the activities contemplated by the applicants under the proposed operating license to the extent of their ownership interest in the facility. As a consequence of this, I find that the applicants are financially qualified to operate and safely decommission the Zimmer Nuclear Power Station, Unit No. 1. In summary, my conclusion is based upon the applicants' status as regulated public utilities, the size of their operations, their demonstrated ability to achieve revenues sufficient to cover each of their operating and capital costs, and their successful history of obtaining capital in amounts both internally generated and in the external markets.

Michael L. Karlowicz, Jr.

Subscribed and sworn to before
me this 13th day of February, 1981

Notary Public
MY COMMISSION EXPIRES JULY 1, 198.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
CINCINNATI GAS AND ELECTRIC COMPANY, et al.	)	Docket No. 50-358
(Wm. H. Zimmer Nuclear Power Station, Unit No. 1)	)	

CERTIFICATE OF SERVICE

I hereby certify that copies of TESTIMONY OF MICHAEL L. KARLOWICZ, JR. ADDRESSING THE FINANCIAL QUALIFICATIONS OF THE CINCINNATI GAS AND ELECTRIC COMPANY, COLUMBUS & SOUTHERN OHIO ELECTRIC COMPANY, AND THE DAYTON POWER & LIGHT COMPANY in the above-captioned proceeding have been served on the following by deposit in the United States mail, first class as indicated by an asterisk through deposit in the Nuclear Regulatory Commission's internal mail system, this 12th day of February, 1981.

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