UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Oct 17, 1975

Before the Atomic Safety and Licensing Board

In the Matter of	)	
The Toledo Edison Company, et al. (David-Besse Nuclear Power Station, Units 1, 2 and 3)	)	Docket Nos. 50-346A 50-500A 50-501A
The Cleveland Electric Illuminating Company, et al. (Perry Nuclear Power Plant, Units 1 and 2)	)	Docket Nos. 50-440A 50-441A

TESTIMONY OF WILLIAM R. MAYBEN

Q. Please state your name and address.

A. My name is William R. Mayben and my residence is No. 49, Stires Lake, Columbus, Nebraska.

Q. What is your occupation?

A. I am a registered professional engineer and a partner in the consulting engineering firm of R. W. Beck and Associates.

Q. Would you describe R. W. Beck and Associates.

A. R. W. Beck and Associates is an analytical and consulting engineering firm providing consulting engineering services extensively throughout the United States and in certain international locations. The firm, owned by a partnership of 18 professional engineers and economists, employs over 320 professional and support personnel to prosecute our various assignments. The firm provides a full range of consulting

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engineering services involving virtually all engineering, economic and environmental disciplines. We have offices in seven cities throughout the country, with our general office in Seattle, Washington.

Q. What is your educational background?

A. I graduated from the University of Colorado, Boulder, Colorado, in June of 1962 receiving a Bachelor of Science Degree in Electrical Engineering.

Q. In what states are you registered to practice engineering?

A. I hold registration as a professional engineer in Ohio (No. 36140) and some thirteen additional states.

Q. Would you briefly describe your responsibilities with R. W. Beck and Associates.

A. Since 1968, I have been a partner and supervising executive engineer. As such, I have the direct responsibility for the activities of the firm's offices in Columbus, Nebraska, and Indianapolis, Indiana. My business address is 1453 29th Avenue, Columbus, Nebraska 68601. I supervise a large staff of engineers and utility analysts who provide consulting engineering services to our various utility clients throughout the midwestern part of the United States.

Q. Would you briefly state your professional engineering experience as it relates to power system planning, design and operations.

A. For two and one-half years following my initial employment by R. W. Beck and Associates in 1962, I was assigned to the firm's design office where I worked principally on design of power generating

stations, high-voltage transmission lines and substations. I have had complete responsibility for design and construction of transmission and substation facilities with voltages ranging from 4.16 kV to 230 kV. For intermittent periods prior to 1965 and extensively since then, I participated in power supply planning for several electric utilities conducting transmission studies and economic evaluations. My work has been particularly concerned with power pooling and coordinated power supply among utility systems.

I served as the principal systems engineer to the Missouri Basin Systems Group (MBSG), a power planning and power pooling organization, whose electric utility members have generation and transmission facilities covering a multi-state area in the Upper Missouri River Basin Region. In this capacity, I served on various engineering committees responsible for planning the expansion of power supply and transmission system facilities in the North Central Region of the United States. Since 1967, I have been working extensively in development and implementation of an ongoing bulk power supply program for the Nebraska Public Power District, a utility which has the bulk power responsibility for a major portion of the State of Nebraska. As part of this assignment, I have participated in the development of plans for interconnection to and integration with the state and regional power systems of generation owned and operated by NPPD consisting of an 800 MW_e nominally rated nuclear generating station, a 650 MW coal-fired thermal electric generating station and

150 MW of oil-fired combustion turbine generating capacity. I have also had the primary responsibility for determining the technical and financial feasibility of the Nebraska power resource expansion programs while serving as NPPD's independent consulting engineer pursuant to the terms of that utility's revenue bond indentures.

I have worked with power supply utilities in developing coordinated long-range power resource expansion programs in various other regions of the country. Such assignments have included the preparation of power pooling agreements and other documents to accomplish coordinated development and integrated power supply operations among utilities.

Q. Have you conducted power supply studies for small electric utilities such as municipally owned systems?

A. Yes, I have personally prosecuted such studies and in recent years have supervised staff prosecution of several power supply studies for small municipal electric utilities contemplating various alternative methods of meeting their future power supply requirements. Such studies usually include an economic evaluation of various power supply alternatives readily available to the municipal electric utility and the preparation of a report setting forth the results of such studies and making recommendations concerning the method of meeting the utility's future load growth.

Q. Have you participated in negotiation of contracts concerning coordinated power supply among utilities?

A. Yes, I have participated in the negotiation of contracts where I have represented small electric utility systems seeking coordinated development and coordinated power supply operations with larger power supply utilities. In addition, I have provided technical assistance to a large utility client who was negotiating on reasonably equal terms for coordinated power supply with another comparably sized utility. Finally, I have had experience in representing a large utility client dealing with a much smaller utility seeking coordinated power supply arrangements.

Q. Have you had experience in the area of wholesale power rates, transmission rates and rates for other forms of utility service?

A. Yes, I have conducted cost analyses and cost recovery studies for clients providing wholesale power service and transmission service. In addition, I have participated in negotiations and litigation providing technical assistance to our clients seeking changes in tariff provisions for full and partial requirements, wholesale power service, transmission service and other forms of services usually rendered by utilities engaged in interconnected and coordinated power supply operations.

Q. Have you ever appeared a an expert witness before State or Federal regulatory agencies?

A. Yes, I have appeared before State regulatory commissions on matters pertaining to power resource development. In addition, I have participated as an expert witness in proceedings before the Federal Power Commission and before the Atomic Energy Commission.

I appeared before the FPC in its Docket E-7278 as an expert witness for the Missouri Basin Municipal Power Agency and the Village of Elbow Lake in the proceeding against the Otter Tail Power Company, where Elbow Lake sought an electrical interconnection with Otter Tail. In that particular proceeding, I developed testimony and was examined on matters relating to appropriate terms for interconnection and interconnected operation between Elbow Lake and Otter Tail Power.

I have also appeared before the FPC in its Docket E-7740 on behalf of Richmond Power and Light, a municipally owned utility in Richmond, Indiana, which has intervened in opposition to the filed application for an increase in wholesale power rates by the Indiana-Michigan Electric Company. My testimony and examination pertained to interconnected operations designed to permit more effective utilization of Richmond Power and Light's existing generation. In this particular case, I outlined principles for reserve sharing between Richmond Power and Light and the American Electric Power System and made an analysis of the economic effect of the application of such reserve sharing principles.

I appeared before the FPC in its Docket E-7704, et al. on behalf of the Kentucky-Indiana Municipal Power Association and on behalf of the City of Frankfort, Kentucky, in their respective intervention in several dockets involving, among other matters, the filing of the Kentucky-Indiana Power Pool (KIP) Agreement. The nature and purpose of these intervenors' case before the FPC involves coordinated power

supply development and interconnected operations of the KIP Pool and the admission policies of the pool. In this particular case, I proffered testimony and was examined on matters pertaining to the methods in which a small electric utility or a group of small utilities might coordinate their respective power supply operations with members of an existing power pool.

I have appeared before the AEC in its Dockets Nos. 50-329A and 50-330A in the matter pertaining to Consumers Power Company's Midland Plant Units 1 and 2, and in Docket Nos. 50-348A and 50-364A in matters pertaining to Alabama Power Company's Farley Units. I appeared in that proceeding on behalf of the Department of Justice for the principal purpose of outlining generally accepted principles of coordinated power supply development and coordinated power supply operations among utilities.

Q. On whose behalf do you appear in this proceeding?

A. I am offering this testimony on behalf of the City of Cleveland.

Q. Would you explain the nature of the assignment received by your firm from the City of Cleveland.

A. My firm has been providing consulting engineering services of a specified nature to the Division of Light and Power of the Department of Public Utilities of the City of Cleveland since May of 1973. Generally speaking, the assignments have been associated with matters concerning the Division's electric power supply, either generation or interconnections to the Cleveland Electric Illuminating Company.

Q. What is the scope of your testimony in this proceeding?

A. I intend to describe the Division's present mode of bulk power supply and discuss in general terms, without quantitive example, what is required by the Division in its relationship with the Cleveland Electric Illuminating Company to gain access to regional power exchanges where various forms of bulk power exchanges are available to utilities and access occurs to ownership in power generating facilities displaying the highest level of technology and the best characteristics of economies of scale.

Q. First, would you describe the nature of the Division's power supply operations?

A. The Division has installed generating facilities with an aggregate nominal generating capacity of 205,000 kilowatts although the reported net capability demonstrated to date is 180,000 kilowatts. The generating capacity consists of three steam electric generating units each rated 25,000 kilowatts net capability, one 85,000 kilowatt steam electric generating unit with demonstrated maximum net capability of 60,000 kilowatts, and three dual-fuel (gas and oil) combustion turbine generating units each rated 16,500 kilowatts but with a demonstrated maximum net capability each of 15,000 kilowatts. The Division's electric system is temporarily interconnected with the electric system of CEI at a 100,000 kva and 138 kv substation owned by the City and connected at the end of a 1.6 mile 138 kv transmission circuit from CEI's Lake Shore Station located within the City of Cleveland.

The Division presently operates its generating units at whatever loading levels are mechanically possible so as to keep the amount of energy received by the Division over the 138 kv interconnection with CEI at an absolute minimum.

Q. Is the demonstrated net of their generating units sufficient to meet the peak load of the Division?

A. Yes. The Division's greatest measured peak load prior to completion of the 138 kv interconnection was 123,000 kilowatts, occurring in September, 1973, which is less than the demonstrated net capability of the aggregate of the Division's generating units. However, if allowance is made for capacity reserves, which in the Division's case at that time was an amount equal to the capacity of the Division's largest single generating unit, the assured net demonstrated aggregate capacity was less than the experienced peak load.

Q. How was the Division able to avert power outages in September, 1973, if its assured net demonstrated aggregate capacity was less than the Division's peak load?

A. At that particular time, the Division had their largest unit available for service and did not incur a forced outage which gave the Division sufficient generating capacity synchronized to the system to meet the load.

Q. What would have happened had the Division experienced a forced outage of the 60,000 kilowatt generating unit at the time the Division's measured peak load was at or near 127,000 kilowatts?

A. Some or all of the electric customers of the Division would have experienced an outage while the Division and CEI made arrangements to transfer a fraction of the Division's electric distribution system over to the CEI electric system to secure emergency service, thus making the amount of load remaining on the Division's electric system equal to or less than the capability of the generating units synchronized to the system.

Q. You previously described an interconnection between the electric systems of the Division and CEI. How long has this been in existence?

A. Since May 4, 1975.

Q. What existed prior to that date which would cause an outage to electric customers of the Division for the Division to receive emergency service from CEI?

A. Prior to the existence of the temporary 138 kv synchronous interconnection between the electric systems of the Division and CEI, emergency service was afforded to the Division by two means. The first, perfected in February, 1970, was an arrangement where segments of the Division's low voltage distribution system would be physically disconnected from the Division's electric system and reconnected to CEI's electric system. These disconnects and reconnects occurred at locations commonly referred to as the "load transfer points" on the Division's electric system and caused the customers of the Division to suffer an interruption of electric service while the disconnect-reconnect process was accomplished. They suffered a similar interruption when the transfer back to

the Division's electric system occurred. A second emergency type interconnection other than the load transfer points, perfected in September, 1972, was a 69 kv non-synchronous tie between the transmission systems of the Division and CEI which required segregation of an even larger segment of the Division's electric system be interrupted of electric service to permit the Division to recover emergency service from CEI. A similar interruption of electric service was incurred to transfer the segment of the Division's system back to the Division upon alleviation of the emergency.

Q. Would you describe the present electric interconnection and emergency service relationship between the Division and CEI?

A. As I previously testified, the electric systems of the Division and CEI are temporarily synchronously interconnected at 138 kv through a 100,000 kv and 138/64 kv substation owned by the City. An interconnection agreement dated April 17, 1975, provides that the Division may receive emergency service up to the amount available from CEI but not in excess of the capacity of the interconnection. Thus, when the Division experiences an outage of one or more of its generating units and is unable to meet the bulk power requirements of its electric customers, it requests and receives emergency service from CEI over the temporary 138 kv synchronous interconnection without interruption of service to retail customers of the Division.

Q. What would happen if the emergency service requirements of the Division were to exceed the capacity of the temporary 138 kv

synchronous interconnection or exceed the amount of emergency service which CEI could supply at its Lake Shore Station.

A. The Division would again be faced with interruption of service to some of its customers while a segment of its electric distribution system would be disconnected and reconnected to the electric system of CEI.

Q. How important is adequate emergency service to the Division from CEI?

A. Very important, in terms of reliability of service to the Division's electric customers and in terms of retaining existing customers and gaining additional ones. The Division's outage record increased by the dead bus transfer of segments of its system during emergencies has been generally detrimental to the Division's ability to retain existing customers and attract new ones.

Q. Is the importance of emergency service in the Division greater than you customarily find in the industry?

A. Yes, to a substantial degree.

Q. What in your opinion is the cause of this greater necessity for adequate emergency service by the Division?

A. The fundamental reason is the poor condition of the generating facilities of the Division caused presumably by inadequate routine maintenance and repair of the equipment which is normally practiced by electric utilities throughout the industry.

Q. Do you see any particular reason from an engineering viewpoint why the Division would have maintenance and repair practices different than normally found in the industry?

A. Yes. Prior to the completion of the temporary 138 kv synchronous interconnection, the Division would have been reluctant to remove generating units from service for maintenance or repair during off-peak periods when maintenance is rountinely scheduled because to do so would require a dead bus transfer should forced outage of a remaining unit occur during the maintenance period or should removal of a particular unit result in the capacity of the remaining units be less than the expected maximum load during the scheduled outage. Thus generating equipment went for long periods without routine maintenance and repair resulting in a general detoriation of equipment and reduction in reliability performance to levels substantially below facilities of comparable size and characteristics in the industry dependant upon self generation which demonstrates such disrepair of its generating equipment and therefore places so much dependence upon its interconnections for emergency service.

Q. In your opinion, could this situation have been avoided?

A. Yes. Had the Division been granted a synchronous interconnection with CEI at the time it began discussing an interconnection in the fall of 1962 and had routine coordination of scheduled outages of generating units for maintenance been established between the Division and CEI as is practiced usually by interconnected utilities, the

Division could have kept its generating equipment in good repair without fear of interruption of electric service to its customers.

Q. What are the economic consequences to an electric utility of the electrical interconnection and emergency service arrangement which now exist between the Division and CEI?

A. With the Division taking virtually its total requirements over the interconnection as emergency service under the tariff for emergency serivce provided by CEI to the Division, the Division is charged for emergency energy supplied on the basis of the highest incremental cost incurred each hour to produce electric energy plus 10 percent At the same time, the Division continues to incur the City's cost of ownership of the generating facilities and the fixed operating costs associated with the personnal to operate and maintain the facilities which are now in such disrepair as to be unable to produce energy. The economic results is that the Division is incurring hourly variable cost equal to the highest hourly incremental costs of CEI and total average cost of service far in excess of CEI's average costs. These costs are in excess of the revenues derived by the Division from its electric rates, which rates are expected to be competitive with those of CEI. The economic consequence is the same as any business enterprise whose costs exceed the price which the public has a choice to bear.

Q. What is the logical engineering solution to the Division's dilemma of poor repair and reliability of internal generation, virtual total dependance upon the temporary 138 kv synchronous interconnection

and hourly incremental pricing of emergency interchange service from CEI.

A. The Division must seek to lower the price of replacement energy while it proceeds with a logical program to rehabilitate its existing generating equipment and must obtain through coordinated development with other utilities, power supply from the largest, most modern resources available to other utilities in the region.

Q. Are you generally familar with the competitive situation between the Division and CEI with respect to existing and potential future retail electric customer in the Cleveland area?

A. Yes, I am generally familar with the competitive position of the Division with respect to retaining its existing customers and attracting new ones. If the Division does not gain access to lower cost replacement energy permitting it to begin a generating equipment rehabilitation program, its short run costs of power supply will be higher than that supportable by the competitive level of retail rates in the area. If the Division does not obtain access to other forms of bulk power supply including but not limited to partial requirements purchase of firm power from CEI or other bulk power supplies, joint ownership of generating resources with or without power purchases from CEI or other bulk power supplies and other forms of power interchange, the Division's long run cost of power supply will be higher than supportable by the competitive retail rates in the area.

Q. Have you undertaken studies of future power supply for the Division?

A. In a general way, primarily to ascertain whether or not nuclear capacity could be expected to be beneficial to the Division. My firm also analyzed the cost of power supply for a short run period during which the Divisions' internal generation was scheduled for repair and rehabilitation.

Q. If you were authorized to undertake specific studies to ascertain the Divisions mode of future power supply, what would be the approach employed?

A. The first prerequisite to such a study would be an understanding with regard to the possible future relationship between the Division and CEI. For the studies, and therefore the results to be meaningful at all in todays power supply economy, some or all of the principles of coordinated development and coordinated operations as engaged in by virtually all of the large utilities in the industry, would have to be embodied in the understanding between the Division and CEI.

Q. You have used the terms "coordinated operations" and "coordinated development". Would you explain them as they apply to bulk power supply?

A. The leading companies in the electric utility industry recognized long ago that reliability and economies of bulk power supply could best be achieved through coordination. Early in the development of the electric industry, limited coordination was of course required

when two utilities established synchronous interconnection between their electric systems. That simple form of coordination has been expanded in scope and complexity to encompass the regional power pools which exist today throughout the industry. Some of the coordination is achieved through a corporate relationship such as with the member companies of the American Electric Power Corporation and some coordination is achieved through contractual relationship such as with the members of CAPCO.

Coordinated operations depict the hour by hour, day by day and to some extent seasonal operations between utilities who are synchronously interconnected and operating their respective electric systems in a manner to cause more than a casual interchange of power and energy to occur. Forms of coordinated operations found in interchange or power pooling agreements among utilities and which would be of importance in the understanding between the Division and CEI in perfection of a suitable bulk power supply program for the Division are:

(a) Reserve sharing and mutual emergency support.

(b) Emergency energy interchange.

(c) Maintenance scheduling and maintenance power interchange.

(d) Transmission service.

(e) Short-term power and energy interchange.

(f) Spinning reserve interchange.

(g) Diversity interchange (time zone).

(h) Economy interchange including peaking power service.

Coordinated development depicts the types of relationship between two or more utilities which are designed to cause the most economic method of expansion of power generation and transmission facilities by and among such utilities consistent with a proper balance of fuel types and reliability standards. Forms of coordinated development found in the industry and of interest to the Division in perfection of a suitable bulk power supply program are:

(a) Generating unit participation.

(i) Common ownership

(ii) Unit power purchase

(b) Transmission participation.

(c) Transmission system interconnection and expansion.

(d) Staggered construction of generating units accomplished through planned exchanges of surplus power.

(e) Diversity power interchange (seasonal).

(f) Firm power sales.

Q. Could the Division expect to develop a bulk power supply program without the forms of coordination you have previously identified?

A. It would be physically possible for the Division to perfect a bulk power supply program absent the aforelisted items of coordination contemplating that new generating equipment would be sited, sized and scheduled in accordance with Division's requirements only. However, in view of the present magnitude of the Division loads such a bulk power supply plan is predictably higher in cost and

therefore economically infeasible in comparison to a plan or plans involving coordination. This infeasibility would be due in part to the substantial amount of reserve capacity required by the Division to protect against loss of load caused by scheduled or forced outage of generating capacity. Also, such an independent plan would deny the Division access to the full benefits of scale which are inherent in large base load steam electric generating stations, including the size of nuclear power plants which is the topic of these proceedings.

Q. You have listed transmission as being an item of coordinated operations and coordinated development. Would you explain?

A. The transmission noted under coordinated operations is the type existing between two utilities where a leap-frog interchange of a short term nature, either daily, monthly or seasonally, with a third utility is desirable for reliability purposes, economic purposes or both. This type of transmission service is usually on an if-and-when capacity available commitment without specific transmission facilities constructed except those which permit the interconnections in the first place. Compensation for the service can be either in kind, energy losses, or monetary through specially designed rates. The transmission noted under coordinated development is the type where one utility will agree to transmit specific blocks of power across its system, or over specific facilities for a longer period of time ranging from a season to several years when necessary. This type of transmission service is usually associated with a form of coordinated

development of power supply resources and usually requires the construction or dedication of specific facilities. Compensation for this type of transmission can be in the form of contribution of transmission facilities, contribution of construction capital, or a rate reflecting the supplying utility's long run costs of providing the service.

Q. Would such transmission arrangements between the Division and CEI be important to the Division?

A. Yes. Both types of transmission arrangements are essential if the Division is to achieve access to regional power exchanges.

Q. Could the Division expect to construct its own transmission lines to effect interconnection with power supply utilities other than CEI so as to obviate the need for the transmission relationship you describe as being essential for the Division?

A. No. An interconnection can be considered feasible if the benefits derived from such interconnection are equal to or greater than the cost of perfecting the interconnection. In the case of the Division, its electric system is surrounded on three sides by the highly urbanized part of the City and on the north by Lake Erie. In my judgment, the magnitude of the interchanges which could be of benefit to the Division would not be sufficient to justify the cost of the facilities.

Q. Are you aware of any opportunities which exist or have existed when the Division could have benefitted by a transmission arrangement with CEI?

A. Yes.

Q. Would you identify them?

A. The Division has engaged in discussion with the Power Authority of the State of New York to acquire an allocation of firm hydro power. The Division has also discussed purchasing seasonal power from Buckeye, Inc., a power supply entity serving the cooperatives in Ohio. The Division has also been approached by the City of Richmond, Indiana, concerning short term interchanges. While I have not analyzed the specific interchange propositions, they certainly appeared on the surface to be of benefit to the Division in comparison to the prices it sometimes pays for emergency energy from CEI.

Q. If the Division were to completely rehabilitate one of its own local generating facilities, would that eliminate its need for coordinated operations and development?

A. No. If the Division could establish its generating equipment as normally reliable, it would need such features of coordinated operations as reserve sharing, emergency interchange, and scheduled maintenance outage power in order to insure reliability of electric service and economies of bulk power supply. With these benefits of coordinated operation associated with the Division's existing power supply resources, I would then predict a growth in power supply requirements like other utilities experience which would create the need for coordinated development to give the Division access to the best technologies in the industry.

Q. Could the Division expect to construct its own nuclear generating station?

A. No, principally because of its size and the least size nuclear units now considered to be economically feasible.

Q. In your opinion is it necessary for the Division to obtain direct access to nuclear energy?

A. Yes. Because nuclear capacity represents an important energy resource. To be denied access just because the Division is too small to justify independent development of such a facility would force the Division to use resources of less desirability.

Q. Are you familiar with the Policy Commitments of CEI dated May 22, 1974?

A. Yes.

Q. Do you consider the Commitments to be within your requirements for arrangements between the Division and CEI for coordinated operation and coordinated development?

A. No. They fail in one major respect, namely, transmission.

Q. Have you prepared an exhibit setting forth those forms of access and coordination which you feel would be satisfactory in an arrangement between the Division and CEI?

A. Yes, I have prepared Exhibit No. ____ (WRM-1) which sets forth these matters in terms of proposed license conditions for the Perry and Davis-Besse plants.

LICENSE CONDITIONS FOR DAVIS-BESSE NUCLEAR POWER STATION, PERRY NUCLEAR POWER PLANT, UNITS 1 AND 2, AND BEAVER VALLEY POWER STATION, UNIT 2.

DEFINITIONS

1. "Company" means severally and jointly, the Cleveland Electric Illuminating Company, the Toledo Edison Company, Duquesne Light Company, Ohio Edison Company and Pennsylvania Power Company and each subsidiary, affiliate or successor company engaged in the generation, transmission and/or the distribution of electric power in the States of Ohio and Pennsylvania.

2. "Bulk Power" means the electric power and attendant energy supplied or made available at transmission or subtransmission voltage.

3. "Costs" means all appropriate operating and maintenance expenses and all ownership costs where applicable.

4. "Entity" means a person, a private or public corporation, a governmental agency or authority, a municipality, a cooperative or an association owning or operating or proposing in good faith to own or operate facilities for generation, transmission and/or distribution of electric power and energy.

5. "CAPCO" means Central Area Power Coordinating Group or its members.

POLICY COMMITMENTS

1. The Company shall afford to the City of Cleveland participation in Davis-Besse Nuclear Power Station through ownership or the purchase of unit power in the amount of 55,000 Kw.

2. The Company shall afford to the City of Cleveland participation in Beaver Valley Power Station, Unit 2, through ownership or the purchase of unit power in the amount of 26,600 Kw.

3. The Company shall afford to the City of Cleveland participation in Perry Nuclear Power Plant, Units 1 and 2, through ownership or the purchase of unit power in the amount of 30,100 Kw in each unit.

4. In connection with the City of Cleveland's participation in Davis-Besse, Beaver Valley and Perry units, the Company also will interconnect with and provide the necessary transmission services required for delivery of the power and energy from such units to the City of Cleveland at a point or points on the Company's transmission system to which the City of Cleveland is interconnected, on a basis that will fully compensate the Company for its costs, including a reasonable return on investment in connection therewith.

5. The Company shall afford to any entity(ies) in Company's service area(s) opportunity to participate in any of CAPCO's future generating plants or units through ownership or the purchase of unit power on reasonable terms

and conditions and on a basis that will be fully compensatory for the costs involved in the construction and operation of the plant or units. In connection with such participation, the Company also will interconnect with and provide transmission service as may be required for delivery of such power and energy to such entity(ies) at a point or points on the Company's electric system(s) on a basis that will fully compensate it for its costs, including a reasonable return on investment in connection therewith.

6. The Company will interconnect and enter into an arrangement for equalized reserves between the Company and any entity(ies) on terms which cause the Company and the entity(ies) to maintain, or acquire if necessary, equal percentage capacity reserves as such reserves relate to the parties' annual peak load. To the extent that capacity reserves are acquired by the entity(ies) from the Company to satisfy the equalized reserve arrangement of the entity(ies), such sale by the Company will be made, only if available and on terms that will provide for the Company's costs, including a reasonable return on investment in connection therewith.

7. Emergency service and/or scheduled maintenance service to be provided by each party as a part of an equalized reserve arrangement shall be furnished to the fullest extent available from the supplying party and desired by the party in need. The Company and each entity(ies) shall

provide to the other emergency service and/or scheduled maintenance service if and when available to the extent they can do so without impairing service to their customers, including other electric systems to whom they have firm commitments. Sharing of reserves during a period of emergency or scheduled maintenance outage will be accomplished through the sale and purchase of emergency and/or scheduled maintenance energy at incremental cost of production plus a nominal allowance for handling the transaction.

8. The Company and the entity(ies) to an equalized reserve sharing arrangement shall establish the daily minimum operating reserves to be maintained by the parties and the Company and entity(ies) will share such daily operating reserves on an equalized percentage basis. The level of daily minimum operating reserves shall be determined in accordance with ECAR Document #2 - "Daily Operating Reserves," or whichever criteria are being practiced at the time by the Company and other utilities in the area. Such daily minimum operating reserve requirements can be satisfied by the parties through purchase of operating reserves.

9. Interconnections will not be limited to low voltages when higher voltages are available from the Company's installed facilities in the area where interconnection is desired, when the proposed arrangement is found to be technically and economically feasible. Control and telemetering facilities

shall be provided as required for safe and prudent operation of the interconnected systems.

10. Interconnection and coordination agreements shall not embody any restrictive provisions pertaining to intersystem coordination. Good industry practice as developed in the area from time to time (if not unreasonably restrictive) will satisfy this provision.

11. The Company shall provide transmission services to facilitate the exchange of bulk power by transmission over its transmission facilities between or among two or more entity(ies) with which it is interconnected, and between any such entity(ies) and such other entity(ies) whose facilities the Company's transmission lines and other transmission lines would form a continuous electrical path, provided that (a) permission to utilize such other transmission lines has been obtained by the proponent of the arrangement, and (b) the arrangements reasonably can be accommodated from a functional and technical standpoint. Such transmission shall be on terms that fully compensate the Company for its costs, including a reasonable return on investment. Each request for such transmission shall include reasonable advance notice of the scheduling and requirements. The Company shall not be required to enter into any arrangement which would impair system reliability or emergency transmission capacity, it being recognized that while some transmission may be operated fully loaded, other transmission may be for emergency use and operated

either unloaded or partially loaded. (The foregoing applies to any entity(ies) to which the Company may be interconnected in the future as well as those to which they are now interconnected).

12. The Company shall include in its planning and construction programs sufficient transmission capacity as required for the transactions referred to in paragraph 11, provided the Company is given sufficient advance notice to accommodate the requirements from a functional and technical standpoint and that the Company shall be fully compensated for its costs, including a reasonable return on investment. The Company shall not be required to construct transmission facilities in paragraph 11 if it finds construction of such facilities infeasible, or if it finds such would impair system reliability or emergency transmission capacity.

13. The Company will enter into arrangements with entity(ies) for the sale of firm power and energy to meet all or a portion of such entity(ies) power requirements at rates which will compensate the Company for its costs, including a reasonable return.

CERTIFICATE OF SERVICE

I hereby certify that service of the foregoing Testimony Of William R. Mayben, has been made on the following parties listed on the attachment hereto this 17th day of October, 1975, by depositing copies thereof in the United States mail, first class or air mail, postage prepaid.

David C. Hjelmfelt

David C. Hjelmfelt

Attachment

ATTACHMENT

Douglas V. Rigler, Esq., Chairman
Atomic Safety and Licensing Board Panel
Foley, Lardner, Hollabaugh and Jacobs
815 Connecticut Avenue, N. W.
Washington, D. C. 20006

Alan S. Rosenthal, Chairman
Atomic Safety and Licensing Appeals Board
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dr. John H. Buck
Dr. Lawrence K. Quarles
Atomic Safety and Licensing Appeals Board
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Howard K. Shapar, Esq.
Executive Legal Director
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Mr. Frank W. Karas, Chief
Public Proceedings Branch
Office of the Secretary
U. S. Nuclear Regulatory Commission
Washington, D. C. 205[illegible]

Abraham Braitman, Esq.
Office of Antitrust and Indemnity
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Frank R. Clokey, Esq.
Special Assistant Attorney General
Towne House Apartments, Room 219
Harrisburg, Pennsylvania 17105

Edward A. Matto, Esq.
Assistant Attorney General
Chief, Antitrust Section
30 East Broad Street, 15th floor
Columbus, Ohio 43215

Christopher R. Schraff, Esq.
Assistant Attorney General
Environmental Law Section
361 East Broad Street, 8th floor
Columbus, Ohio 43215

Ivan W. Smith, Esq.
John M. Frysiak, Esq.
Atomic Safety and Licensing Board Panel
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Richard S. Salzman, Chairman
Atomic Safety and Licensing Appeals Board
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Michael C. Farrar
Dr. W. Reed Johnson
Atomic Safety and Licensing Appeals Board
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Andrew F. Popper, Esq.
Office of the Executive Legal Director
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Benjamin H. Vogler, Esq.
Joseph Rutberg, Esq.
Robert J. Verdisco, Esq.
Roy P. Lessy, Jr., Esq.
Office of the General Counsel
Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Melvin C. Berger, Esq.
Joseph J. Saunders, Esq.
Steven M. Charno, Esq.
David A. Leckie, Esq.
Janet R. Urban, Esq.
Ruth Greenspan Bell, Esq.
Antitrust Division
Department of Justice
Post Office Box 7513
Washington, D. C. 20044

Karen H. Adkins, Esq.
Richard M. Firestone, Esq.
Assistant Attorneys General
Antitrust Section
30 East Broad Street, 15th floor
Columbus, Ohio 43215

ATTACHMENT (Continued)

John R. White, Esq.
Thomas A. Kayuha, Esq.
Ohio Edison Company
47 North Main Street
Akron, Ohio 44308

John Lansdale, Jr., Esq.
Cox, Langford & Brown
21 Dupont Circle, N. W.
Washington, D. C. 20036

Lee C. Howely, Esq.
Vice President and General Counsel
The Cleveland Electric Illuminating Co.
Post Office Box 5000
Cleveland, Ohio 44101

Gerald Charnoff, Esq.
Wm. Bradford Reynolds, Esq.
Shaw, Pittman, Potts & Trowbridge
910 Seventeenth Street, N. W.
Washington, D. C. 20006

David McNeill Olds, Esq.
John McN. Cramer, Esq.
William S. Lerach, Esq.
Reed, Smith, Shaw & McClay
Post Office Box 2009
Pittsburgh, Pennsylvania 15230

Terrence H. Benbow, Esq.
Winthrop, Stimson, Putnam & Roberts
40 Wall Street
New York, New York 10005

Jon T. Brown, Esq.
Duncan, Brown, Weinberg & Palmer
Suite 777
1700 Pennsylvania Avenue, N. W.
Washington, D. C. 20006

Leslie Henry, Esq.
Michael M. Briley, Esq.
Roger P. Klee, Esq.
Fuller, Henry, Hodge & Snyder
300 Madison Avenue
Toledo, Ohio 43604

Pennsylvania Power Company
1 East Washington Street
New Castle, Pennsylvania 16103

Donald H. Hauser, Esq.
Corporate Solicitor
The Cleveland Electric Illuminatong Co.
Post Office Box 5000
Cleveland, Ohio 44101

Thomas J. Munsch, Jr., Esq.
General Attorney
Duquesne Light Company
435 Sixth Avenue
Pittsburgh, Pennsylvania 15219

Joseph Rieser, Esq.
Reed, Smith, Shaw & McClay
Suite 440
1155 Fifteenth Street, N. W.
Washington, D. C. 20005

John C. Engle, President
AMP-O, Inc.
Municipal Building
20 High Street
Hamilton, Ohio 45012