

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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USNRC

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OFFICE OF SECRETARY
DOCKETING & SERVICE
BRANCH

In the Matter of)

CONSOLIDATED EDISON COMPANY)
OF NEW YORK (Indian Point, Unit 2))

POWER AUTHORITY OF THE STATE OF)
NEW YORK (Indian Point, Unit 3))

Docket Nos. 50-247-SP
50-286-SP

November 3, 1982

RESPONSE OF GNYCE TO NRC STAFF
INTERROGATORIES AND DOCUMENT
REQUESTS REGARDING QUESTION 6

GNYCE herein responds to NRC Staff interrogatories, dated May 26, 1982, which were received by GNYCE on October 15, 1982, an earlier mailing apparently having been lost in the mails. GNYCE has already supplied one document, The Potential for Cogeneration in New York City, in response to an informal discovery request by NRC Staff Counsel, Henry McGurren, in the spring.

Interrogatory 1

Identify all documentary or other material that you intend to use during this proceeding to support Contention 6.3 and that you may offer as exhibits on these contentions or refer to during your cross-examination of witnesses presented by Consolidated Edison Company of New York, Inc., Power Authority of The State of New York, or the NRC Staff.

Response:

GNYCE will use a report currently being prepared by Energy Systems Research Group, Inc. (ESRG) on the economic impact of an early shutdown of the Indian Point plants, and testimony prepared by Dan Anderson on the economics of accepting the liability of operating the Indian Point plants.

Interrogatory 2

a) Upon what person or persons do you rely to substantiate in whole or in part your case on Contention 6.3?

b) Provide the address and education and professional qualifications of any persons named in your response to 2a. above.

c) Identify which of the above persons or any other persons you may call as witnesses on Contention 6.3.

Response:

a):

GNYCE will rely on various members of ESRG and Dan R. Anderson.

b):

The address of ESRG is 120 Milk St., Boston, Mass. 02109. The address of Dan R. Anderson is, School of Business, University of Wisconsin, Madison, Wisconsin 53706.

Professional qualifications of these individuals are as follows. The list of ESRG members is tentative.

Energy Systems Research Group's Senior Research Staff

STEPHEN S. BERNOW
(Ph.D., Columbia University;
Experimental Physics)

An energy systems analyst, Bernow has extensive experience in modelling district heating, cogeneration and other energy supply technologies, electric utility operations and planning, and energy demand-supply interactions. Educated as an electrical engineer and physicist, Bernow served on the faculties of Rutgers University and the State University of New York at Albany before joining ESRG. He has published in the areas of nuclear physics and the social dimensions of science and technology. Bernow is Vice-President of ESRG.

PAUL D. RASKIN
(Ph.D., Columbia University;
Theoretical Physics)

Raskin is the President of Energy Systems Research Group. He has taken lead responsibility for developing ESRG's Electric Demand Forecasting Model, and has directed studies in the areas of industrial energy conservation, and energy policies and programs. Prior to joining ESRG, Raskin taught at the City University of New York and at the State University of New York at Albany (where he was faculty chairman of an interdisciplinary program). He has written on the social dimensions of science as well as on problems in theoretical physics.

RICHARD A. ROSEN
(Ph.D., Columbia University
Theoretical Physics)

Rosen has specialized in industrial process energy use and in modelling electric utility production costing and generation expansion programs. He has also studied such related areas as cogeneration and industrial energy conservation and has developed ESRC's Demand Curtailment Model. Before joining Energy Systems Research Group, Rosen engaged in modelling work at NASA's Goddard Institute for Space Studies, and was a staff scientist at the National Center for the Analysis of Energy Systems of Brookhaven National Laboratory. He is Executive Vice-President of ESRC.

ESRC Staff Associates

THOMAS D. AUSTIN
Ph.D. (M.S., Clark University;
Economics)

A specialist in electricity supply modelling, Austin has assisted in the development and application of ESRC's Electric Systems Generation Expansion Model. He has also been engaged in the development of production costing and cost-of-service models for utility systems. Prior to joining ESRC, Austin researched the impact of rate-of-return regulation on utility planning decisions.

DAN R. ANDERSON

Professor & Chairman

of

Risk Management and Insurance Department

School of Business

University of Wisconsin

Madison, Wisconsin

I. PERSONAL INFORMATION

Office: 195 Bascom Hall Phone: (608) 263-5717

Home: 1915 Adams Street Phone: (608) 256-5847
Madison, Wisconsin
53711

Birthdate: December 14, 1942
Birthplace: Rockford, Illinois
Wife: Kathleen Holt Anderson
Children: Robin Shepard Anderson
Kristin Holt Anderson

II. EDUCATIONAL BACKGROUND

<u>School Attended</u>	<u>Major</u>	<u>Degree</u>	<u>Year Granted</u>
DeKalb Senior High School DeKalb, Illinois	College Prep	Diploma	1961
Yale University New Haven, Connecticut	American Studies	B. A.	1965
University of Wisconsin Madison, Wisconsin	Risk and Insurance	M.B.A.	1967
University of Wisconsin Madison, Wisconsin	Risk and Insurance	Ph.D.	1970
Title of Thesis:	"An Analysis of the Effects of Under- evaluations and Overevaluations in Loss Reserves, Relative to Those of Under- writing Results and Variable Asset Values, Upon Policyholders' Surplus"		

III. TEACHING POSITIONS HELD

University of Wisconsin School of Business

Teaching Assistant (Risk Management & Insurance)	1967-1969
Lecturer (Risk Management & Insurance)	1969-1970
Assistant Professor (Risk Management & Insurance)	1970-1975
Associate Professor (Risk Management & Insurance)	1975-1980
Professor (Risk Management & Insurance)	1980-Present

San Diego State University School of Business Administration

Visiting Associate Professor (Risk Management & Insurance)	1978-1979
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2c.

Any of the above may be presenting testimony as witnesses on contention 6.3, but it has not yet been established as to precisely who.

Interrogatory 3

On page 3 of your April 9, 1982 filing entitled "Augmentation By the GNYCE of the Basis for its First Contention" you identify potential conservation savings of 5.7 billion kWh.

- a. What portion of these savings do you estimate (1) have been achieved to date, and (2) are accounted for in Con Ed's latest official forecast.
- b. For that portion of your estimated conservation savings above and beyond that identified in your response to Interrogatory 3a. provide
 - (1) all underlying assumptions leading to your estimate;
 - (2) the time frame over which you expect these savings to be realized;
 - (3) estimate of savings by consuming sector and by end use;
 - (4) estimate of the economic cost of the conservation effort being projected; and
 - (5) the extent to which government subsidies (e.g., low cost loans and tax incentives) and government mandatory programs are expected to contribute to these conservation savings.

Response:

3a. This electric conservation potential was reported by the City Energy Office in Energy Consumption in New York City based on figures for 1979. Over the past five years, the number of Con Edison's electric customers has increased 0.83%. During the same period, its electric sales have declined 2.37 % while its rates have increased 54%. It is not unreasonable to expect that the 2.86% reduction in per customer consumption is simply a result of short-term price elasticity (i.e., curtailment rather than efficiency improvement), and thus the 5.7 billion kWh, or 20% consumption reduction potential cited by the CEO is probably all still available.

The options for conservation explored in Con Edison's demand projections, as reported in its 1981 and 1982 New York Power Pool reports, are largely mutually exclusive with those cited by the CEO. Con Edison concentrates on load curtailment methods rather than efficiency increases, and technologies that would actually increase electric use inappropriately such as heat pumps and electric vehicles. The only area of overlap we have identified is in the increase in residential appliance efficiencies. Con Edison's forecasts can therefore be expected to include only a fraction of the conservation potential cited by the CEO.

3b. This information is best acquired by reviewing the above City Energy Office report which is available from the New York City Energy Office, Office of Economic Development, 17 John St., New York, N.Y. 10038, (212) 566-4152.

Interrogatory 4

On page 3 of your April 9, 1982 filing, you indicate conservation would save over \$550 million. Provide all underlying assumptions for this estimate and explain its basis. Also, over what time period will these savings occur.

Response: This again was based on the City Energy Office report figure of \$551 million for annual savings at the prevailing price of electricity and the level of conservation cited above.

Interrogatory 5

In your April 9, 1982 finding, you state that conservation will displace 71% of Indian Point generation value. Are you suggesting that these projected conservation savings will displace Indian Point generation? If yes, explain why it would not displace Con Ed's and PASNY's reliance on its marginal cost source of generation, i.e., oil.

Response: The percentage cited is a commensuration for the purpose of comparing energy impacts. See also the response to Interrogatory 8 below.

Interrogatory 6

Provide your basis and assumptions used in concluding in your April 9, 1982 filing, that 1500 MW of gas fired cogeneration capacity could be built within 5 years.

Response: Typical cogeneration system lead times are less than five years. Recent legislation and regulatory rulings (e.g., PURPA, N.Y. State law setting a minimum cogeneration buy-back rate, N.Y.S. PSC ruling on cogeneration rates) serve to clear the remaining institutional roadblocks to highly economical cogeneration facilities. The City should and can easily encourage cogeneration expansion in keeping with market forces. Various estimates of potential cogeneration capacity in New York city have exceeded 1500MW.

Interrogatory 7

Identify environmental impacts and estimate the economic cost associated with this cogeneration effort (1500 MW of gas fired cogeneration capacity).

Response: The inevitable and desirable near-future increases in conservation and gas-fired cogeneration will result in large net reductions in oil combustion for electric and heat loads in New York City. The net environmental impact will be a beneficial reduction in sulfates and particulates.

There will be no "economic cost" associated with the expansion of cogeneration. There will be private and perhaps public investments in cost-effective facilities on the order of \$1.5 billion which will provide high rates of return as a result of reducing dollar exports for fuel from New York's economy. The secondary and higher order effects will also be beneficial to New York's economy and society.

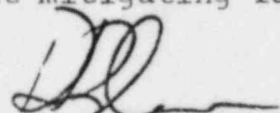
Interrogatory 8

Provide your basis for concluding in your April 9, 1982 filing that savings of \$600 million per year in fuel costs can be realized. Doesn't this assume cogeneration will phase out Con Ed's and PASNY's reliance on oil, and if so, how can this alter the replacement energy cost estimates for Indian Point?

Response: As the Staff implies, the savings from cogeneration are independent of the disposition of Indian Point. However, the availability of energy savings in N.Y.C. is very important, if, as the licensees seem to propose, there is a threshold value for absolute energy cost beyond which lies economic disaster. Even prior to detailed analysis of Indian Point's costs, it is clear that with appropriate mitigating actions no new energy cost threshold need be passed when Indian Point is closed. If a total energy cost threshold is used by the Board to judge the viability of closing Indian Point (if desirable on safety grounds), then any mitigating factors are of importance to the shutdown issue, even if they do not directly impact on the Indian Point plants.

Of course, we believe, based on the errors in the GAO and Rand studies, that a proper economic analysis of the Indian Point plants will show small impacts even without mitigating factors.

Dated: November 12, 1982



Dean R. Corren
Director, GNYCE

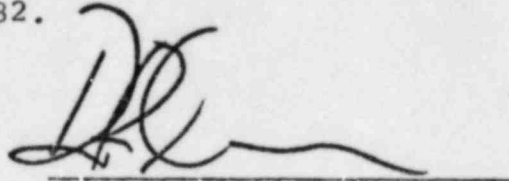
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CERTIFICATE OF SERVICE

I hereby certify that copies of "Response of GYNCE to NRC Staff Interrogatories and Document Requests Regarding Question 6" in the above-captioned proceeding have been served on the official service list by deposit in the United States mail, first class, this 12th day of November, 1982.



Dean R. Corren
Director, GNYCE