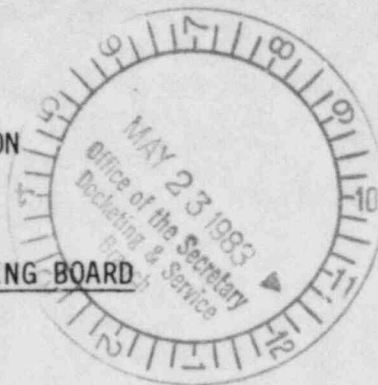


UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD



In the Matter of)

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

Docket Nos. 50-247 SP
50-286 SP

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

May 23, 1983

SUBMISSION BY GREATER NEW YORK COUNCIL ON ENERGY
TO THE UNITED STATES NUCLEAR REGULATORY COMMISSION
REGARDING NRC ORDER OF MAY 5, 1983 AND REQUEST TO
MAKE ORAL PRESENTATION TO THE COMMISSION ON MAY 26

The Greater New York Council on Energy appreciates this opportunity to address the Nuclear Regulatory Commission on the matter of its 5/5/83 order regarding the possible closing of the Indian Point plants, and respectfully requests the opportunity to make an oral presentation in this regard on May 26, 1983. GNYCE is a party to the current ASLB hearing on Indian Point and is lead intervenor on Commission Question 6 with regard to the economic impact of a shutdown of the Indian Point plants.

It has been the clear position of GNYCE, from the start, that the result of the ASLB hearings, or any decision regarding the continued operation of the Indian Point plants, should be made primarily on the basis of plant safety and emergency planning, while economics should be investigated so that regulators and government officials would know all of the ramifications of a proposed action.

As a practical matter, it was clear from the start that ~~economics~~ should play a role in decisions regarding Indian Point's continued operations, and

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GNYCE appreciated the Commission's making it explicit in Question 6 of its January 8, 1981 order establishing the Indian Point ASLB proceeding.

As eventually adopted by the ASLB, our contention (6.3) stated:

Considering the savings in operating expense which would result from shutting down Indian Point Units 2 and 3, and allowing for the ways in which co-generation and conservation can mitigate the costs of replacement power, the net costs of shutdown are small; in fact, they are smaller than previous studies by UCS, GAO, or Rand suggest, and are entirely acceptable.

Studies done by the Rand Corporation and the General Accounting Office generally reinforced the "conventional wisdom" that closing the Indian Point plants would be economically catastrophic. While given much weight by the media, these studies have been thoroughly criticized and were not submitted as testimony by any party to the Indian Point hearings.

GNYCE sought to add testimony to the record which would be on a significantly higher level of rigor and sophistication. It commissioned a study by Energy Systems Research Group, Inc. (ESRG) of Boston, Massachusetts, a widely respected energy economics analysis firm which has performed similar work for various state and municipal governments, the Federal Department of Energy, and the Argonne, Brookhaven, and Los Alamos National Laboratories.

The consideration of cost impacts in the ESRG study is limited to those which have a direct economic effect upon ratepayers. These direct economic impacts do not include such consequences of nuclear plant retirement as, for example, health and safety trade-offs. Indeed, it is important to acknowledge that the two sides of the ledger -- nuclear risk versus nuclear substitution economics -- cannot at this time be cast into a common measure and compared with one another in a noncontroversial social cost/benefit assessment. In defining positions on the plant shutdown issue, quantitative analysis will continue to be supplemented by subjective perceptions and normative judgments on such concerns as the likelihood and impact of nuclear accidents, long-term radioactive waste disposal problems, and nuclear fuel security breaches.

It is possible, however, to systematically evaluate some of the direct cost repercussions of early nuclear plant retirement. Assumptions, methods, and planning scenarios for such cost evaluations can be clearly and consistently treated and documented. Below, we present -- and apply to the case of the Indian Point plants -- a systematic framework for computing the major quantifiable cost effects that would be felt by ratepayers as a result of a decision to shut down a nuclear power plant. This study is intended to offer useful information to decision-making bodies and to the general public as it deliberates on the issue of any direct cost penalties they are willing to bear in order to avoid nuclear risk.

The Indian Point generating station is located some thirty miles north of New York City. At this writing, there are two operating units, 2 and 3. Unit 2 is operated by the Consolidated Edison Company of New York (Con Ed), and unit 3 is operated by the Power Authority of the State of New York (PASNY). Unit 2 is rated at 864 megawatts (thousand kilowatts, or MW); unit 3, at 965 MW.

Study Approach

In this study ESRG has had two principal objectives. First, it has developed a flexible computer-based cost assessment system for estimating the direct impacts of a nuclear plant closing upon ratepayers. Second, it has applied this assessment system to the case of a shutdown of Indian Point unit 2 (IP-2) and Indian Point unit 3 (IP-3) after 1982.

The cost assessment system is designed to simulate the increments in ratepayer costs -- or in utility finance parlance, the increased "required revenues" -- over a planning time frame. The streams of required revenues are disaggregated into the major categories of costs that would be affected by a nuclear plant closing. These include generation of replacement power; the recovery of, and return on, invested capital; nuclear fuel costs; nuclear operations and maintenance; plant decommissioning and radioactive waste disposal; and expenditures on power plant modifications.

There is considerable uncertainty with respect to the future behavior of the variables that influence future costs. Consequently, there is no substitute for developing scenarios comprised of clusters of variable assumptions to establish a range of plausible effects. Important variables included in the scenario analyses are: (1) the composition of make-up generation; (2) plant performance characteristics; (3) nuclear fuel and operation and maintenance (O&M) escalation rates; (4) electric energy conservation levels; and (5) decommissioning and waste disposal costs. Once the scenarios were developed, the Cost Assessment of Nuclear Substitution (CANS) Model was run.

The "ratepayers" with respect to whom this assessment was conducted are those located within the service area of the Consolidated Edison Company of New York. These include, first, the retail customers of Con Ed itself, and second, the downstate customers of PASNY, such as the Metropolitan Transportation Authority, the Triborough Bridge Authority, the New York City Housing Authority, and other public agencies.

Major Findings

Three "early retirement" scenarios for the fifteen-year period 1983-1997 were developed and employed in this study. These are the High Impact scenario, the Low Impact scenario, and the Mid-Range scenario. The High and Low Impact scenarios are comprised of the analysis toward higher or lower cost effects from closing the units. As a group, the assumptions in either of these scenarios would therefore occur only if a set of conditions, each of which may individually be considered improbable, should prevail. Thus, the High Impact scenario assumes no deterioration in plant performance from aging affects, no benefits from reductions in spent fuel and decommissioning costs, no readjustment of import power availability or system fuel mix in the absence of the plants, rapidly escalating make-up fuel costs, and so on. The Low Impact scenario is, by contrast, consistently pessimistic on nuclear plant performance and optimistic on make-up power economics. Each extreme may be considered unlikely. Together they place boundaries on plausible future conditions.

The Mid-Range results are the best estimates of the direct cost effects of early retirement of IP-2 and IP-3.

The results of the analysis for each of the three early retirement scenarios are summarized in Table 1. The results for each scenario are presented in terms of total additional revenues required from ratepayers during the period 1983-1997. The results are also expressed as a percentage increase or decrease from the revenues that would be required assuming continued plant operation during the period.

TABLE 1

REQUIRED REVENUE IMPACT OF INDIAN POINT RETIREMENTS:
SUMMARY RESULTS FOR NEW YORK RATEPAYERS*, 1983-1997

<u>Scenario</u>	<u>Cumulative Total (Millions of 1981 Discounted \$)</u>	<u>Average Percentage Change in Discounted Revenue Requirements</u>
1. High Impact	\$3,656	9.2
2. Mid-Range	746	1.9
3. Low Impact	-1,337	-3.5

The cumulative effect, over the 1983-1997 period, of closing the plants in 1983, is about \$746 million (discounted 1981 dollars) or, on a percentage basis, approximately two percent (see Figure 1). The annual impacts are relatively higher in the early years and then lessen substantially over time, as shown in Figure 2.

Make-up generation costs and nuclear costs are compared in Figure 3 for the most likely mid-range case. This chart clearly shows the net savings from nuclear retirement which occur in later years.

Figure 4 shows the history and future scenarios used for the capacity factors of units 2 and 3. This most important parameter is a measure of how much power the nuclear plants are actually able to produce.

Figures 5 and 6 show breakdowns of the generation mix for the years 1983, 1990, and 1997, with and without Indian Point.

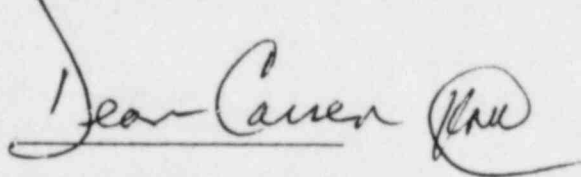
Relative to the Mid-Range average cumulative impact of 1.9 percent, four sensitivity tests were performed to investigate the responsiveness of these results to changes in key variables. First, increasing the length of the time period for analysis (from a final year of 1997 to one of 2000) decreases average impacts to 1.2 percent. Second, delaying the times of retirement from 1983 to 1985 decreases averages impacts 0.8 percent. Third, increasing the assumed discount rate (from 12 to 14 percent) increases the impacts to 2.0 percent. Finally, assuming that capacity factors do not deteriorate over time increases the net impacts to 3.9 percent.

Since the 1982 completion of the study, however, oil prices have fallen and not risen as we had conservatively projected. In fact, in the study we find that by April, 1983, ESRG had overpredicted oil prices by about 17 percent for Con Ed. If only this change were made for 1983 in the oil price assumptions (leaving the price escalation assumptions as they were), the rate impact of early retirement in the Mid-Range case would be reduced from about 2 percent over the next 15 years to about 0.2 percent. Thus we see that this single event has tended to almost completely eliminate any average 15-year impact on ratepayers of closing the Indian Point units now. This economic result, which is quite contrary to utility claims, is extremely important for the NRC, the State, and the public to take into account when deciding on the closing of the Indian Point plants.

, GNYCE believes the results of the ESRG study strongly support the validity of our original contention that the economic impact of closing Indian Point is most likely to be small and manageable. Furthermore, we find that the record in the ASLB hearing, taking into account testimony by the Licensees, the NRC Staff and the Members of the New York City Council, each weighted according to its defensibility under cross-examination, also supports a finding that the economics are manageable. The results of the various testimony centers in the area of a \$3 to \$4 billion (discounted) dollar impact through the end of the century, roughly equivalent to a 5% to 10% increase in required electric revenue for the region. The NRC Staff conclusion, in particular, was \$4 billion, and the Licensees' witnesses, when held to similar more reasonable assumptions regarding nuclear capacity factors, operating and maintenance costs, future oil costs, and electric demand growth, yielded similar results.

While GNYCE believes that a consensual conclusion of \$3 to \$4 billion exaggerates the costs of a shutdown, even this result demonstrates the economic feasibility of closing the plants if safety imperatives so require. The economic impact of closing the Indian Point plants cannot be construed as a "compelling reason" for continued operation while emergency planning and preparedness requirements are not satisfied.

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "Dean Corren", followed by a circular flourish or monogram.

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FIG.1 INDIAN POINT 2&3 1983 RETIREMENT

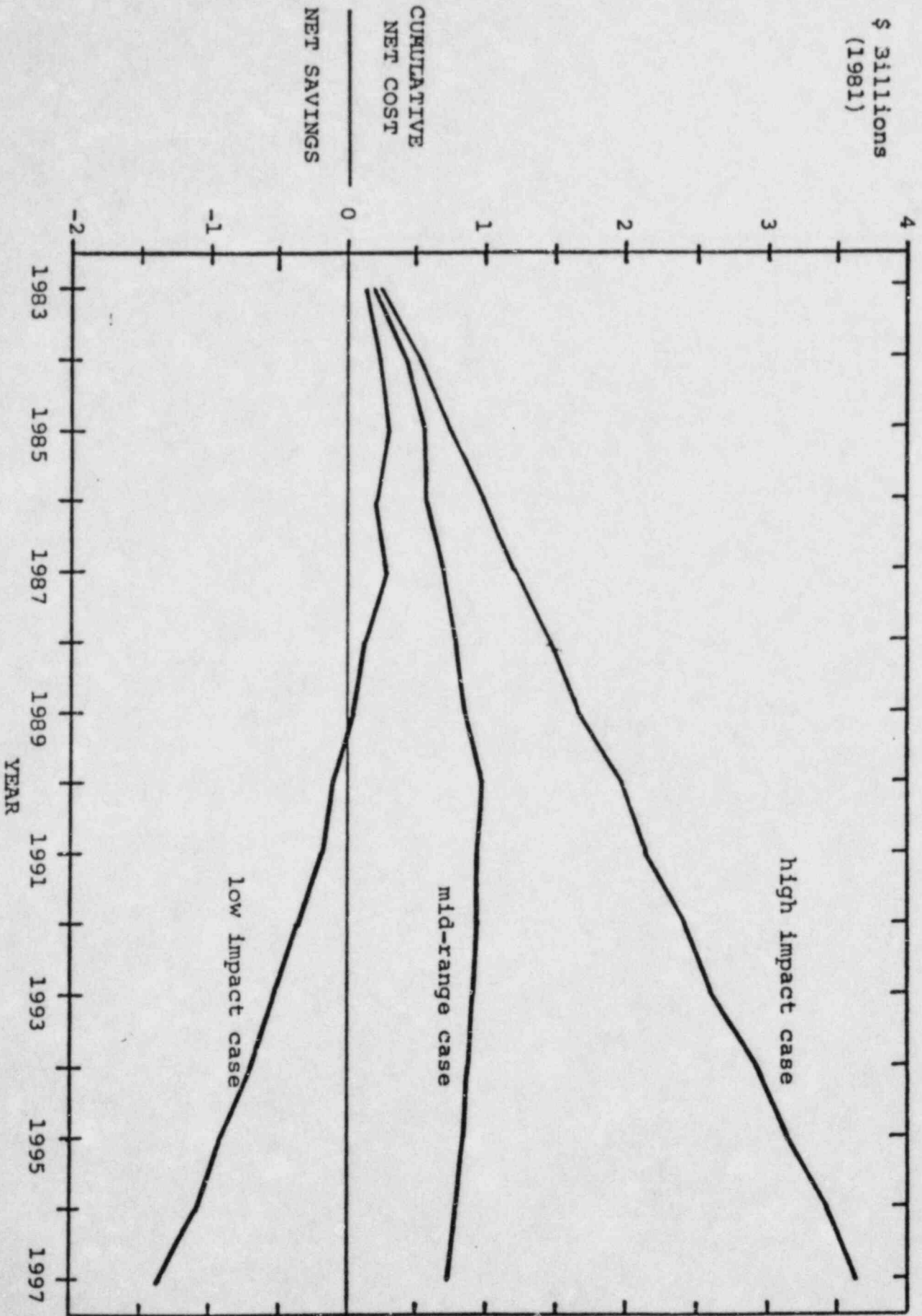


FIG. 2 INDIAN POINT 2&3 1983 RETIREMENT

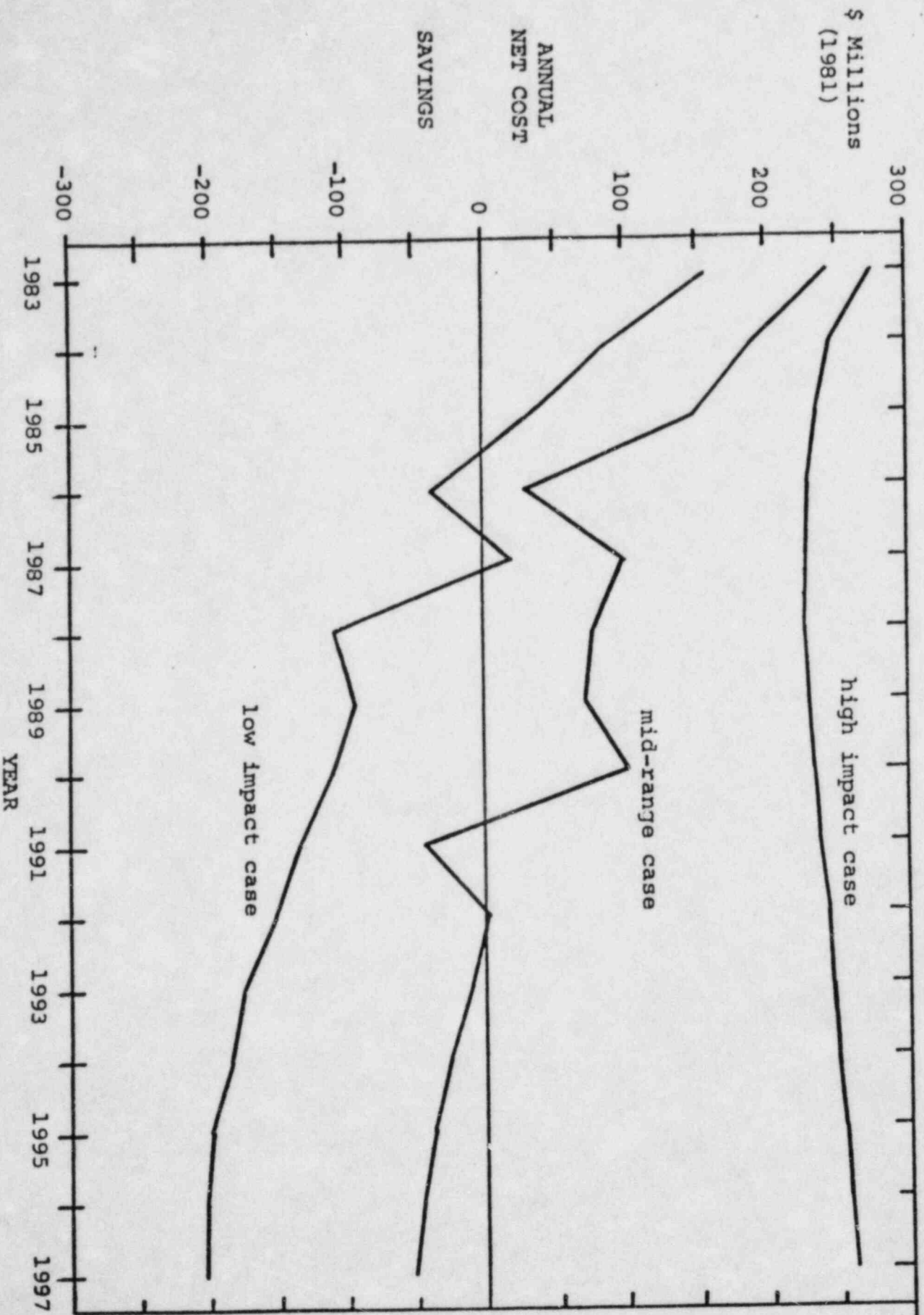


FIG.3 INDIAN POINT 2&3 RETIREMENT MID-RANGE IMPACT

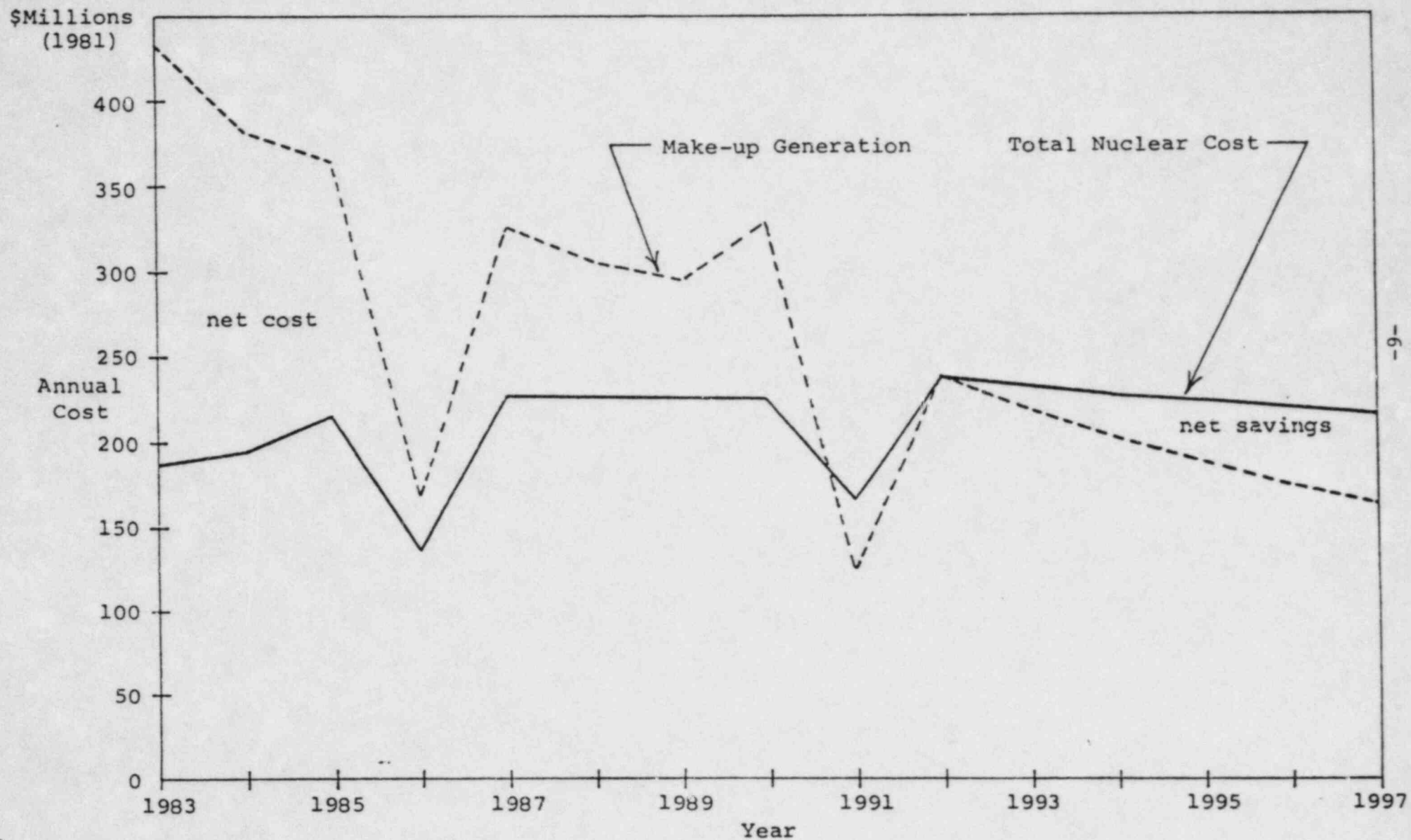
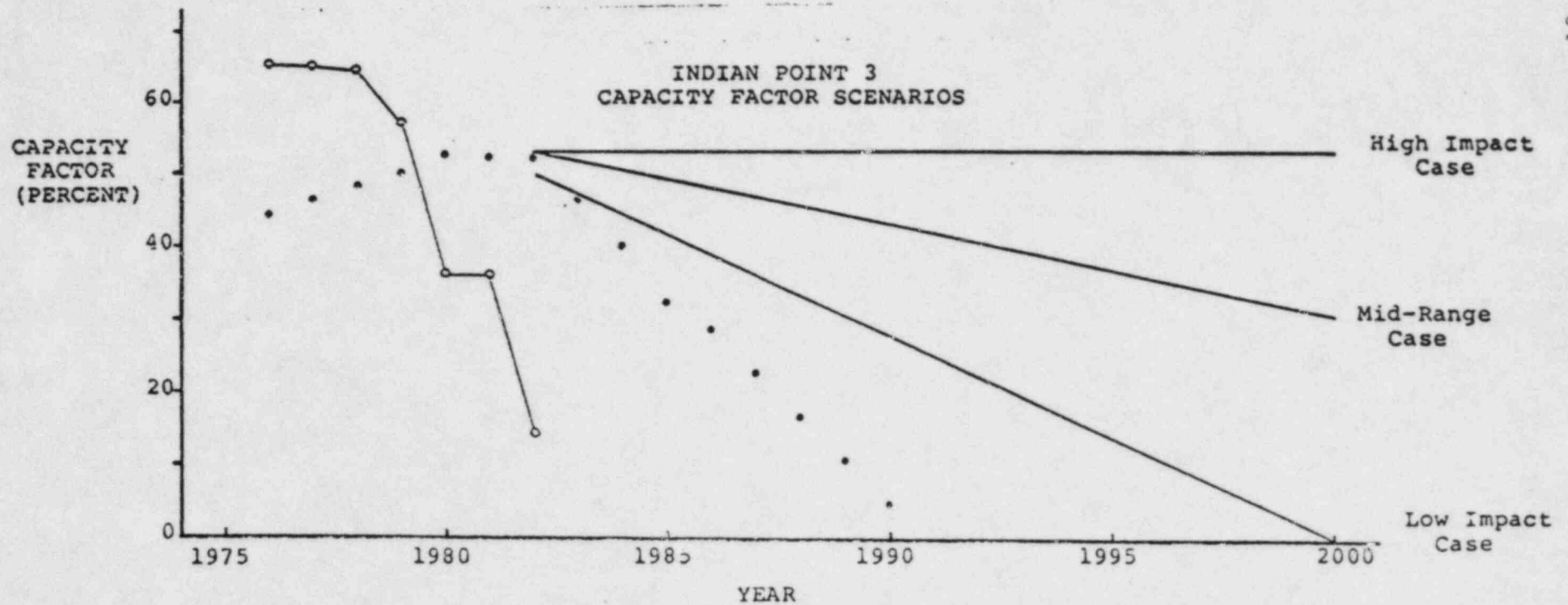
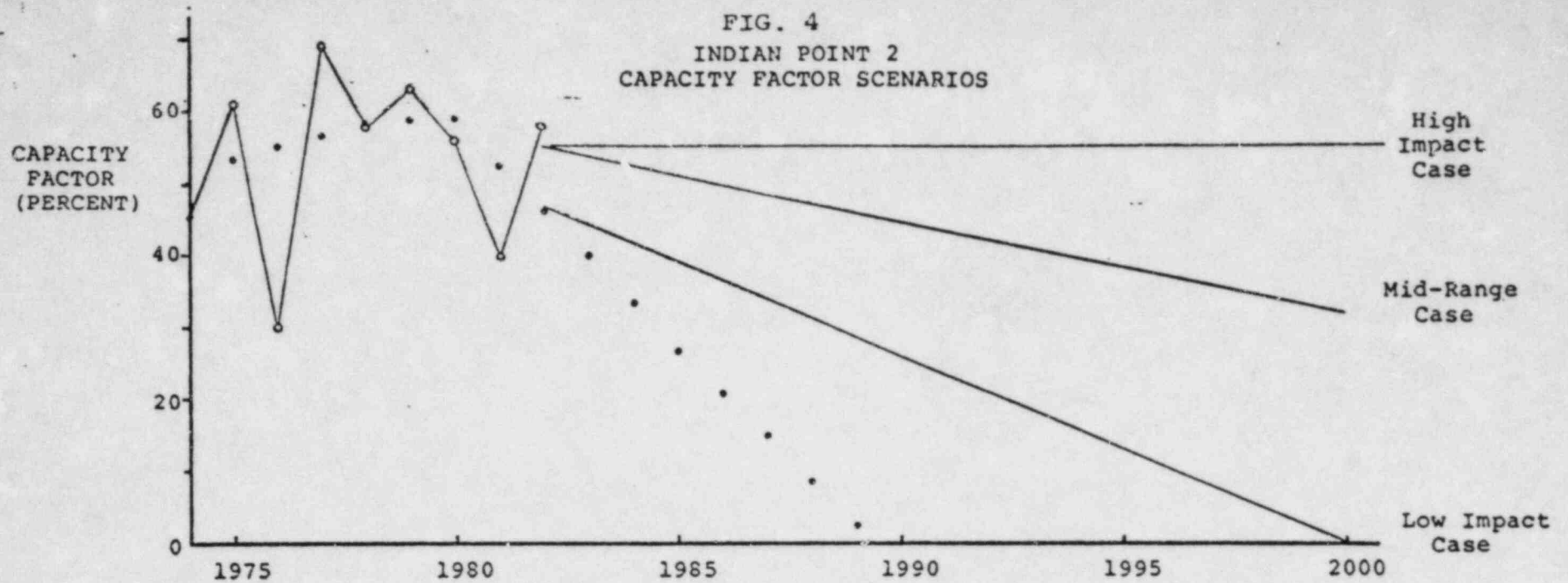
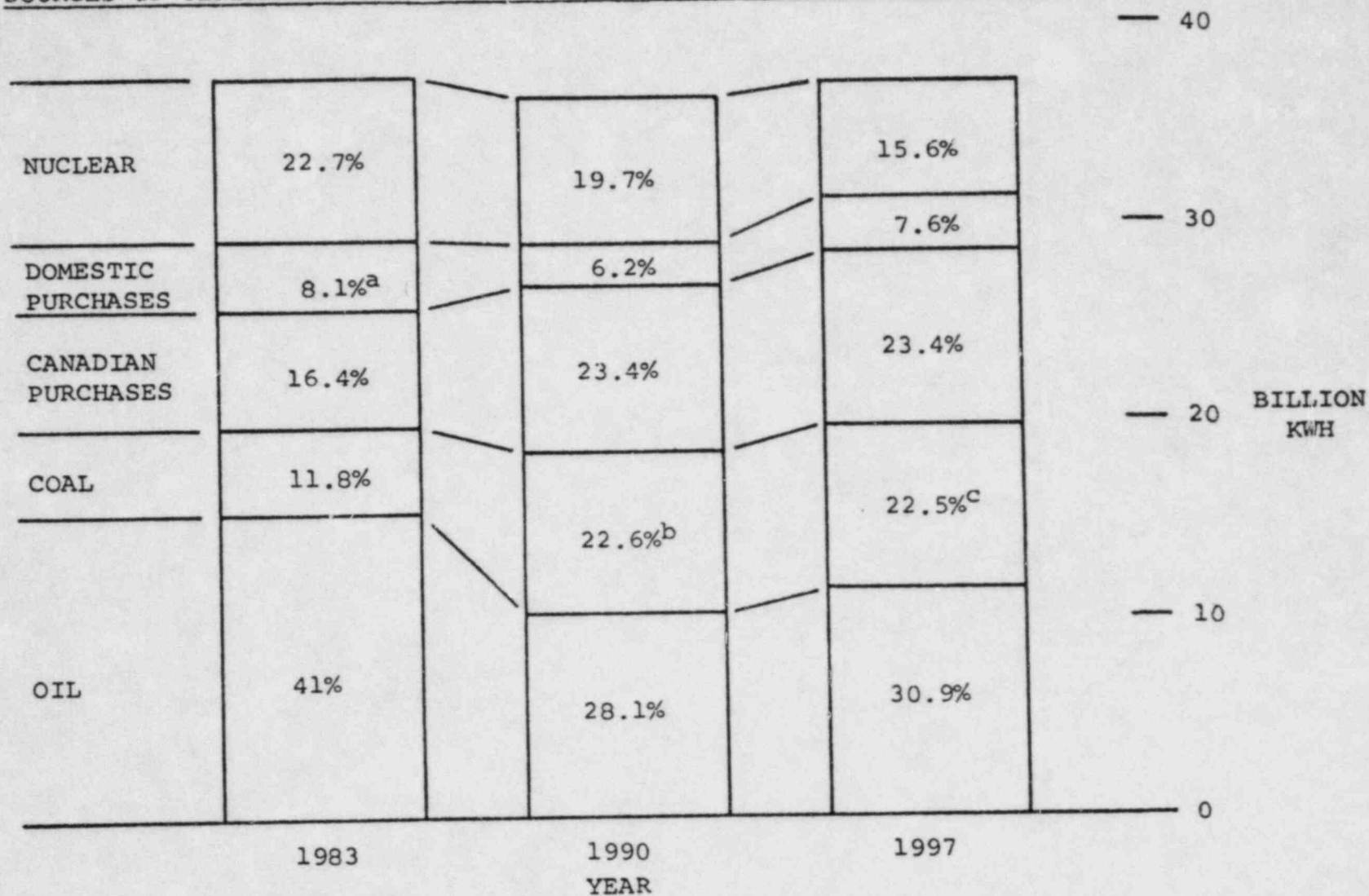


FIG. 4
INDIAN POINT 2
CAPACITY FACTOR SCENARIOS



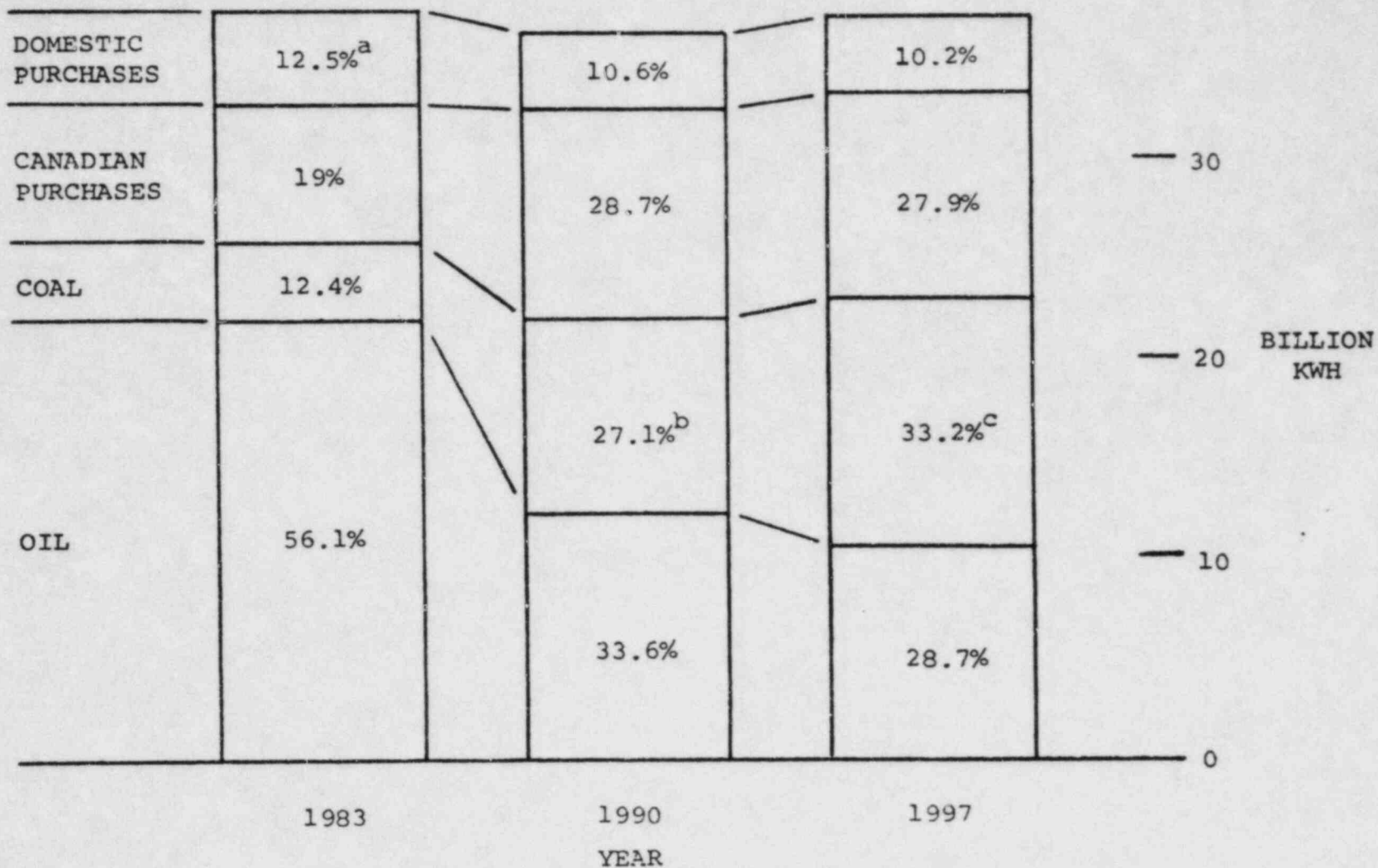
- Regression Prediction, 1976-1990
- Actual Experience

FIG.5 SOURCES OF GENERATION FOR CON EDISON SYSTEM INCLUDING INDIAN POINT^d



- a. Includes 1.9% from PASNY's Fitzpatrick nuclear plant.
 b. Includes 0.9% from the Peekskill solid waste plant.
 c. Includes 0.9% from the Peekskill solid waste plant.
 d. Does not include any natural gas for utility boiler fuel.

FIG.6 SOURCES OF GENERATION FOR CON EDISON SYSTEM WITHOUT INDIAN POINT^d



a. Includes 1.9% from PASNY's Fitzpatrick nuclear plant.

b. Includes 0.9% from the Peekskill solid waste plant.

c. Includes 0.9% from the Peekskill solid waste plant.

d. Does not include any natural gas for utility boiler fuel.