

# Conservation and Renewable Energy Sources as Supply Alternatives for New York's Electric Utilities————

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The environment in which New York's electric utilities operate has changed dramatically during the last decade. Like many others, utilities in New York in the early 1970s launched ambitious plans to construct additional power plants based on projections of rapid growth in demand for electricity. These plans later had to be sharply scaled back when the projected demand failed to materialize following the Arab oil embargo. But at no time did the utilities question whether their customers' energy needs could be satisfied more economically through investments in alternatives to central station power plants. Their utilities' failure to consider alternatives is costing New York consumers dearly today; however, there is hope that New York's utilities eventually will pursue conservation and renewable energy investments as more economical alternatives to construction of central station power plants.

## THE CONSERVATION INVESTMENT CONCEPT

When utilities operated in an environment of declining marginal costs, expanding demand for electricity was accompanied by reductions in the real price of electricity. Early skirmishes between environmentalists and utilities focused not on the economics of electricity generation but, rather, on the environmental impacts of power plants and on the question of how many additional power plants were needed to meet demand growth. The debate often concentrated on the accuracy of forecasts of future demand growth. Few questioned the implicit assumption that the only way to satisfy additional demand was to build more central station power plants.

During the decade of the 1970s, utilities ceased to operate in an environment of declining marginal costs. For many utilities construction and operation of new central station generating capacity became more expensive than utilization of existing generation sources. The increasing costs of new power plant construction and concern over environment degradation spurred a search for alternatives.

In the late 1970s the Environmental Defense Fund (EDF) helped pioneer the notion that electrical utilities could benefit themselves and their customers by investing directly in end-use conservation devices. The EDF's argument was quite different from what utilities were accustomed to encountering. It did not challenge utility projections of future demand growth; it focused instead on the question of how utilities could satisfy most economically whatever customer demand they forecasted.

The EDF maintained that strictly as an economic proposition central station power plants were not the best investment alternative for utilities. The EDF demonstrated that California's two largest utilities could meet all their projected demand growth at substantially less cost and with substantially less financial risk if they canceled plans to build additional coal and nuclear power plants and instead invested in conservation hardware and small-scale renewable energy sources.

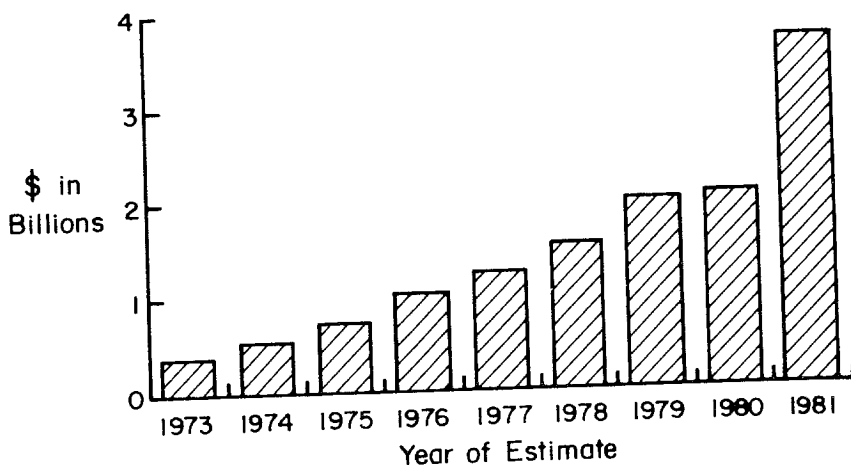
After a vigorous skirmish, California's two largest utilities abandoned their plans to build additional central station power plants before the end of the century. Pacific Gas and Electric and Southern California Edison announced that they would replace these plants in their supply with investments in end-use efficiency improvements; geothermal, wind, and solar energy; co-generation; and conservation voltage regulation.<sup>1</sup>

## THE EDF ALTERNATIVE PLAN FOR NEW YORK UTILITIES

The EDF turned its attention eastward in 1981. Five New York utilities were struggling to build a 1,080-megawatt (MW) nuclear power plant, Nine Mile Point Two, which had been plagued with massive cost overruns. In September 1981, the New York Public Service Commission (PSC) ordered a special hearing to consider alternatives to completion of the Nine Mile Point Two project. The EDF presented a comprehensive plan for replacing Nine Mile Point Two with investments in conservation and small-scale renewable energy sources.

When the Nine Mile Point Two project was launched in 1971, its sponsors estimated that it would be completed in 1977 at a cost of \$370 million. By 1981, the utilities' cost estimate had risen to \$3.7 billion for completion in October 1986. Figure 12.1 shows the rapid escalation that had occurred in the utilities' cost estimates for Nine Mile Point Two.

**FIGURE 12.1 Estimated Final Cost of Nine Mile Point Two by Year of Estimate**



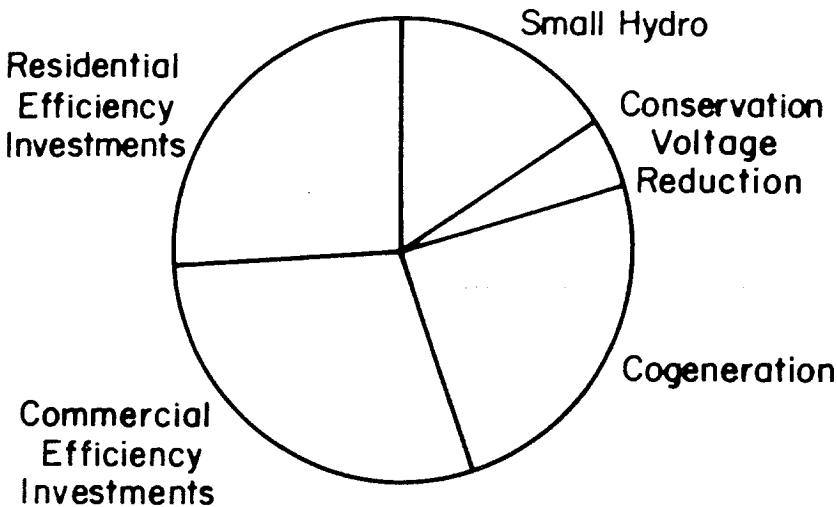
*Source:* Co-tenants' Response to CPB Interrogatory No. 2, October, 1981, in New York Public Service Commission Case No. 28059, Proceeding to Inquire into the Financial and Economic Cost Implications of Constructing the Nine Mile Point Unit 2 Nuclear Station; New York State Power Pool, Section 149-b filings from 1973 through 1978, and Section 5-112 filings from 1979 to 1981.

By the time of the PSC hearing, more than \$1 billion had been sunk into the Nine Mile Point Two project. Despite this enormous sunk cost, EDF's economists, using a sophisticated computer model to simulate utility investment decisions, demonstrated that the utilities would be far better off financially if they abandoned the plant and pursued alternative investments instead.<sup>2</sup>

The EDF alternative plan, whose components are outlined in Fig. 12.2, involved utility investments in residential and commercial sector end-use efficiency improvements, co-generation, conservation voltage regulation, and small hydroelectric projects at existing dam sites. The end-use efficiency investments, which constituted more than 55 percent of the plan, included in the residential sector water heater insulation, fluorescent lighting, low-flow showerheads, and energy efficient refrigerators and air conditioners; and in the commercial sector fluorescent lamps and energy-efficient ballasts as well as more efficient heating, ventilation, and air conditioning systems.

The EDF maintained that these investments could provide the energy and capacity equivalent to Nine Mile Point Two with equal (or greater) reliability during the same period of time at a cost 17 percent less than the cost of completion of the plant. These cost savings were particularly

FIGURE 12.2 The EDF Alternative



Source: Environmental Defense Fund, *A New Alternative to Completing Nine Mile Point Unit 2 Nuclear Station: Economic and Technical Analysis* (November, 1981), p. II-6.

significant because they were calculated on the assumption that ratepayers bore the full sunk costs of the canceled plant.

The EDF's alternative plan represented an entirely new approach for New York's investor-owned utilities. The EDF's proposal was based on the notion that utilities should treat conservation investments as a source of energy services on an equal footing with traditional supply alternatives. By offering financial incentives to stimulate conservation investments or by directly supplying their customers with conservation hardware, utilities can avoid constructing additional generating capacity and can reap financial benefits for themselves and their ratepayers. To provide an incentive for utilities to pursue conservation investments, the EDF proposed that utilities be permitted to earn a rate of return on these investments similar to what they earn on investments in conventional supply alternatives.

### THE UTILITIES' RESPONSE TO THE EDF PLAN

None of the utilities involved in the Nine Mile Point Two project had ever considered direct utility investments in conservation and small scattered renewable sources of supply as an alternative to construction of the plant. Because they could not dispute the notion that such alternatives would be cheaper than completion of a multibillion dollar nuclear power

plant, they sought to avoid any direct cost comparison between the two. Instead of arguing comparative economics, they sought to attack the concept of utility investment in conservation, even though it already had been embraced by utilities in many other states.

### **Legal and Philosophical Objections**

The utilities argued that direct utility investments in conservation would pose difficult legal problems. Yet they refused to be specific about what legal obstacles they foresaw, hoping merely to create sufficient doubt to diminish the appeal of the EDF alternative. One of the "legal" arguments articulated during the Nine Mile Point Two proceeding was that conservation investments would require approval from state regulatory authorities—hardly an obstacle since those authorities were the very body conducting the inquiry into alternatives to Nine Miles Point Two.

In subsequent PSC proceedings focusing on the EDF alternative,<sup>3</sup> the utilities were finally forced to articulate their legal objections to direct utility investment in conservation. Aside from the utilities' claim that the PSC had no authority to order them to invest in conservation (even if such investments were the most economical means of providing service to their customers), the principal legal objection they raised was their fear of running afoul of the antitrust laws. The administrative law judge who presided over the conservation proceeding agreed with the EDF that the antitrust laws did not bar utility rebate programs and that the utilities would be insulated from antitrust liability in any event by the "state action" exemption from the antitrust laws. The judge ruled that there are no legal barriers under federal or state law to investment by utilities in conservation in New York.

The more basic objection of the utilities to the EDF plan was philosophical rather than legal. Most of the New York utilities believe that their business is to sell electricity, not conservation.<sup>4</sup> They view conservation with as much enthusiasm as a cigarette manufacturer has for an antismoking campaign. For public relations purposes they favor informational advertising by utilities to promote conservation, but they are fearful that too many customers may begin to heed the message.<sup>5</sup> Objections based on what utilities conceive to be their traditional business role are difficult to justify, however, in the face of evidence demonstrating that it is far more costly to utilities and their ratepayers if utility investment choices are limited to traditional alternatives.

### **Uncertainty of Customer Response**

Although other utilities throughout the country had implemented conservation investment programs successfully, the New York utilities

argued that such programs would not work in New York because their customers would not respond to conservation incentives. Because none of the New York utilities had ever considered such programs, they had little basis for claims that New York customers would react differently. It was not until they were required to experiment with such programs during the PSC's conservation proceeding that they generated data specific to their service territories.

The results of their experiments were dramatic. Niagara Mohawk, which conducted the most extensive conservation incentive experiment of the seven investor-owned utilities, offered several different rebate and installation programs. Figure 12.3 shows the customer response to a Niagara Mohawk program offering rebates to customers who purchased water heater wraps. As the chart indicates, when the utility offered a full rebate to customers who purchased water heater wraps, in less than one month approximately 13 percent of the customers in the sample purchased water heater wraps and applied to the utility for reimbursement.<sup>6</sup> This represents an extraordinary response considering the short duration of the experiment and the fact that customers had to go out and locate the conservation device and mail a form into the utility in order to be reimbursed.

Niagara Mohawk also offered a rebate program to customers who purchased energy efficient fluorescent light bulbs. Although the utilities

**FIGURE 12.3 Customer Response to Niagara Mohawk Offer of Rebates for Purchasing Water Heater Insulation**



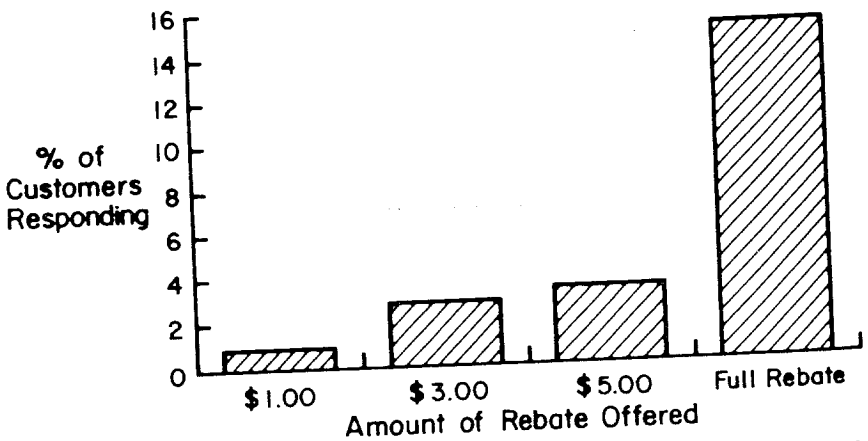
*Source:* Exhibit 100 in New York Public Service Commission Case No. 28223, Proceeding to Inquire into the Benefits to Ratepayers and Utilities from Implementation of Conservation Programs that Will Reduce Electric Use.

went to great lengths to attempt to establish that few customers could use such lights,<sup>7</sup> the Niagara Mohawk rebate program was a tremendous success, as Fig. 12.4 demonstrates.

Niagara Mohawk also experimented with a direct mail program to distribute low-flow showerheads to their customers. This program did not require the customers to locate and purchase the showerheads themselves. It simply required customers to return a coupon to Niagara Mohawk requesting the showerhead. Niagara Mohawk experimented with different incentive levels in the showerhead program. The results are shown in Fig. 12.5. Of the customers offered the showerheads for \$7.00, 10 percent accepted the offer. It is interesting to note that because the showerheads only cost Niagara Mohawk \$5.08 each, the company was able to recover more than the cost of the conservation device from these customers. As the level of incentive increased, so too did the customer response. Of the customers offered free showerheads, more than 44 percent accepted the offer in less than one month.

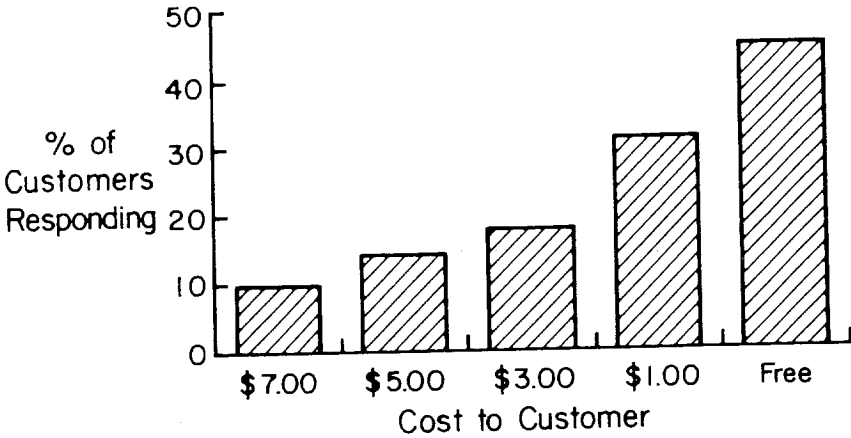
Niagara Mohawk also offered certain customers the option of having the light bulbs, showerheads, or water heater wraps installed for free. The utility hired a contractor to provide this service to a group of Niagara Mohawk customers. As Fig. 12.6 demonstrates, in less than one month, 50.6 percent of Niagara Mohawk customers who were offered free installation of these devices accepted the offer. This demonstrates

**FIGURE 12.4 Response to Niagara Mohawk Offer of Rebates for Purchasing Energy Efficient Lighting**



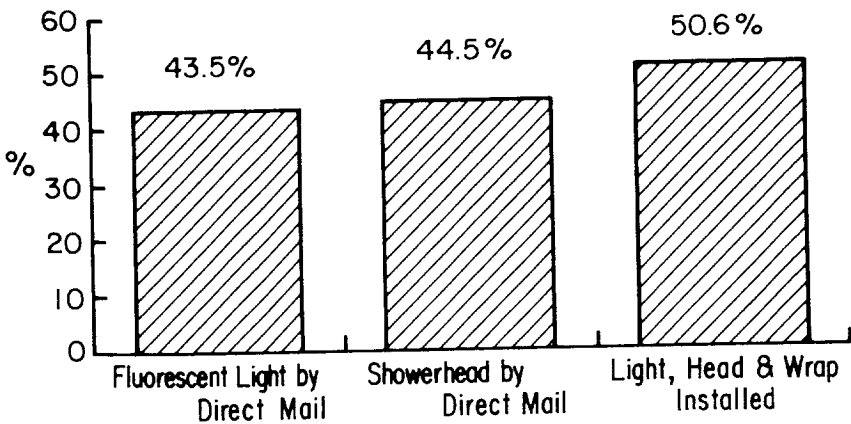
Source: Exhibit 100 in New York Public Service Commission Case No. 28223, Proceeding to Inquire into the Benefits to Ratepayers and Utilities from Implementation of Conservation Programs that Will Reduce Electric Use.

**FIGURE 12.5 Response to Niagara Mohawk Program of Direct Mail Distribution of Low-Flow Showerheads**



Source: Exhibit 100 in New York Public Service Commission Case No. 28223, Proceeding to Inquire into the Benefits to Ratepayers and Utilities from Implementation of Conservation Programs that Will Reduce Electric Use.

**FIGURE 12.6 Response to Niagara Mohawk's Free Distribution or Free Installation Offers, by Device**



Source: Exhibit 100 in New York Public Service Commission Case No. 28223, Proceeding to Inquire into the Benefits to Ratepayers and Utilities from Implementation of Conservation Programs that Will Reduce Electric Use.



dramatically that customers will respond favorably to conservation incentives provided by the utility.

Unfortunately, Niagara Mohawk's lawyers chose to interpret these splendid results in the most unfavorable light. Although their pilot programs had given customers less than a month to respond, they characterized the results as proof that no more than half their customers ultimately would respond to a full-scale program of conservation incentives. This interpretation illustrates how determined the utilities have been to oppose direct utility investments in conservation.

During the Nine Mile Point Two proceeding, the utilities also argued that the EDF had overestimated the energy savings from certain conservation investments because customers had already undertaken conservation measures not accounted for by the EDF. For example, they argued that the EDF had erred in calculating energy savings from water heaters because it had based its calculations on the assumption that electric water heaters in New York were set at an average temperature of 140 degrees Fahrenheit. When questioned as to whether they had any actual data on the average temperature of water heaters in their service territories that would contradict the EDF's assumption, the utility witnesses conceded that they did not but maintained that it would be irresponsible to cancel a nuclear power plant in the absence of such information. The EDF argued that it would be irresponsible to decide to proceed with a multibillion dollar investment simply because the temperature at which their customers set their water heaters was unknown.

During the conservation proceeding that followed the Nine Mile Point Two hearings, the utilities conducted a detailed survey of end-uses of electricity in the residential sector of their service territories. This statewide survey, conducted in 1983, found that the mean temperature at which New York customers set their electric water heaters was 140 degrees Fahrenheit.

### **The "Do Both" Response**

The utilities strove mightily to avoid comparing the economics of conservation investments with the cost of completing Nine Mile Point Two. Their principal argument in response to the EDF alternative plan became known as the "do both" argument. The utilities maintained that conservation investments should be considered a complement to rather than a substitute for Nine Mile Point Two. Because New York was so heavily dependent on oil-fired generation, the utilities argued, any alternative to oil-fired generation made economic sense. Thus, they argued that Nine Mile Point Two should be completed, even if it were more expensive than the implementation of conservation efforts, because it would produce net

savings when compared to expensive oil-fired generation. This "do both" argument maintained that New York ratepayers would be better off if the utilities invested in both Nine Mile Point Two *and* full-scale conservation programs.

The utilities' argument ignored the question of which investment provided the highest return. Because the utilities had no intention of investing in conservation, they were essentially arguing that even if Nine Mile Point Two were an inferior investment to the EDF plan it should be pursued instead because it offered some improvement over the status quo. The utility argument also failed to take into account differences in relative risks between continuing the Nine Mile Point Two project and pursuing the EDF plan.

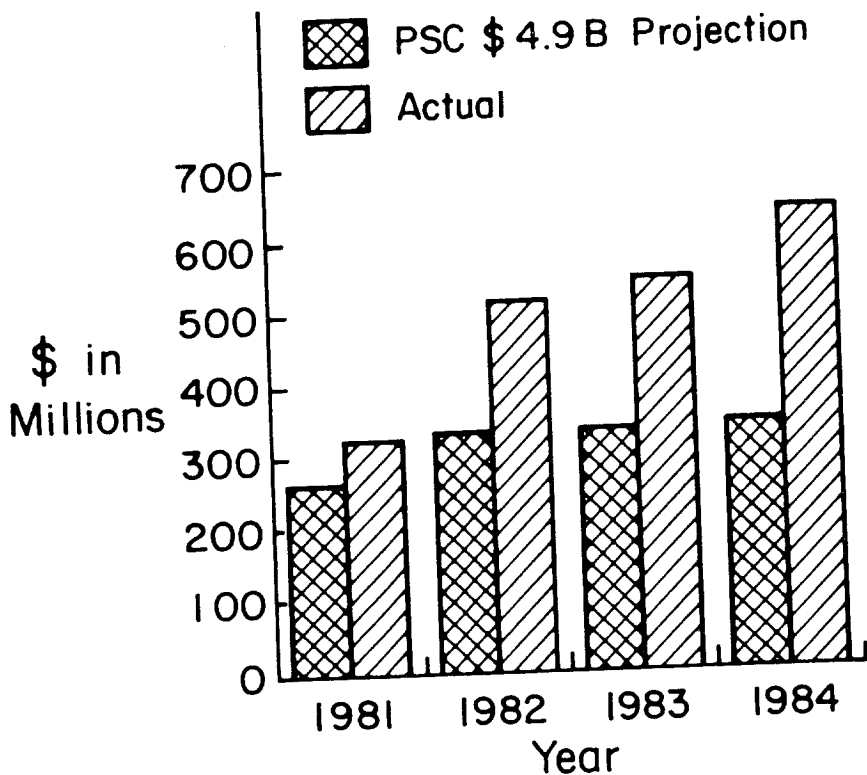
Experiences since the PSC decision approving completion of Nine Mile Point Two shows the dangerous consequences of accepting the "do both" argument. The economic losses from the Nine Mile Point Two project have increased, while pursuit of more economical conservation alternatives has been delayed as a result of the utilities' involvement in Nine Mile Point Two.

At the time of the PSC hearing, the utilities estimated that Nine Mile Point Two would be completed at a total cost of \$3.7 billion. The PSC staff maintained that this estimate was unrealistically low and that the project would cost \$4.9 billion for a 1987 completion date. (The EDF employed the PSC staff estimate in its comparative analysis.) Costs of the project have now soared far above even the PSC staff's estimate.

Figure 12.7 shows the magnitude of the actual cost overruns compared with the estimate by the PSC staff. Between 1982 and 1984, actual expenditures on Nine Mile Point Two were 50–60 percent greater than the expenditure pattern projected by the PSC staff for a \$4.9 billion completion cost. Yet throughout this period, the utilities maintained that the actual costs of Nine Mile Point Two would be substantially less than the staff's \$4.9 billion projection.

Did the utilities fail to appreciate the magnitude of the risk of cost increases? Careful examination of the record of the PSC proceeding suggests that the continuation of massive cost overruns has not been a complete surprise to the utilities, despite their sworn testimony that the plant could be completed for \$3.7 billion. The clearest indication that the utilities had little faith in their own cost estimates was their alarmed reaction to the request that they provide a "cap figure." A cap figure was proposed as the amount of total plant costs that each co-tenant in the Nine Mile Point Two project would be satisfied to receive from ratepayers if the utility were forced to absorb all costs above the figure while collecting the difference if actual costs proved to be less. The only cap figure proffered by any utility was a figure of \$6 billion suggested by Long Is-

**FIGURE 12.7 Actual versus Projected Spending on Nine Mile Point Two, 1981-1984**

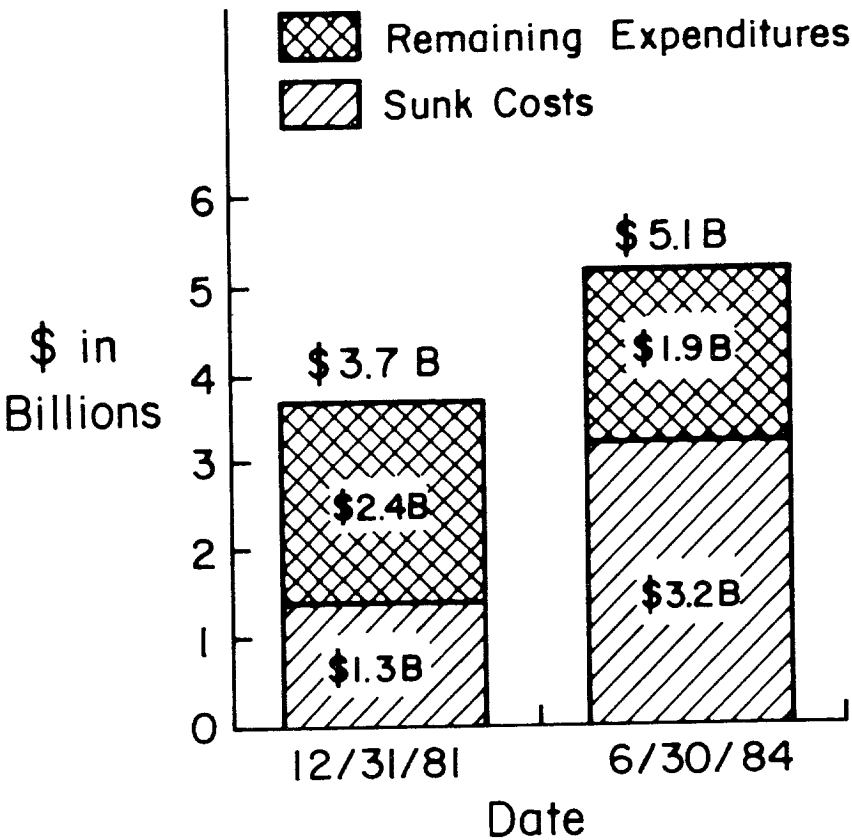


Source: New York Department of Public Service, "The Economic and Financial Implications of Nine Mile Point Nuclear Station Two and Its Alternatives," September 1981, p. A-5; New York Power Pool, Section 5-112 Reports, 1981, 1982, and 1983. Revised 1983 budget from "Monitoring Report No. 9 on Nine Mile Point-2 Nuclear Power Plant," New York Department of Public Service, November 18, 1983.

land Lighting Company's (LILCO) chief financial officer.<sup>8</sup> Given that the utilities' current estimate of completion costs of Nine Mile Point Two is \$5.35 billion, the figure proposed by LILCO's executive appears to reflect an accurate appreciation of the potential for cost overruns. Unfortunately, the PSC did not adequately perceive the magnitude of this risk when it decided to permit completion of the plant.<sup>9</sup>

Since the commission's decision to approve completion of Nine Mile Point Two, more than \$2 billion has been spent on the project (see Fig. 12.8). Yet reviews in 1983 by both the PSC and the New York State Energy Office (SEO) estimate that the net present value of benefits from

FIGURE 12.8 Estimated Cost of Nine Mile Point Two



Source: New York Power Pool, Section 5-112 Report, 1982; New York State Energy Office, Nine Mile Point Two Economics Study (1984).

completion of the project—the savings compared with oil-fired generation that was the basis of the "do both" rationale—is approximately \$1.5 billion (see Table 12.1).<sup>10</sup> Thus, their own data now establish that the PSC made a costly error when they approved completion of Nine Mile Point Two. It is clear that had they stopped the project instead, both the utilities and their ratepayers would be better off today.

The EDF did an updated study of the economics of Nine Mile Two and Shoreham in January 1984.<sup>11</sup> Even though the sunk costs of each of these projects had increased dramatically, the study showed that investments in conservation and renewable alternatives would still be a viable economic alternative to the plants. The study found that if both plants were canceled and alternatives substituted in their place, ratepayers

TABLE 12.1 Nine Mile Point Two: Two Economic Studies

	<i>PSC Study April 1984</i>	<i>SEO Study May 1984</i>
Estimated net benefits of completion over cancellation	\$1.5 billion	\$1.6 billion
Cancellation date assumed in study	July 1, 1984	January 1, 1985
Expenditures from 1982 PSC decision to cancellation date	\$1.8 billion	\$2.3 billion

*Source:* Memorandum to the New York Public Service Commission, "Staff Economic Analysis of Nine Mile 2," April 26, 1984; New York State Energy Office, Nine Mile Point Two Economics Study (May, 1984).

would realize net benefits of \$1.1 billion even after repaying all the sunk costs of the projects.

The SEO reviewed the EDF study and concluded that a selected set of conservation alternatives would be cheaper than completion of the Nine Mile Point Two project.<sup>12</sup> However, the SEO study severely criticized the EDF because it "failed to consider the economics of the conservation and renewable resource alternative as a supplement to Nine Mile 2." The study further maintained, "There is no apparent reason why the co-tenant utilities could not invest in conservation and renewable resources in addition to Nine Mile Point 2 and realize the resultant savings, as well as savings accruing from the Nine Mile Point 2 investment."<sup>13</sup> The SEO reaffirmed its endorsement of completion of Nine Mile Point Two on the ground that the project was still expected to offer some net economic advantage over existing oil-fired generation.

Thus, New York authorities continue to fall into the trap of the "do both" argument, even though experience has shown that it sacrifices pursuit of the most economic alternative in favor of an alternative that continues to grow less economically viable. No rational investor would be content to invest his or her capital in securities that provide lower returns and greater risk than competing investment alternatives simply because the return is greater than zero. Yet this is precisely what the New York regulatory authorities continue to permit the utilities to do.

## THE CONSERVATION DECISION

Although the New York PSC approved completion of Nine Mile Point Two, the commission also launched a special proceeding to require all seven of the state's investor-owned utilities to consider the EDF's conservation proposals. The utilities initially proposed that hearings be postponed for two to three years while they performed studies to assess the impact of providing financial incentives for conservation. They maintained that they knew little about appliance end-uses in their service territories and they continued to predict that customers would not respond to conservation incentives. The administrative law judge ordered them to commence studies immediately and scheduled hearings to consider the cost-effectiveness of conservation investment.

The utilities conducted a statewide survey of appliance end-use patterns and three utilities experimented with pilot programs as described above. The PSC also sponsored a symposium that brought representatives of out-of-state utilities to New York to discuss their experience with utility conservation investment programs.

In April 1983, testimony was filed on the cost-effectiveness of residential conservation measures. Each of the seven utilities used a different methodology and different assumptions concerning the costs and energy savings of the same set of residential conservation measures. Energy savings assumed for certain measures varied by a factor of 6 from one utility to another. One utility estimated that low-flow showerheads would cost an average of \$21.50 each, while another utility had actually procured them for its pilot program for \$5.08 each. Rochester Gas and Electric projected that it would cost \$24.00 to process each rebate (including \$7.25 to write each rebate check), although New York State Electric and Gas had incurred administrative costs of only \$2.00/rebate in its pilot program.

Despite their wide divergence in assumptions and methodologies, the utility studies generally found that each of the residential conservation measures would produce savings several times greater than its cost. For example, the studies found that each low-flow showerhead would produce savings with a net present value ranging from \$214 in Orange and Rockland's service area to \$428 in the LILCO's; net savings from each water heater wrap ranged from \$11 in the service area of Rochester Gas and Electric to \$262 in the LILCO's.

Despite the enormous net resource benefits of conservation investments, all utilities opposed provision of financial incentives to stimulate such investments. Because they refused to credit conservation with significant capacity savings, they claimed that the revenue loss conservation would disadvantage nonparticipants as fixed costs were spread over fewer kilowatt-hours of sales. Curiously, all utilities supported informational programs to promote conservation, even though they had to admit that to the extent that such programs were successful in stimulating conservation they would generate the same revenue loss and have the same adverse impact on nonparticipants.<sup>14</sup>

Although some utilities acknowledged that capacity savings produced by conservation investments could reduce rates to all customers, they generally maintained that conservation could not be given credit for capacity savings unless it could be demonstrated that specific conservation investments would defer planned capacity additions. With both Shoreham and Nine Mile Point Two under construction, the utilities maintained that additional generation capacity savings would be minimal. Although marginal capacity cost estimates routinely are computed for rate design purposes, the utilities argued strenuously that they should be able to use different estimates of marginal capacity cost to compute the avoided costs of conservation.

In November 1983, the administrative law judge presiding over the conservation proceeding released a recommended decision. The decision

found that there are no legal barriers to direct utility investments in conservation and that the PSC has ample authority to require New York utilities to pursue conservation investments. The decision states that in light of the continued construction of Shoreham and Nine Mile Point Two, the immediate benefits of conservation investments are substantially reduced. However, the decision concludes that as avoided costs continue to rise, full-scale conservation investment programs will become more economically viable. Thus the decision outlines a staged plan for utilities to develop data, experience, and managerial expertise to implement full-scale conservation investment programs.

The PSC adopted most aspects of the recommended decision. The commission ruled that New York utilities must treat conservation investments on an equal footing with investments in new generating capacity. The PSC directed the utilities to spend 0.25 percent of their revenues to implement conservation programs so as to develop the experience and managerial expertise to pursue subsequent, full-scale conservation investments.

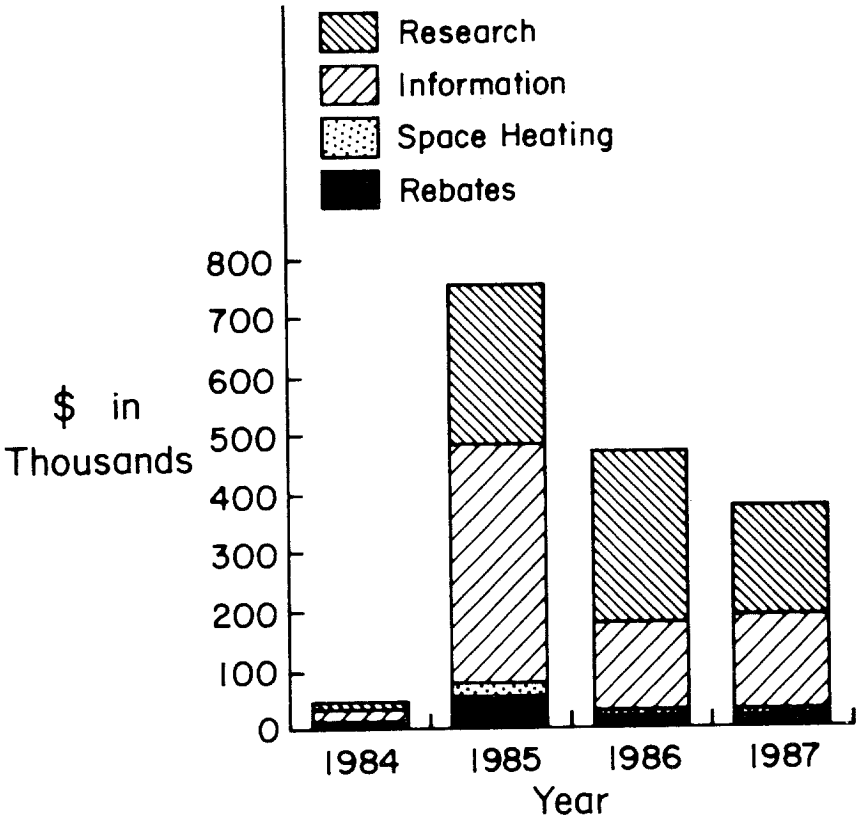
Unfortunately, the utilities have remained opposed to conservation investments, and their initial filings in response to the commission's decision have been very disappointing. Figures 12.9–12.14 summarize the conservation programs proposed by six of the seven utilities in initial compliance filings. Rochester Gas and Electric is not included because its compliance filing did not include expenditure figures. As Fig. 12.15 demonstrates, most of the utilities' planned expenditures for conservation are for information programs rather than for programs involving direct utility investments in conservation. Although some utilities propose to offer rebates to their customers for purchasing conservation devices, none of the utilities is planning to offer a free installation program, despite the demonstration by Niagara Mohawk's pilot program of the dramatic results free installation programs can achieve.

## **INCENTIVES FOR UTILITY INVESTMENT IN CONSERVATION**

The key difficulty in developing successful programs of utility investment in conservation will involve changing utility attitudes toward such investment programs. If a utility remains opposed to direct investments in conservation, it will be very difficult to get the utility to operate a successful conservation program. Unfortunately, most of the New York utilities have shown few signs of altering their opposition to such programs.

In order to remove some of the disincentives to utility investment in conservation, the EDF proposed a balancing account mechanism to pre-

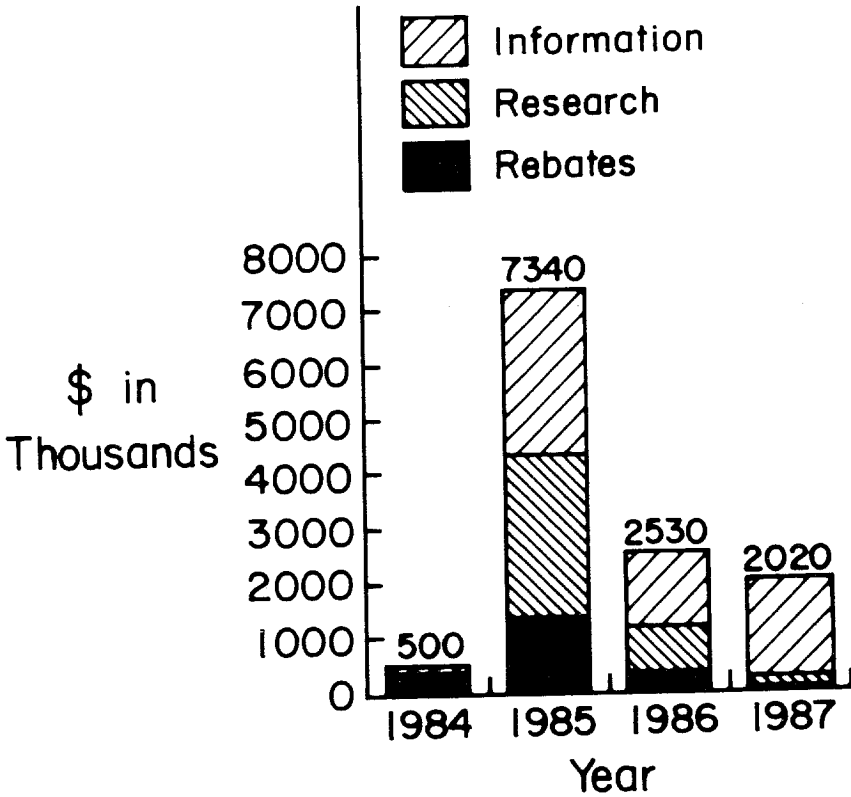


**FIGURE 12.9 Central Hudson Conservation Program**

*Source:* 1984 Compliance Filing of Central Hudson Gas & Electric in New York Public Service Commission Case No. 28223, Proceeding to Inquire into the Benefits to Ratepayers and Utilities from Implementation of Conservation Programs that Will Reduce Electric Use (August, 1984).

vent short-run utility revenue losses from arising because of additional utility financed conservation. Although the administrative law judge adopted the EDF's proposal, the PSC in its final decision rejected it.

Another significant disincentive to utility investment in conservation is provided by the current structure of the federal tax code. The tax system offers substantial subsidies to utilities for construction of central station power plants, which are not generally available for investments in conservation. The investment tax credit, the accelerated cost recovery

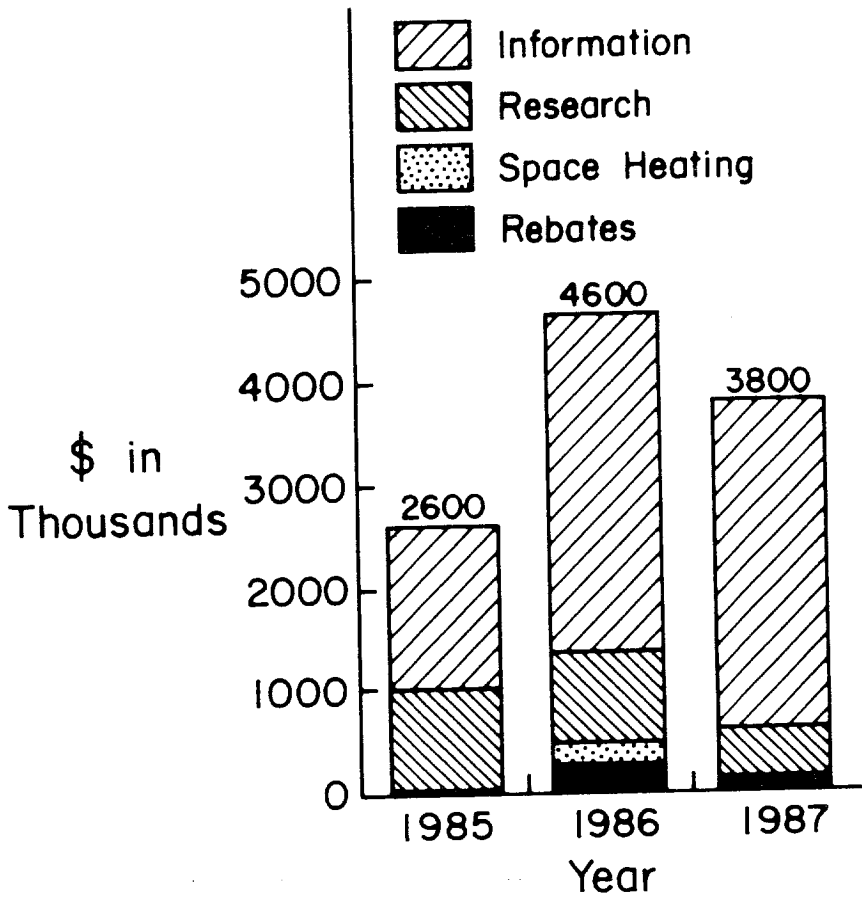
**FIGURE 12.10 Consolidated Edison Conservation Program**

Source: 1984 Compliance Filing of Consolidated Edison Company in New York Public Service Commission Case No. 28223 (August, 1984).

system, and the use of tax exempt pollution control bonds all permit utilities to avoid or postpone billions of dollars in federal taxes for power plant construction projects. These subsidies for power plant construction are estimated to cost the federal treasury \$12 billion annually.<sup>15</sup>

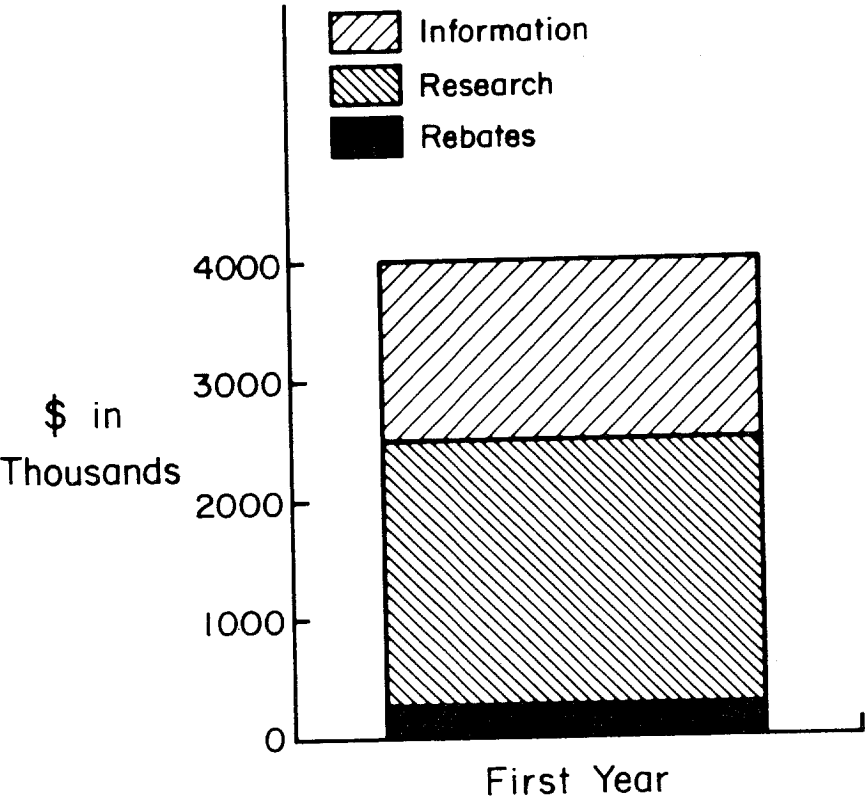
The U.S. Department of Treasury's original tax reform proposal<sup>16</sup> would eliminate many of the distortions caused by current tax incentives for power plant construction. If adopted, these reforms (including the elimination of federal tax credits for conservation and renewable energy investments) will go a long way toward establishing a "level playing field" for utility investment decisions.

FIGURE 12.11 LILCO Conservation Program



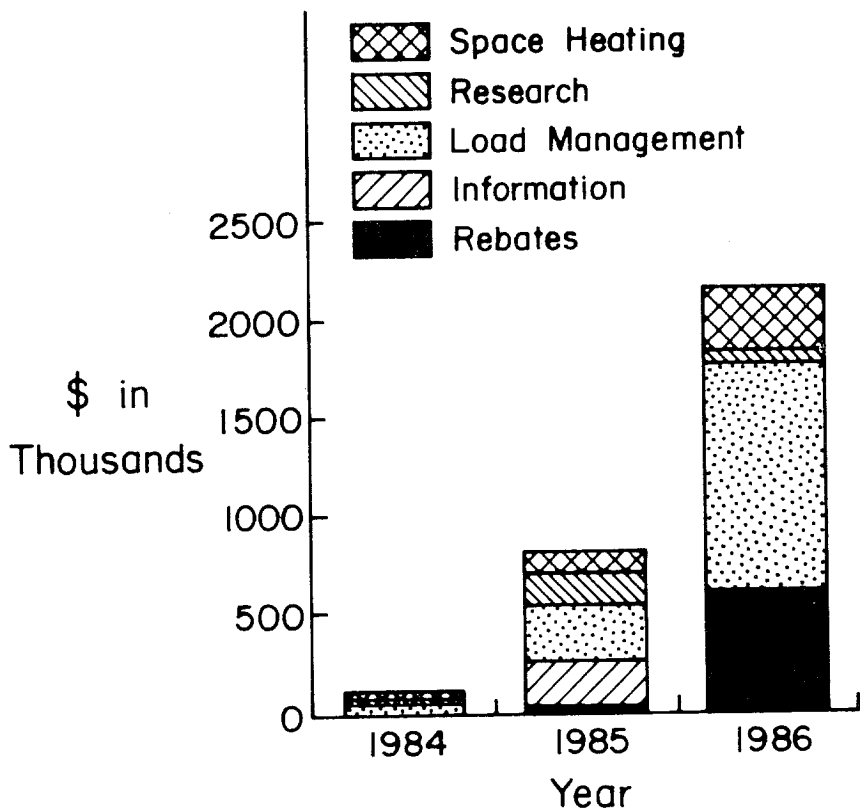
Source: LILCO 1984 Compliance Filing in New York Public Service Commission Case No. 28223 (October, 1984).

FIGURE 12.12 Niagara Mohawk Conservation Program



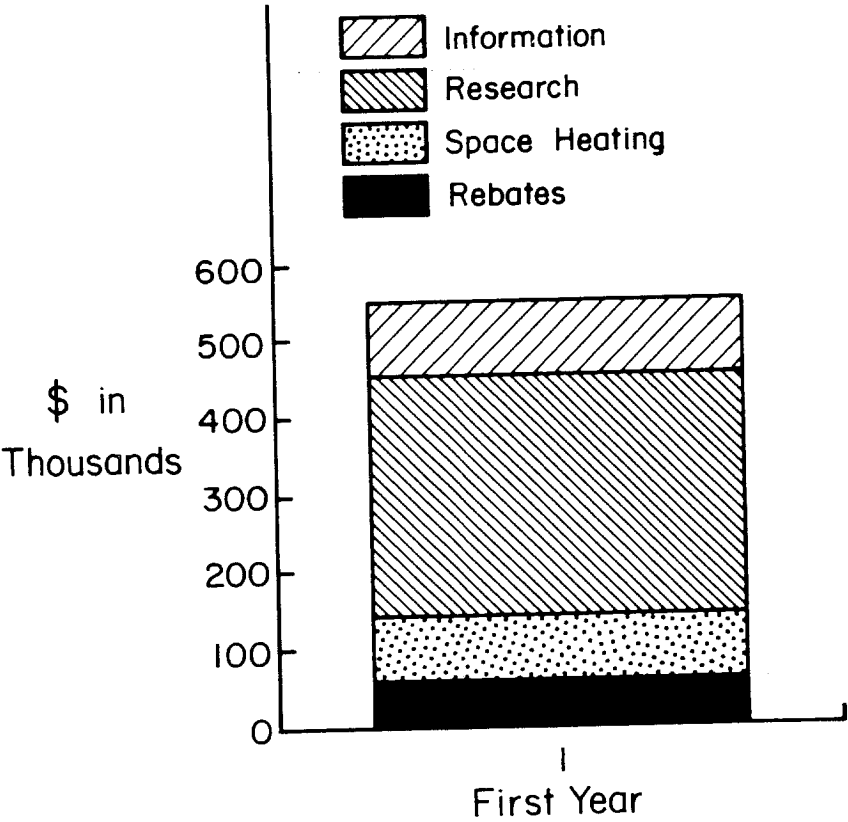
Source: Niagara Mohawk 1984 Compliance Filing in New York Public Service Commission Case No. 28223 (August, 1984).

FIGURE 12.13 NYSEG Conservation Program

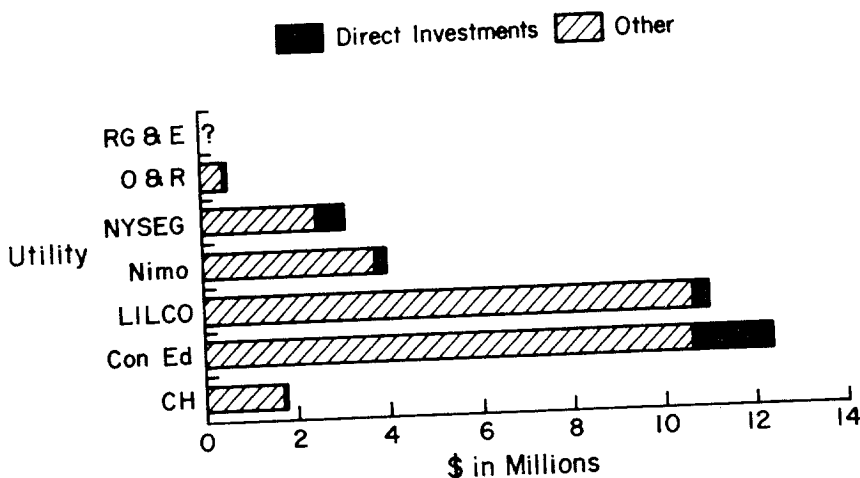


Source: 1984 NYSEG Compliance Filing in New York Public Service Commission Case No. 28223 (August, 1984).

FIGURE 12.14 Orange & Rockland Conservation Program



Source: 1984 Orange & Rockland Compliance Filing in New York Public Service Commission Case No. 28223 (August, 1984).

**FIGURE 12.15 Size of Conservation Programs and Amount of Direct Investments**

Source: New York Utilities 1984 Compliance Filings in New York Public Service Commission Case No. 28223.

## CONCLUSION

New York state today provides an excellent illustration of the consequences of utility investment policies that failed to consider alternatives to construction of central station power plants. New York's utilities are saddled with the two most expensive nuclear power plant construction projects in the nation after regulatory authorities rejected proposals for conservation and renewable energy alternatives to replace these plants.<sup>17</sup>

Although there is some reason for hoping that New York's regulatory authorities have learned a lesson, the utilities' initial response to the PSC's conservation decision indicates that their attitudes may be slow to change.<sup>18</sup> California's utilities did not embrace conservation investment programs enthusiastically until after state regulators had penalized them financially for failing to do so. New York regulators may ultimately have to adopt a similar approach.

## NOTES

1. The story of EDF's efforts to persuade the California utilities to embrace direct investments in conservation and renewable energy sources as alternatives to central station

power plants is described in detail in David Roe, *Dynamos and Virgins* (New York: Random House, 1984).

2. The EDF alternative plan and the economic analyses supporting it are outlined in detail in Environmental Defense Fund, *A New Alternative to Completing Nine Mile Point Unit 2 Nuclear Station: Economic and Technical Analysis* (1981).

3. New York State PSC Case 28223, Proceeding to Inquire into the Benefits to Ratepayers and Utilities from Implementation of Conservation Programs That Will Reduce Electric Use.

4. Lawyers for Rochester Gas and Electric even argued during the conservation proceeding that the company's certificate of incorporation would be unconstitutionally impaired if it were directed to invest in conservation because its corporate charter only empowers it to sell electricity (*ibid.*).

5. Thus, in the conservation proceeding, the utilities found themselves in an uncomfortable position. They opposed utility investments in conservation on the grounds that any conservation in their systems would harm nonparticipating ratepayers while vigorously defending their commitment to informational programs to promote this very "evil."

6. Although Niagara Mohawk maintained that their pilot programs lasted for several months, customers actually had less than four weeks to respond to the utility's rebate or free installation offers.

7. For example, during the conservation hearings attorneys for Rochester Gas and Electric spent considerable time presenting a parade of unusual lamps and lighting fixtures that could not use fluorescent bulbs. When questioned, however, they were unable to establish that the fixtures that they displayed were in widespread use. In fact, the Statewide Residential Appliance Inventory, a survey undertaken specifically for the conservation proceeding, found that virtually all households in New York could convert at least one incandescent bulb to fluorescent and that the majority of households could make two or more conversions.

8. Although the commission made a formal request that each utility provide it with a "cap figure," the utilities refused to comply.

9. While the PSC did adopt an incentive rate of return plan that penalized the utilities for cost overruns above a \$4.6 billion completion cost, it is doubtful that completion of Nine Mile Point Two would have been approved had the commission accurately appreciated the risk of continued cost overruns.

10. New York State Energy Office, *Nine Mile Point Two Economics Study* (May 1984).

11. Environmental Defense Fund, *The Positive Alternative to Completing Shoreham and Nine Mile Two* (1984).

12. New York State Energy Office, *Nine Mile Point 2 Economics Study, Phase III Report* (September 1984).

13. *Ibid.*, p. 50.

14. Each of the utilities admitted that it had not done any study of the impact of their informational programs on conservation decisions by their customers. When directed by the administrative law judge to determine the potential impact of informational programs on nonparticipants, the utilities were unable to do so.

15. Richard Morgan, "Federal Energy Tax Policy and the Environment" (Washington D.C.: Environmental Action Foundation, April 1985).

16. *Tax Reform for Fairness, Simplicity and Economic Growth: The Treasury Department Report to the President* (Washington, D.C.: U.S. Treasury, 1985).

17. Although the EDF's presentation in the Nine Mile Point Two proceeding represented the most comprehensive case ever made in New York for the economics of conservation and renewable alternatives, intervenors in a LILCO rate case in 1980 proposed a conservation alternative to Shoreham. They projected that a program of investments in residential, commercial, and industrial conservation could displace more oil than Shoreham at a



cost substantially less than the \$1-\$1.5 billion needed to complete Shoreham. LILCO rejected this alternative, arguing that it was inappropriate and unreliable and that only \$500 million would be needed to complete Shoreham at a total cost of \$2.2 billion. The current cost estimate for completion of Shoreham exceeds \$4.1. billion.

18. For example, Consolidated Edison (ConEd) has recently asked the PSC to relieve it of its obligation to spend \$11 million on pilot conservation programs in 1985 on the ground that it cannot prudently devote that amount to conservation spending. Although the PSC rejected ConEd's request, ConEd continues to view the conservation decision as a one-shot nuisance that will not have a major, long-term effect on corporate investment decisions.