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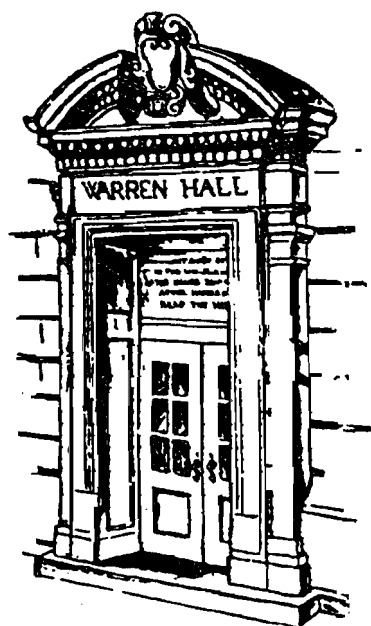
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THE SHOREHAM DEAL: A VIEW FROM UPSTATE

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The Shoreham Deal: A View from Upstate

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ABSTRACT

A plan for restructuring the Long Island Lighting Company (LILCO) was proposed in December 1996 by Governor Pataki to reduce the high rates paid for power on Long Island, New York. The primary cause of these high rates is the cost of financing the huge debt incurred in the construction of a nuclear power plant at Shoreham on Long Island. Under the Pataki plan, LILCO will be converted into a public company and the debt will be refinanced using tax-free bonds. The objective of this paper is to present a better plan for dealing with Shoreham that is fairer for LILCO customers, and a better plan for encouraging economic development on Long Island.

The main characteristic of the alternative plan for LILCO is to sell all existing power plants to new suppliers and to use the money to retire a large part of the debt. This would lower rates for electricity and also establish a foundation for competition among new power suppliers. The alternative plan for economic development is to use public debt to improve the infrastructure for transportation on Long Island. This plan has the added advantage of making major contributions to meeting the environmental objectives of reducing smog and reducing emissions of greenhouse gasses. As a result, significant improvements in public health would occur as well as increases of employment in construction.

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1. INTRODUCTION

Shoreham has been and continues to be a financial disaster for the customers of LILCO (Long Island Lighting Company). Spending \$5 billion to build a power plant that never operated commercially is the main reason for the high rates paid for electricity on Long Island. A plan for reducing rates is definitely needed, but the current proposal to refinance LILCO debt using \$7 billion of tax-free bonds issued by LIPA (Long Island Power Authority) will perpetuate most of the problems. If the Shoreham deal is implemented, it will 1) tie up a lot of public money, and therefore, make it harder to finance other more worthy public projects, 2) have only a modest effect on reducing LILCO rates for electricity, and therefore, provide very little incentive for economic growth, and most importantly 3) postpone the introduction of efficient generating technology for another decade, and therefore, delay the most effective way of reducing the cost of producing power on Long Island.

There are better ways of dealing with the Shoreham problem. We have similar problems upstate, and our local utilities have made considerable efforts to solve them by, for example, renegotiating uneconomic contracts with non-utility generators. Nevertheless, there are few rewards for this effort in the financial markets. Wall Street is much happier with the prospects for LILCO than it is with the progress made upstate. After the Shoreham deal was announced in December 1996, the price of LILCO stock

jumped to well above the book value of 20 (December 1995). In contrast, stock for NiMo (Niagara Mohawk Power Corporation) was trading at about 50 percent of the book value. A few years ago in 1985, the price of LILCO stock was only 8, and the price of NiMo stock was 16. By the first quarter of 1998, the price of LILCO stock had increased to four times its price in 1985, and the price of NiMo stock had fallen by 25 percent. This is the judgment of Wall Street.

The following discussion 1) identifies the specific reasons why LILCO rates are high, 2) describes an alternative way to reduce LILCO rates, and 3) proposes a better investment for public money to stimulate economic growth on Long Island.

2. WHY ARE LILCO RATES SO HIGH?

From the beginning of this century, electric utilities have made a series of technical improvements in the production of electricity which lowered production costs and increased sales. This trend continued until the seventies. The role of regulation was to ensure that the utilities received full payment on past investments even though power from new generating units was less expensive than power from older units. The typical situation was that generators were used less frequently as they got older. Regardless of the virtues of this system, rates charged to customers did go down year by year.

In the sixties, nuclear power offered the hope that the tradition of reducing the cost of producing electricity would continue. Consolidated Edison, for example, wanted to be an innovator and build a nuclear plant in Queens. What can one say? Attitudes towards the cost and safety of nuclear power were optimistic. When the oil embargo occurred in 1973, the vulnerability of the nation to the whims of oil exporters made

nuclear power an attractive source of energy. Nuclear power was promoted energetically by the federal government, and electric utilities throughout the nation responded with enthusiasm. The economic problem in the mid seventies was perceived to be the lack of capital to finance all of the new nuclear plants. (The plan for LILCO was to have two nuclear plants at Jamesport in addition to Shoreham.) Many plans to build nuclear plants were scrapped (e.g. five plants in New York State) because the actual growth of sales of electricity was much lower than the industry had predicted.

The Cost of Generating Power

What happened? Everybody knew that nuclear plants would be expensive to build compared to traditional coal plants. A major disappointment has been that nuclear plants are also expensive to operate. If capital costs are high, operating costs must be low to be competitive. For most nuclear plants, both the capital costs and the operating costs turned out to be much higher than expected. Table 1 shows the average operating costs per kWh (kilowatt hour) of generating electricity at selected plants in New York State. (Costs are shown from 1987 on because Shoreham was finally completed in 1987.)

The costs in Table 1 illustrate the performance of different types of plants. The power dams at Niagara Falls and the St. Lawrence were expensive to build, but they are a magnificent resource for the state and provide very inexpensive and reliable power. Coal plants upstate are also reliable and relatively inexpensive to operate. Oil plants down state are reliable, but are more expensive because oil costs more than coal and the plants are relatively old and inefficient. Unfortunately, nuclear plants are not like hydro plants. They are just as expensive to operate as oil plants even though the cost of nuclear fuel is

**Table 1: Operating Costs of Selected Power Plants
in New York State**

Plant	Company	Production Cost (¢/kWh)								
		87	88	89	90	91	92	93	94	95
HYDRO										
Niagara	NYPA	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.2
St. Lawrence	NYPA	0.1	0.2	0.1	0.2	0.2	0.2	0.1	0.2	0.2
COAL										
Kintigh	NYSEG	1.9	1.8	1.7	1.8	1.6	1.6	1.5	1.5	1.5
Milliken	NYSEG	1.7	1.8	1.8	1.8	1.8	1.6	1.9	1.5	1.8
Dunkirk	NiMo	1.9	1.9	1.8	2.0	1.7	1.7	1.7	2.1	nr
OIL										
Barrett	LILCO	3.3	3.0	3.7	2.9	2.8	2.4	2.7	2.5	2.4
North Port	LILCO	3.2	2.8	3.2	3.6	3.2	2.8	2.9	3.0	2.5
Port Jefferson	LILCO	3.6	3.4	3.6	4.0	3.5	2.9	3.0	2.9	3.2
NUCLEAR										
Indian Point 3	NYPA	1.9	1.3	2.5	2.8	1.8	2.9	11.5	sd	11.3
Fitzpatrick	NYPA	2.5	2.6	1.9	2.9	3.8	sd	3.5	3.2	3.3
Nine Mile 1	NiMo	1.7	sd	sd	9.2	3.1	2.9	2.7	2.0	nr
Nine Mile 2	NiMo	-	2.8	2.8	4.1	2.6	3.2	3.0*	2.6*	2.0*
Ginna	RGE	1.6	1.7	2.6	2.4	2.4	2.3	2.4	2.3	2.1
sd shutdown	LILCO	Long Island Lighting Company								
nr not reported	NYPA	New York Power Authority								
* from NYSEG	NYSEG	New York State Electric and Gas								
	NiMo	Niagara Mohawk Power Corporation								
	RGE	Rochester Gas and Electric								
Source: New York Power Pool, Annual "Load and Capacity Data."										

low, and as the shutdowns indicate, they have not been reliable. One anecdote is that the newest and best coal plant in the state at Somerset on Lake Ontario (Kintigh in Table 1)

was conceived as a nuclear plant on Lake Cayuga (The Bell Station). However, it became apparent that “one can not build a nuclear power plant within fifty miles of a major university”. I doubt that Cornell has been thanked by the NYSEG stockholders for this switch to coal.

The main point of this discussion is that given the many difficulties that arose during the construction of Shoreham, there is little reason to believe that it would have performed better than any of the other nuclear plants in Table 1. The expected low operating costs of nuclear power have not materialized in New York State.

For a variety of different reasons, there is no shortage of generating capacity in the state. Consequently, it has been relatively inexpensive to buy power from other companies, and the cost of replacement power has been similar to the cost of operating a nuclear power plant. Hence, the real financial problem for LILCO customers is that Shoreham cost so much to build and not that it was closed down. There would still have been a financial disaster even if it had operated. The final cost of Shoreham when it was completed was over \$5 billion, almost two thirds of the total value of all LILCO capital assets (Net Utility Plant in 1987). NiMo was also building an expensive nuclear plant at this time (Nine Mile Point 2) that cost over \$6 billion. However, NiMo was able to sell over half of this plant to other utilities, including LILCO. Consequently, the financial implications of nuclear power for NiMo were not as serious as they were for LILCO.

Some Good News

Although the problems with nuclear power have been the primary focus in discussions of the high rates charged for electricity, important technical improvements in

the generation of electricity have been made. With combined-cycle turbines, it is now possible to convert over 50 percent of the energy in natural gas to electric energy. This compares to conversion rates of 30 to 35 percent for a traditional coal or oil boiler. These new generating technologies have been championed by non-utility generators. The existing electric utilities backed the wrong horse by building nuclear plants. (Unfortunately, most customers in the state have not benefitted from the improved turbine technology because of the poor structure of the contracts for purchased power. The benefits have gone to the power producers as profits.)

An additional advantage of combined cycle turbines is that they can be quite small in comparison to a typical utility power plant. This means that a much more distributed structure of generation is technically feasible, and in many situations, even more efficiency can be achieved through cogeneration. Nevertheless, utilities gave their allegiance to nuclear power rather than to building small turbines. Once a commitment has been made to a nuclear project and a lot of money has been invested, it is hard to stop the project. Robert Moses' strategy for building bridges takes over: nobody wants to see a billion or more dollars spent with no product to show for it.

How Much Should Power Cost?

If a new 800 MW coal plant was built today to meet strict environmental standards, the total cost of generation would be about 6 ¢/kWh. Since generation costs are roughly two thirds of the total cost of delivering power, the cost of transmission, distribution and administration is roughly 3 ¢/kWh. Adding 1 ¢/kWh for property taxes gives a final cost of 10 ¢/kWh. This cost is more than the current average price for NiMo

power, but the current price for LILCO (1995) is 15 ¢/kWh (see Table 3). Even though it would probably be unacceptable to build a coal plant on Long Island for environmental reasons, Independent Power Producers (IPP) are making substantial profits selling power at 6 ¢/kWh, and with new turbines and the current low price of natural gas, it is still possible to make a profit at 4 ¢/kWh.

The breakdown of costs for a new coal plant is shown in Table 2. The capital cost of 3 ¢/kWh is 50 percent of the total cost of 6 ¢/kWh and corresponds to a capital investment of \$1.4 billion. Given inflation and lower environmental standards, the cost of building such a plant would have been lower ten years ago. It should be noted that over 1 ¢/kWh of the O&M (Operations and Maintenance) is associated with environmental controls on emissions. The actual costs of operating the three coal plants in Table 1 are typically less than 2 ¢/kWh, and one plant, Kintigh, was built with scrubbers. Hence, the generation cost in Table 2 is, if anything, too high.

If oil is used as a fuel instead of coal, the fuel cost would be higher than it is in Table 2. Ignoring the fact that capital costs would also be lower, the cost of generation would be 9.3 ¢/kWh if the cost of oil was \$30/barrel, as it was in 1981. Assuming optimistically that the cost of operating a nuclear plant is 2 ¢/kWh, the cost of generation from a \$5 billion nuclear plant (the cost of Shoreham) would be over 12 ¢/kWh. Hence, Shoreham provided a good hedge against the possibility of \$50/barrel oil. (The current price of oil is less than \$20/barrel).

How is it possible to generate power at 4 ¢/kWh? The answer is that the greater conversion efficiency of combined cycle turbines lowers fuel costs, and the relatively simple technology makes O&M and capital costs lower. This technology is not limited to

**Table 2: The Cost of Power from an
800MW Coal Plant**

	<u>¢/kWh</u>	<u>Associated Costs</u>
1. Fuel	1.1	\$1.2/MMBtu (\$7.5/barrel oil equivalent)
2. O&M	1.9	
3. Capital	3.0	\$1.4 billion invested
GENERATION COST	<u>6.0</u>	
OTHER COSTS	3.0	
OTHER TAXES	<u>1.0</u>	
TOTAL	10.0	

The plant is assumed to operate with a capacity factor of 70 percent. The calculation of the allowance for funds used during construction and the annual cost of capital follow standard EPRI procedures, using an interest rate of 10.6 percent and a construction period of three years. Other Costs cover transmission, except income taxes. Income taxes are treated as a cost of financing investments.

using natural gas as a fuel. Oil is a viable alternative, and at a greater cost, even coal can be gasified on site as a fuel.

In fairness, there were three extenuating circumstances that exacerbated the problem of the high costs of building Shoreham. These were 1) Three Mile Island: the Nuclear Regulatory Commission required many expensive modifications in design to improve safety after the accident at Three Mile Island, 2) The economy: in the early eighties, interest rates were very high and a large component of the capital cost of Shoreham is the allowance for funds used during construction, and 3) Competition with other utilities for labor: construction unions were aware of their market power and this led to delays and other problems with the construction of Shoreham.

Regardless of the reasons why Shoreham cost \$5 billion to build, the problem now is to find a reasonable solution to the high rates paid by LILCO customers. Prior to the decision to close Shoreham, the Public Service Commission disallowed \$1 billion of the capital cost in 1987 as imprudent expenses, so that rate payers had to cover the remaining \$4 billion for Shoreham. Retiring this debt of \$4 billion and paying dividends to stockholders are the main reasons rates are so high.

Evaluating the Rates Charged for LILCO Power

Given the information presented above, it is now possible to evaluate the differences in the costs between LILCO and NiMo, and the changes in costs that occurred since the mid eighties when Shoreham and Nine Mile 2 had almost been completed. The costs for 1985 and 1995, derived from the standard categories used by the Public Service Commission, are shown in Table 3. The first two categories are the costs of operations and financing debt, and the last two categories correspond to the Average Income which, after paying Income Taxes, can be distributed as dividends to the stockholders or retained for investment.

Comparing Operating Costs for LILCO and NiMo in 1995 shows that they are quite similar (between 5 and 6 ¢/kWh). The main causes of the 6 ¢/kWh difference between the average prices paid by LILCO and NiMo customers in 1995 are the high Capital Costs and high Average Income for LILCO. Capital Costs per kWh are over twice as high for LILCO, and Average Income per kWh is over three times as high.

Looking at the changes in costs over time, the Operating Costs for LILCO are virtually the same in 1985 and 1995, but the equivalent costs for NiMo increased by

Table 3: FINANCIAL STATISTICS FOR LILCO AND NiMo

REVENUE AND COSTS				
UNITS: ¢/kWh				
	<u>LILCO</u>		<u>NIMO</u>	
	1985	1995	1985	1995
AVERAGE PRICE	12.07	14.99	6.37	8.88
AVERAGE PRODUCTION COST	9.15	12.10	5.27	8.02
1. OPERATING COSTS (Fuel, Labor, etc.)	5.83	5.85	3.50	5.36
2. CAPITAL COSTS (Interest, Depreciation, etc.)	3.32	6.25	1.77	2.66
AVERAGE INCOME	2.92	2.89	1.10	0.86
3. INCOME TAXES	1.58	1.10	0.53	0.33
4. RETURN ON EQUITY	1.34	1.79	0.57	0.53
VALUE OF COMMON STOCK				
UNITS: \$/Share				
BOOK VALUE	27	20	20	17
MARKET VALUE	8	16	20	10
Source: New York State Department of Public Service				

almost 2 ¢/kWh. This illustrates two important points. First, the cost of replacement power for closing Shoreham has not been a financial burden for LILCO. The increase of 3 ¢/kWh in the total cost came from higher financial costs and higher dividends. Second, the increase in the costs for NiMo was caused primarily by the uneconomic contracts for purchasing power from IPP sources. The costs of generation upstate from coal and nuclear plants are relatively low and did not increase (see Table 1).

How Did Wall Street Respond?

One can make a convincing argument that most of the responsibility for uneconomic contracts for purchased power made by NiMo should be taken by the state. The “six cent law” for these contracts was initiated by the state legislature in the early eighties when the price of oil was \$30/barrel and expected to increase. New supplies of inexpensive natural gas from Canada (and the lifting of restrictions on the uses of natural gas imposed by the Fuel Use Act) made it attractive for non-utility generators to build turbines upstate. Utilities were required to purchase this power at 6 ¢/kWh even if it displaced less expensive sources of generation. No equivalent arguments can be made for state intervention to cover the high capital costs of Shoreham. The decision to invest \$5 billion to build Shoreham was made by LILCO management and supported by LILCO stockholders.

The treatment of LILCO stockholders is reflected in the market prices of the common stock. In 1985, dividends were zero and all of the Return on Equity went to building Shoreham. Shares with a book value of \$27 were selling for \$8 (see Table 3). With generous dividend payments, the market value doubled by 1995. The prospects of a takeover by LIPA caused the market value to increase to over \$25 in 1997, and the stock price increased to over \$30 in the first quarter of 1998. Hence, LILCO stock is now trading at well above the \$20 book value. The stock market can not hide its enthusiasm for the takeover by LIPA.

There is no law of economics that requires stockholders to be treated so generously. For example, NiMo stockholders have taken a beating, and the market price of NiMo stock in 1995 was only half its value in 1985 (the price was around \$12 in the

first quarter of 1998). In fact, the difference in the treatments of NiMo and LILCO is the origin for the title of this paper. It is obvious that the stock market does respond rationally, and the main accomplishment of the high dividends paid to LILCO stockholders has been to increase the price of LILCO stock. The price to earnings ratio for LILCO stock has stayed around 10.

3. HOW SHOULD LILCO RATES BE LOWERED?

To recapitulate the causes of the high rates for LILCO power, the oil embargo in 1973 provided the stimulus for building nuclear power plants (the construction of Shoreham actually started in 1968 but the planned capacity of the plant was initially much smaller than the final design). In the early eighties, when decisions to complete nuclear projects were reviewed, the price of oil had risen to \$30/barrel, and expectations were that the price would continue to rise in the future. Once utilities were committed to a nuclear project, it was difficult to stop. Consequently, LILCO customers are paying \$4 billion for a plant that cost \$5 billion to build, or well over three times more than the cost of an equivalent coal plant. After this money had been spent, closing Shoreham had a relatively small effect on the operating costs for LILCO. The reason that LILCO customers pay 15 ¢/kWh instead of 10 ¢/kWh or less is the high cost of financing debt and keeping the LILCO stockholders happy.

If asked why Wall Street prefers LILCO stock to NiMo stock, the answer is obvious. LILCO stockholders get higher dividends. The real question is why should a utility selling power for 15 ¢/kWh pay higher dividends than a company selling power for 9 ¢/kWh? This is not how competitive markets work. A simple explanation is that

LILCO has been more successful in the political business than it has in the power business. NiMo, on the other hand, has made some real improvements in the power business but is still being squeezed financially by the regulators. The people who lose under these conditions are the LILCO customers. However, exploiting utility customers became a standard thing to do in the eighties in many states, including New York State. The current drive to deregulate electric utilities and introduce competition is largely due to the public's reaction to being exploited.

Changes in Regulatory Practices

There is an important characteristic of how people respond to increases in the rates charged for electricity that should be discussed to understand the current predicament faced by LILCO customers. Most residential and commercial customers are relatively unresponsive to price increases for electricity, and as a result, the revenue paid to a utility increases when the price increases. This does not have to be the case. Some customers, such as industrial customers with production facilities in different locations, may switch production to other sites when the price increases, and consequently, revenue from these customers may fall.

When the demand for electricity is unresponsive to price changes (characterized as "price inelastic" by economists), regulators can raise more revenue for utilities by permitting rates to increase. The traditional role of regulators was to control the monopoly power of utilities and allow an increase in rates only when utilities could show that additional revenue was needed to cover prudent expenses. This tradition changed in

many states during the eighties when regulators allowed rates to rise well above economically efficient levels.

The first change in New York State was made to help the state government. Faced with cuts in federal programs initiated by the Reagan administration, the state government used utility taxes as one mechanism for replacing lost federal money. Additional revenue for the state was raised through a "gross receipts tax" (i.e. another sales tax) on utility revenues. This tax is currently over five percent of total revenue, and it accounts for about 0.75 ¢/kWh of the cost of LILCO power. All utilities in the state collect the gross receipts tax from customers.

The second, and most important, change in the regulatory tradition came from the management of electric utilities. It corresponded to replacing the spirit of regulation with the letter of regulation. Traditionally, regulation was used to recover the full cost of past investments when investments in new facilities were driving the average cost of production down. The change in tradition was to claim that the full cost of new investments should be recovered even if they were much more expensive than viable alternatives and were driving the average cost of production up. Furthermore, since the allowed earnings for stockholders were calculated on the value of capital assets, building nuclear power plants offered stockholders the prospect of much higher earnings in the future because the capital costs of nuclear power plants were so high.

Traditionally, decreases of rates were delayed under regulation so that stockholders could earn a fair return on past investments. In general, these past investments were economically viable when they were made, but eventually they were displaced by newer technology. Under the new system, rates were increased by the

regulators to cover the costs of new investments which were already uneconomic before they were completed. The treatment of stockholders varied from state to state. The real problem, however, was that the magnitudes of the uneconomic investments were so massive. For example, the total value of capital assets in use for LILCO would have increased from \$1.4 billion in 1987 to \$5.4 billion if Shoreham had operated (\$6.4 billion if the \$1 billion disallowed by the regulators had been included). Bad investments have been made before by utilities, but they were relatively small in comparison to the costs of nuclear power plants.

Electric utilities were not alone in changing the spirit of the law to the letter of the law in the eighties. The savings and loan scandal had similar origins. The tradition for savings banks was to use federally insured deposits to finance local mortgages. This provided an inexpensive source of capital for a relatively safe form of investment. The creation of junk bonds, and the increase in the maximum insured from \$10 thousand to \$100 thousand, made it possible to use federally insured accounts to cover risky investments. Although defaults on mortgage payments had occurred in the past, it was the huge increases in the magnitudes of the defaults that brought the system down and created the "scandal". It was an example of distorting the objectives of existing institutional rules to favor the interests of investors. In other words, the changes implemented by electric utilities were matched by similar changes in attitude in other sectors. Investors were protected while tax payers and utility customers lost.

In a competitive market, investors are rewarded for making correct decisions and keeping their customers happy by selling a reliable product at a reasonable price. Under the new regulatory system, investors are also rewarded for making bad decisions at the

expense of customers. In a competitive market, the risk of making a good or bad investment is borne by the owners (stockholders) and not by the customers. In the new regulatory system, stockholders were allowed to earn a return on all investments unless they were formally disallowed by the regulators. The process of determining whether investments are "prudent" or not is complicated and contentious. There is no established way, for example, to claim that paying high rates for electricity to cover uneconomic investments is imprudent because it threatens the viability of the local economy. Comparing the \$5 billion cost of Shoreham with a cost of \$1.4 billion for an equivalent coal plant provides some perspective on the situation. The \$1 billion disallowed on Shoreham was still a relatively small amount compared to the total size of the investor's mistake.

The overall result of the changes in regulation that occurred in the eighties was that the goal of providing customers with reliable service at a reasonable price became secondary. Customers were used primarily as a source of revenue to pay for a share of the cost of state government and to pay for uneconomic investments like Shoreham. Faced with the huge debt for Shoreham, it was rational for the LILCO management to try to protect this investment and the stockholders by embracing the "regulatory compact". It made more sense to spend money on lawyers than on engineers. Clearly, the customers for LILCO power are the ones who lose under these circumstances. The question of how to deal with the outstanding debt on Shoreham remains to be answered.

The Cuomo Plan

There were three objectives of the Cuomo Plan that was finally implemented in 1989. These were 1) to close Shoreham, 2) to close Shoreham, and 3) to close Shoreham. The main components of this plan were to transfer the ownership of Shoreham to LIPA (Long Island Power Authority) for \$1, and to allow stockholders to recover the full investment of \$4 billion through rate increases. The only accommodations to customers were that rate increases would be phased in gradually to avoid rate shock, and that payments for Shoreham would be made for 40 years to make annual payments lower. Under this scheme, three quarters of the total payments would go for interest changes, and \$20 billion would be collected to retire a debt of \$4 billion (New York Times, 3/16/97).

Under the Cuomo plan, LILCO drove a hard bargain for closing Shoreham. The company was brought from the verge of bankruptcy in the mid eighties, paying no dividends to stockholders, to the current situation in which stockholders are receiving generous dividends. As a result, the price of LILCO stock has increased to over three times its price in 1985. The underlying assumption of the Cuomo plan was that customers would pay any price to close Shoreham. In retrospect, the price turned out to be too high, and the prospect of paying high rates for electricity for another 30 years is unacceptable to customers.

Faced with rates that are at least 50 percent above the competitive price, customers will react differently. In many cases, industrial customers can make a credible argument that they will relocate production to a region with lower rates (or to generate their own power). Consequently, various mechanisms have been introduced to sell power to some industrial customers at reduced prices. This simply exacerbates the problem of

high rates for the captive residential and small business customers, because the payments for Shoreham are now spread over a smaller number of kWh sold. There is not much that these captive customers can do except complain, and this is what they are doing.

LILCO is an extreme case of exploiting customers to raise revenue. In many other states, similar situations have occurred, and as a result, a national movement to deregulate electric utilities has emerged. California and New England, in particular, have already taken major steps to establish competitive markets for generation. Proposals to deregulate generation in New York State have also been made. The implication is that by abusing the traditional role of regulation, the public has decided that the regulators are now protecting stockholders more than customers. Competitive markets for generation offer the hope that rates for power will be lower. There is no doubt that it is technically possible to make a profit selling power on Long Island for less than 10 ¢/kWh, instead of the price of 15 ¢/kWh charged by LILCO. The difficult question is how to move from the current regulated system to a better one with lower rates.

The Pataki Plan

The Pataki plan is designed to fulfill two commitments. These are 1) to reduce rates for LILCO power by at least 10 percent, and 2) to deal with the financial problems of Shoreham. These are both sensible objectives. The problem with the plan is that the proposed way of reaching the objectives is a bureaucratic creation that favors LILCO stockholders and only addresses financial issues. LILCO customers will receive modest rate reductions, and the proposed institutional arrangements will make it difficult to introduce competitive markets and improve the efficiency of generation. Dealing

effectively with the problem of the huge debt on Shoreham could be a real sign that the state is serious about improving the environment for economic development and growth in employment. Unfortunately, this is not the case with the Pataki plan. It is more a case of refinancing the debt than of restructuring LILCO to reduce the real costs of producing power.

The Pataki plan is very complicated, and it is difficult to evaluate all of the ramifications. Furthermore, the proposal is still evolving, and consequently, it is only practical to describe the qualitative characteristics of the plan. The two main components of the plan are 1) to purchase all LILCO assets and divide the ownership between LIPA and Brooklyn Union Gas (BUG), and 2) to use LIPA's not-for-profit status to issue tax free-bonds and to be exempt from paying income taxes (cost savings are derived equally from these two mechanisms). BUG would have partial control over LILCO gas and non-nuclear generating facilities, and LIPA would control LILCO transmission and distribution, and be responsible for most of LILCO's existing debt and various legal settlements. Since interest rates are lower on tax free bonds, annual payments on a given debt can be reduced. However, the debt still has to be paid off over an extended period of time, and the rates for electricity will still be higher than competitive levels. Paying no income taxes passes this tax burden on to everyone else.

The Pataki plan would raise \$7 billion of public debt through LIPA and \$1 billion from BUG to purchase LILCO. The purchase covers roughly \$3.5 billion for real assets, \$3.5 for "virtual" Shoreham (called a "regulatory asset" for accounting purposes), and \$1 billion to settle the overpayment of property taxes by LILCO. The purchase would assume responsibility for \$5 billion of existing debt (including other liabilities), and pay

\$3 billion for stockholders' equity at the full book value. In terms of real assets, LILCO must be the most highly leveraged utility in history. NiMo provides a more typical example, and it has \$7 billion of real assets with a debt of \$3.5 billion and stockholders' equity of \$3.5 billion.

One of the side arrangements in the plan is to write contracts to ensure that LIPA and BUG purchase generating capacity from the existing LILCO power plants for another 15 years. This effectively limits the introduction of competitive markets for power on Long Island. Hence, the savings for customers come from not paying income taxes, and from using "the largest municipal bond issue in history" (New York Times, 3/20/97) to reduce the interest rates for financing debt. The savings do not come from real cuts in production costs due, for example, to introducing more efficient generating technology.

Another side arrangement does provide some benefit for LILCO customers. The Pataki plan covers the overpayments of property taxes charged to LILCO for the Shoreham site. Part of this cost will be covered by a rebate on LILCO rates from the out-of-court settlement of a civil lawsuit on racketeering. Property owners in Suffolk County will not have to pay back the excess property taxes to LILCO directly, and customers in Nassau County will get a check in the mail for the rebate on rates. The cost for customers will be having to pay back these immediate savings in the rates paid for electricity in the future (New York Times, 3/27/97).

The overall effect of the Pataki plan is to provide some short run benefits for customers and limited long run benefits compared to the current situation. The situation will be better than the Cuomo plan, but not as good as it could be. A large amount of public debt will be tied up to finance the purchase of LILCO, and the generating facilities

will be much the same as they are now with a new owner. There is no reason to believe that the new management will be better than the last, and the potential benefits from competition will be delayed. The important question for LILCO customers is will the plan look as attractive in five years as it does now? This was the problem with the Cuomo plan. The short run scramble to close Shoreham diverted attention from the long run problem of high rates. In a similar way, the current issue of property taxes may divert attention from the long run problem of paying rates for electricity that are much higher than competitive rates.

There are two groups of people who are very enthusiastic about the Pataki plan. They are bond brokers and the LILCO stockholders. In 1996, LILCO stock was trading at 17 before the Pataki plan was announced (in 1985, the price was only 8, see Table 3). Dividend payments to LILCO stockholders have been generous since 1990 for a company with such high costs (dividends were 1.6 ¢/kWh compared to 0.9 ¢/kWh for the state as a whole). Selling LILCO to LIPA and BUG will be like a final payment to stockholders for a job well done. There is no economic justification for this generosity. Creating the financial disaster of Shoreham was supported throughout by management and LILCO stockholders. LILCO customers should not have make additional payments for many years to cover the cost of Shoreham. It simply is not fair. LILCO customers have already paid high rates for over 10 years and have retired \$0.5 billion of the original \$4 billion. The real question is how much more do LILCO stockholders deserve to be paid? LILCO customers should have a voice in this debate. It is not something that should be determined behind closed doors in discussions between Wall Street and the regulators.

A Better Plan

It is possible to meet the two objectives of the Pataki plan without resorting to the use of tax free bonds or postponing the introduction of competition. The goals of this new plan are 1) to retire the debt of Shoreham immediately, and 2) to set the stage for competitive markets for power. Some short run pain will be inflicted, but the long run prospects are much better than they are under the Pataki plan.

Generally, economists believe that competitive markets for power require utilities to divest generating facilities. If this is not done, existing utilities will be able to exploit monopoly power and undermine the primary driving force of competition to reduce prices. LILCO customers are particularly vulnerable, because of the geography of Long Island and the difficulties of transmitting large amounts of power to Long Island from other locations. It is an ideal place to exploit customers.

A Faustian bargain has been made in New England to smooth the way towards competition, and a similar bargain may be implemented in California. Utilities have agreed to divest and sell their generating facilities so that new generating companies can compete effectively. The bargain was that utilities got paid the full value of all uneconomic investments (called strandable assets), such as nuclear power plants. The rationale for making such a bargain was that attempts to strand some assets would lead to endless litigation. By the time that the legal process had finished, customers would have paid the full cost of depreciating the assets anyway. However, paying for strandable assets caused the high prices that led to the public's call for deregulation. Hence, introducing competition without stranding some assets is really an economic oxymoron.

Following the procedures used in New England means that the prices paid for power by customers will continue to be higher than the competitive prices. The transition premiums for the utilities will be collected as additional charges per kWh on final sales. The only way to avoid paying these premiums is to leave the grid and generate power independently for oneself. Even then, there may be “exit” fees charged for leaving the grid that can act as a substantial disincentive. In other words, collecting the transition premiums to pay for straddle assets is only feasible if the regulators let utilities retain effective monopoly control over setting rates.

The high cost of building Shoreham has created a huge debt of \$5 billion for LILCO. Although LILCO sales are only about 12 percent of total sales in the state (investor owned utilities only), LILCO has 32 percent of the total debt. Consequently, in addition to paying stockholders high dividends, LILCO has to pay almost 3 ¢/kWh for interest charges, three times the state average. The question for LILCO customers is why are they financing almost one third of the total utility debt in the state. Persisting with the construction of Shoreham was a gamble made by the management and stockholders of LILCO. The gamble failed because the price of oil never reached \$50/barrel.

When individuals are faced with gambling debts, it is time to sell some of the family jewelry. This is also what happens in competitive industries. Bad investments have to be written off as losses. This is what should be done with a large portion of LILCO debt. It should be noted that capital losses are currently taxed at the same rate as income, and consequently, roughly half of the loss will be offset by paying lower federal and state income taxes. Furthermore, the current boom in the stock market will make it much easier to find offsetting capital gains in most stock portfolios. Although there is

never a good time to take a capital loss for stockholders, current conditions could be a lot worse.

To establish an effective competitive market for generation on Long Island would require having at least half a dozen competitors producing power. This would not happen under the current Pataki plan because future purchases of power from LILCO power plants are mandated. The proposed alternative plan for LILCO has three basic components, as follows:

- 1) LILCO should divest generation and sell existing power plants on the open market (purchase prices for generating sites should be higher than the book value of older plants due to depreciation).
- 2) Proceeds from these sales should be used to retire LILCO debt and the book value of virtual Shoreham simultaneously (i.e., sales of \$1 billion at book value will retire \$1 billion of debt but will reduce the book value of LILCO by \$2 billion).
- 3) All money received for the overpayment of property taxes should be used to retire debt and the book value of virtual Shoreham simultaneously.

If it is assumed that \$2.5 billion can be raised from the sale of \$2 billion of LILCO real assets (e.g. power plants) at book value and an additional \$1 billion is paid by Suffolk County for excess property taxes, then debt can be reduced by \$3.5 billion to \$1.5 billion. In addition, the book value of virtual Shoreham would become zero and real assets would be reduced by \$2 billion to \$1.5 billion. LILCO would now be a \$1.5 billion company with \$1.5 billion of debt. Payments for Capital Costs, Income Taxes and the Return on Equity should be less than one third of the current cost because the book value of the company would be less than a quarter of the current value and the debt

would be reduced by 70 percent. If Operating Costs remain at 6 ¢/kWh, as they should under competition, the cost of power would be roughly 9 ¢/kWh instead of 15 ¢/kWh (see Table 3). There would be no defaults on debt and the price of stock would reflect the potential earnings from the real assets of a transmission and distribution company instead of the paper assets of virtual Shoreham.

The advantages of this new plan are that a viable pattern of ownership of generating capacity will be established for competition. LILCO will remain as an investor-owned transmission and distribution company, and pay income taxes like everyone else. The total debt of LILCO will be reduced, and LILCO stockholders will take a direct capital loss coupled with an associated fall in stock prices. Since LILCO customers have been paying high rates for 10 years in order to pay high dividends to stockholders, it is time for stockholders to share the pain.

There are two additional complications that affect this new proposal. The first one is the issue of repaying property taxes to LILCO, and the second is the liability for toxic waste at LILCO generating sites. The issue of property taxes is relatively easy to resolve. The final settlement for overpayment by LILCO must be paid back by people in Suffolk County. This is a case when it is appropriate to use long term tax-free bonds. They could be issued by the county and paid for by a premium on property taxes or sales taxes (New York Times, 6/10/97).

The second issue of environmental liability is much more serious, and it is potentially a problem for any plan that involves modifying or replacing existing generating facilities. Anyone who purchases an established site is liable for all toxic materials that exist on that site. It is like walking across a minefield. Any small change

in operations may trigger environmental regulators to require a cleanup of the site. Hence, the market value of many existing generating sites will be reduced by the uncertainty surrounding these environmental regulations. In many situations, it makes more sense to build a facility on a pristine site (a greenfield) than upgrade an existing site (a brownfield). Developing a systematic way to reduce the current uncertainties and provide incentives for cleanup are needed. This would go a long way towards avoiding future environmental problems (e.g. the contamination of water supplies), and show potential investors that the state is serious about economic development. From an economic perspective, leaving contaminated sites as potential time bombs and developing new sites instead is generally very wasteful. Solutions to these environmental problems are needed regardless of which plan for dealing with Shoreham is adopted.

The proposed plan for selling LILCO power plants to retire debt meets the two objectives of the Pataki plan. In addition, it provides the essential restructuring of LILCO to allow for competition among new suppliers of power on Long Island. Replacing old power plants with efficient new turbines will lead to real reductions in the costs of producing power in the future. The next section proposes an alternative way to use public debt to stimulate economic development on Long Island.

4. WHAT INCENTIVES ARE NEEDED FOR ECONOMIC DEVELOPMENT

An important reason for concern about the high rates for electricity on Long Island is the potential adverse effect on the economy. Manufacturing employment in Suffolk County grew faster in the eighties than it did in Nassau County or the rest of the state, but this trend did not continue into the nineties. It is unlikely that the rate reductions from the

proposed public takeover of LILCO by LIPA would provide a major boost for the economy because the rate reductions are so small. Hence, an alternative plan to stimulate the economy should be considered. The new proposal is to use public money to improve the infrastructure for transportation.

There are many attractive features of Long Island. One could develop a theme for economic development of "Brains, Beaches and Broadway". There is a skilled labor force, a nice environment for living and access to the entertainment and arts of New York City. As a location, Long Island should compete well with growth areas on the West Coast. In spite of these desirable features, the poor transportation connections to the mainland and the congestion around New York City act as impediments for new firms. Improving transportation by getting more freight off the roads and improving options for commuters would make Long Island more attractive for economic development. Building a better transportation system would also provide new jobs in construction. Such jobs would help to boost the employment opportunities for people who do not have college degrees, and to reduce the chronic unemployment levels of minority youth in New York City. The economic implications of spending public money on improving the transportation system are much better than they are using public money to buy LILCO.

There is another reason for improving the infrastructure for transportation. Many cities along the eastern seaboard from Baltimore to Boston continue to violate federal standards for smog (ozone) during the summer months. High concentrations of ozone exacerbate public health problems, particularly for people with bronchial diseases such as asthma. The current scientific debate about the health effects of ozone suggests that the

existing standards are not stringent enough. Consequently, substantial efforts are being made to reduce the emissions from power plants, automobiles and trucks that produce ozone. These efforts, however, are directed to reducing emissions per mile travelled and per kWh of electricity generated rather than changing driving behavior or increasing energy conservation. Nevertheless, it is unlikely that standards for ozone will be met unless there are also reductions in the miles traveled on roads.

The best way to achieve this is to provide better alternatives to both automobiles for commuting and trucks for freight. Better rail links between Long Island and the mainland for freight, new rail links to all major airports, and upgrading existing rail, subway and bus services for passengers are examples of improvements that should be considered. Combining major improvements in the infrastructure of transportation with the planned improvements in the engines and fuels for automobiles and trucks, would result in substantial improvements in air quality and a much healthier environment for all people living along the East Coast. If a clear commitment to improving environmental quality in the region is made, it would be an added attraction for the types of new firms that one would like to encourage as part of a plan for economic development.

The need to improve air quality to meet current standards for ozone in the Clean Air Act is one justification for spending public money on improving the transportation system, and public transportation in particular. Another justification would be to increase the overall energy efficiency of transportation as one step towards reducing the growth of greenhouse gases. This would be an ambitious environmental goal, but there is a real potential for symbiosis between policies for meeting current standards for ozone and

policies for reducing emissions of greenhouse gases. The problem with existing strategies for meeting ozone standards is that they are not sufficiently ambitious and they will not lead to major improvements in the infrastructure of transportation. The problem with strategies for reducing greenhouse gases is that the future benefits are not very tangible to the public in general, particularly to people in the newly industrializing nations like China.

Better air quality in urban regions would have a direct effect on improving public health and it is likely that the public would find the need for these environmental policies convincing. In the Northeast, the policies would require cooperation among states from Virginia to Maine, and similar policies could be adopted in other regions that do not meet standards for ozone, such as Los Angeles and Chicago. In fact, there is a chronic need to improve air quality in cities throughout the world as a step towards better public health. In the USA, a national objective should be established to demonstrate that better air quality in cities is attainable using innovative ways to increase the overall energy efficiency of the transportation system. Successful programs for improving air quality in the USA could provide useful examples for other countries to adopt, and might lead to new markets for advanced forms of vehicles such as hybrid electric buses.

Improving the transportation system will require spending public money, and the difficult question is how to pay for it. The obvious choice of funds is to put an “uplift”, to borrow a term from the electric utility industry, on the price of gasoline. Even though all higher taxes are always unpopular, there is evidence that the public is willing to pay new taxes to fund specific projects that are considered worthy. It is essential that the

public be educated to understand that higher taxes on gasoline are justified to deal with the environmental externalities of poor air quality and greater congestion on the roads.

Building a strong public commitment to improving public health by developing an efficient transportation system would be a fine way to start the next century on a path that is both economically and environmentally sound. Whether this effort is part of a national policy or limited to states in the Northeast, using public money this way in New York State would have a much more beneficial effect on the Long Island economy than spending public money on purchasing LILCO.

5. SUMMARY AND CONCLUSIONS

The high rates for electricity that are currently paid by customers on Long Island have become a major concern to the public and a major impediment to economic development. These high rates were caused by the huge cost of building a nuclear power plant at Shoreham - a plant which never operated commercially. The additional cost of purchasing power after Shoreham was closed was not an important factor. The difference between the average price of 15 ¢/kWh paid by LILCO customers and the average price of 9 ¢/kWh paid upstate by NiMo customers is attributable entirely to servicing a massive debt and paying generous dividends to the owners of LILCO stock. This situation is the legacy of a plan implemented by Governor Cuomo in 1989.

The current financial status of LILCO can be summarized as follows. The company has a nominal book value of \$8 billion for assets with a debt of \$5 billion. However, only \$3.5 billion of the assets are tangible assets (e.g., power plants). The remaining \$3.5 billion are paper assets (corresponding to the "regulatory assets" for

Shoreham) and a promise of getting \$1 billion from Suffolk County for the overpayment of property taxes. Consequently, the debt held by LILCO is much larger than the tangible assets even if LILCO receives the overpayment on property taxes. Covering all direct costs, such as fuel, labor and the interest on bonds, as well as paying generous dividends to stockholders is only possible with regulatory complicity. However, LILCO customers have made it clear that they are tired of paying the high rates that are needed to support the current financial structure of LILCO. A new plan for LILCO must be found.

The plan proposed by Governor Pataki at the end of 1996 was to use \$7 billion of public debt and \$1 billion of private debt to purchase LILCO. This purchase would acquire all of LILCO's assets (\$8 billion), take over responsibility for all of the debt (\$5 billion), and pay stockholders the full value for their equity (\$3 billion, which includes the overpayment of property taxes). Savings in cost for the new LILCO would come from using tax-free bonds paying no income taxes, and paying no depreciation on the paper assets. LILCO customers would still have to pay off the debt, and the rates would probably fall from 15 ¢/kWh to 12 ¢/kWh. LILCO customers would continue to pay substantially more than the 9 ¢/kWh paid upstate by NiMo customers. An additional component of the Pataki plan would guarantee that power is purchased from the existing LILCO power plants in the future. This restriction would make it much harder for new suppliers to get established on Long Island, and consequently, would make it less likely that the direct costs of producing electricity will be reduced by introducing new efficient turbines (i.e., by using fuel more efficiently).

The main problems with the Pataki plan are 1) it ties up a lot of public money, making it harder to finance other public projects; 2) it limits competition among

suppliers of power and delays the introduction of real improvements in generating efficiency; and 3) it will reduce rates by only a modest amount and do little to stimulate economic growth on Long Island.

The main advantage of the Pataki plan is that the management and stockholders of LILCO are very enthusiastic about it, and they will not try to block the takeover in the courts. Just prior to the announcement of the plan in December 1996, LILCO stock was trading slightly under book value. After the announcement, the price jumped immediately and has increased further to 50 percent above the book value in the first quarter of 1998. These prices are good indicators of the enthusiasm on Wall Street for the Pataki plan.

Given the many problems associated with the Pataki plan for Shoreham, the main objective of this paper is to propose a better plan that accomplishes the same general objectives without tying up \$7 billion of public money. The underlying rationale for this new plan is that the \$3.5 billion of paper assets for Shoreham should not be treated as a prudent investment earning dividends for stockholders. The cost of building Shoreham was much too high to be economically viable even if Shoreham had operated commercially. Since the high rates charged by LILCO are caused by the financial charges on a huge debt of \$5 billion, the proposal is to reduce costs by reducing the size of the debt.

There are two sources of money for retiring debt in the new plan. The first is to get the \$1 billion owed to LILCO by Suffolk County for property taxes. The second is to sell the generating component of LILCO to new power suppliers. As a result, LILCO debt would fall to roughly one third of its current size. The paper assets for Shoreham

would be reduced by the same amount and could be eliminated entirely. The overall result would be that LILCO would become a transmission and distribution company, and the stage would be set for genuine competition among the new suppliers of power. Rates would be reduced by roughly one third without resorting to the financial contortions of refinancing debt with tax-free bonds and eliminating the payment of income taxes.

People in Suffolk County would have to pay the money owed to LILCO for property taxes. This is a case when it makes sense for Suffolk County to issue tax-free bonds which could be paid for using, for example, an increase in the county sales tax. The rebate of property taxes would also be paid under the Pataki plan. The differences with the new plan are that the 1) money would be used to retire debt rather than to reward stockholders, and 2) the bonds would be issued by the county rather than by LIPA.

LILCO stockholders would be unhappy about the proposed new plan, but the treatment of Shoreham would reflect the real economic state of a company that made a bad investment. There would be capital losses. However, given the boom in the stock market, these losses would be offset by capital gains in most stock portfolios and would also reduce income tax liabilities. Investment in the stock market is always risky and there is nothing unusual about taking capital losses.

A major advantage of the new plan for LILCO is that it would not impose artificial constraints on the creation of a competitive industry for supplying power on Long Island (and BUG could still be one of the new suppliers). The plan would insure that new efficient technology for generating electricity is introduced rapidly. This, in turn, would reduce the real costs of producing power in the future and help keep the rates charged to customers at competitive levels. The restructured LILCO could become a

viable transmission and distribution company earning respectable returns for stockholders, and the financial problems of Shoreham would be finally resolved.

Even if the new structure for producing and distributing electricity on Long Island is successful and rates are reduced substantially, there is no guarantee that the economy will blossom. One impediment to economic development will have been eliminated. The new plan for LILCO also includes a proposal for using public money to improve the infrastructure for transportation and provide better links between Long Island and the mainland. The objective is to make it easier to move freight by rail and to offer attractive means of public transportation for passengers that compete effectively with automobiles. Building a better infrastructure for transportation will create many new jobs in the construction industry which will also provide a stimulus for economic development.

Economic development is not the only reason for improving the transportation system. There are also pressing environmental reasons. First, many urban regions along the Northeastern coast violate mandated federal standards for ozone (smog). The justification for reducing concentrations of ozone is to improve public health. However, existing federal programs for redressing emissions from utilities, industry and transportation will not be sufficient to meet standards in the future. Consequently, new programs are needed, and reducing the number of miles traveled on roads would be an effective way to reduce concentrations of ozone and the associated adverse health effects. Most economically viable ways of reducing emissions per mile from automobiles and trucks and per kWh of electricity generated will also be exploited in the new programs.

A second environmental reason for building a better transportation system is to reduce the emissions of greenhouse gases that contribute to global warming. Improving

the overall energy efficiency of the transportation system by reducing the number of miles traveled on roads would be a sensible way to accomplish this goal. Furthermore, many problems of pollution from automobiles and trucks affect cities throughout the world. Demonstrating that air quality can be improved in the Northeast by building a better transportation system would be a valuable contribution to solving global environmental problems.

The Northeastern states must comply with existing federal ozone standards soon. However, it is important to realize that meeting this objective by building a more efficient transportation system would also be a tangible step toward reducing emissions of greenhouse gases and stimulating economic development on Long Island. It would be an excellent way to demonstrate leadership in meeting economic and environmental goals in the twenty first century.

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