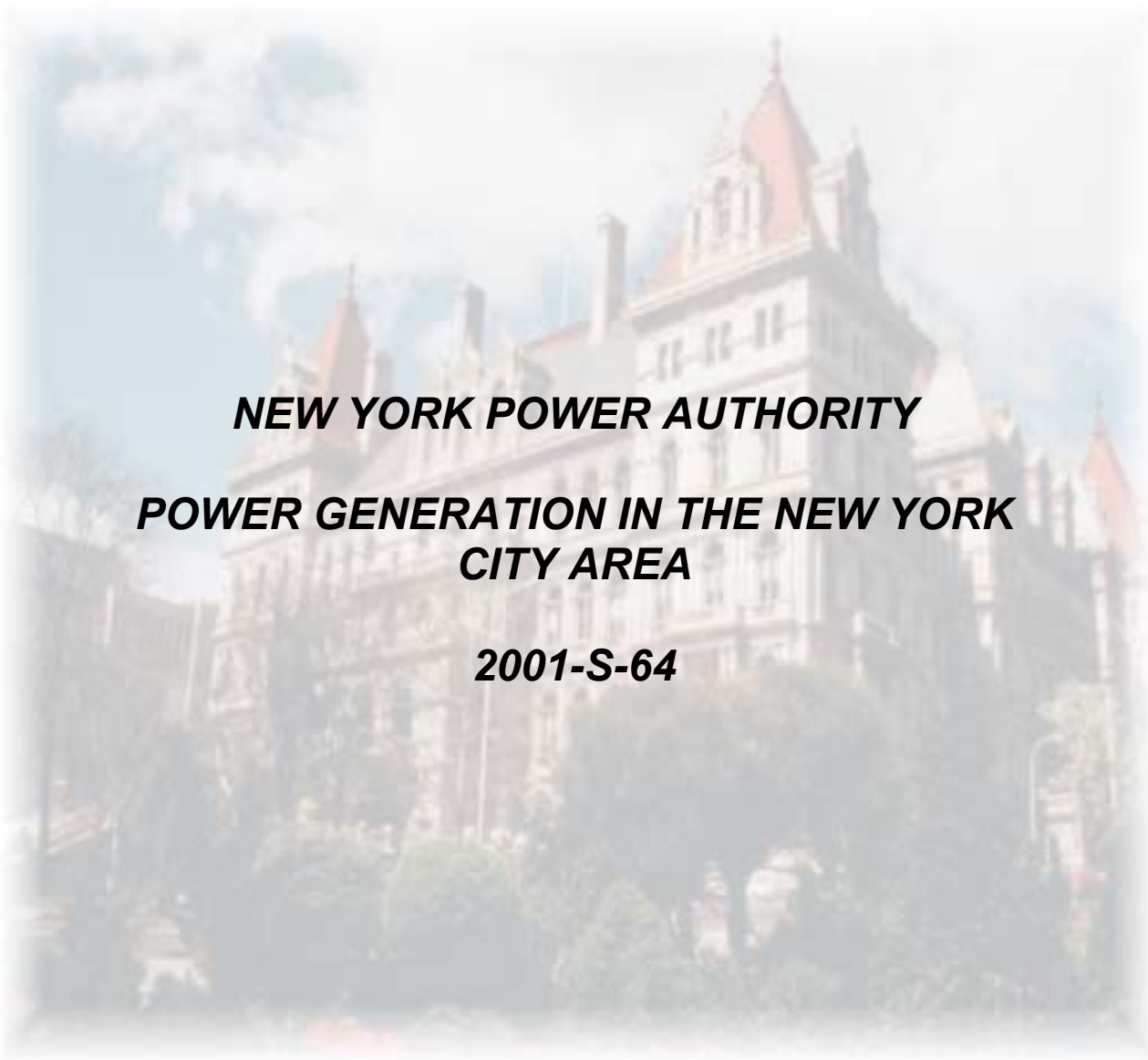


A REPORT BY THE NEW YORK STATE OFFICE OF THE STATE COMPTROLLER

Alan G. Hevesi
COMPTROLLER



NEW YORK POWER AUTHORITY POWER GENERATION IN THE NEW YORK CITY AREA

2001-S-64

DIVISION OF STATE SERVICES

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Alan G. Hevesi
COMPTROLLER

Report 2001-S-64

Mr. Louis P. Ciminelli
Chairman
New York Power Authority
30 South Pearl Street
Albany, New York 12207

Dear Mr. Ciminelli:

The following is our audit report addressing the processes used by the New York Power Authority in deciding to provide additional electrical energy and capacity in the New York City area by building and operating a new 500-megawatt generating plant in Queens and installing and operating small generating units in New York City and Long Island (the PowerNow! project). The matters addressed in this report are a continuation of matters that were not fully addressed in our prior audit report 2000-S-61.

This audit was performed pursuant to the State Comptroller's authority as set forth in Chapter 469 of the Laws of 1989, as amended. In performing this audit, we were assisted by The Liberty Consulting Group of Quentin, Pennsylvania, a utility management-consulting firm. Major contributors to this report are listed in Appendix A.

Office of the State Comptroller
Division of State Services

May 12, 2004

Division of State Services

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EXECUTIVE SUMMARY

NEW YORK POWER AUTHORITY

POWER GENERATION IN THE NEW YORK CITY AREA

SCOPE OF AUDIT

The New York Power Authority (NYPA) is the largest state-owned utility in the United States, operating power plants that provide about one-quarter of the electricity used in New York State. NYPA sells most of its electricity to investor-owned utilities in New York State, large industrial customers in New York State and governmental agencies in the New York City area. Three NYPA customers account for about 16 percent New York City's total peak demand. The three customers are: the City of New York, the Metropolitan Transportation Authority, and the New York City Housing Authority.

To protect customers in New York City against problems caused by transmission failures and other disruptions in the supply of electricity, the power suppliers serving these customers must be able to obtain at least 80 percent of the customers' power from generating facilities located within New York City. In response to this requirement, NYPA decided to build a new power plant in New York City. In addition, in the PowerNow! project that was completed in 2001 in response to projected power shortages, NYPA installed 11 small generating units in the New York City area. With the assistance of a management consulting firm specializing in utility operations, we audited the processes used by NYPA in deciding to build the new plant and install the PowerNow! units.

AUDIT OBSERVATIONS AND CONCLUSIONS

We found that improvements are needed in NYPA's decision-making processes if the actions taken by NYPA are to be as effective as they could be. While NYPA's new plant in New York City will provide much needed generating capacity to the area, NYPA did not evaluate all available alternatives for providing this capacity and based its decision to build the plant on information that was unreliable and incomplete. NYPA also has not analyzed whether it should retain the PowerNow! units or sell them to private power producers. NYPA plays a critical role in New York State's power industry. It is thus critical that NYPA's decision-making processes not be vulnerable to unnecessary risks.

If NYPA is to continue supplying power to its large government customers in New York City, it will need a certain amount of additional generating capacity within the City. NYPA decided that the most cost-effective method of obtaining this additional capacity was to build and operate a new plant in New York City. We examined the analyses performed by NYPA in relation to this decision to determine whether the available options were adequately evaluated before NYPA committed itself to this particular course of action, and whether the information used in the decision-making process was reliable.

We found that several alternative options commonly taken by utilities were not evaluated by NYPA prior to committing to build the new plant. For example, NYPA did not consider whether it would have been preferable to have a contractor build and operate the new plant for NYPA, as is often done in the power industry. A similar process was recently followed in New York City by Consolidated Edison when, instead of building a new generating plant, it contracted to purchase power from a company who was building a new generating plant. We also found that NYPA's decision to build the plant was based on unreliable cost estimates. If these cost estimates had been more accurate, NYPA's analyses may have indicated that it would not have been cost-effective to proceed with this particular option for obtaining additional generating capacity in New York City. Cost estimates rose from \$375 million in 1999 to \$650 million in 2002; an increase of \$275 million. (NYPA officials state in response to our draft report, that they have a comprehensive planning and evaluation process. We saw the process get better over time, but our report highlights some of the problems with their process.) (See pp. 15-26)

We also found that NYPA has done little to secure long-term contracts with its large New York City government customers. In the new competitive market for electricity, these customers are likely to be sought by other power suppliers and may choose to obtain their power from sources other than NYPA. If this happens, NYPA's new plant may become a "merchant" plant competing with other merchant plants in the risky and volatile wholesale electric market. Such a role was not intended for the plant when its construction (and tax-exempt financing) was authorized, such a role may not be appropriate for a facility owned by a public agency, and such a role may jeopardize the tax-exempt status of the financing. We recommend that NYPA take immediate action to initiate the process of negotiating long-term contracts with its large government customers. (See pp. 28-32)

In the PowerNow! project, NYPA acted quickly to install 11 small generating units in response to power shortages that were projected by power industry regulators. In less than two full years of operation, NYPA has lost about \$175 million on the facilities, which are typically operated only during periods of peak demand to provide power for the wholesale market. The units are not used to supply NYPA's regular government customers. NYPA officials previously stated that the units might be sold to the private sector after they were up and running, but now state that they plan to retain the units.

We found that the PowerNow! units were constructed as a public service to meet an urgent public need without regard for the financial consequences to NYPA. While it was appropriate for a public agency such as NYPA to respond to this need, we question whether NYPA should have to bear the entire financial burden of providing power that benefits everyone in the New York City area.

We further note that the facilities do not have to be operated by NYPA; if they were operated by a private developer, their power would still be available to the New York City area. NYPA has not prepared a formal evaluation justifying its decision to retain the facilities. We recommend that such an evaluation be prepared. We further recommend that a plan for the PowerNow! units be developed. This plan should include a strategy for either continued ownership or disposition of these units, and should also include a clear statement of NYPA's specific role in the New York City wholesale and retail power markets. In the absence of a clear and public statement on this topic, private sector investment in the area may be discouraged. (See pp. 39-43)

COMMENTS OF NYPA OFFICIALS

Draft copies of this report were provided to NYPA officials for their review and comment. Their comments were considered in preparing this report. Where appropriate, we have made changes to our report. NYPA's complete response is included as Appendix B of this report. NYPA officials disagree with most of our conclusions and recommendations, and they believe the report contains inaccuracies and is not useful.

Although NYPA officials disagree with our audit report, we stand by the audit's conclusions and recommendations, which were developed by career OSC auditors and a national utility management-consulting firm with considerable experience evaluating the management and operations of public and private utilities in many states. Appendix C of this report is the State Comptroller's Rejoinder to NYPA's response to our draft audit report. Appendix D is the consulting firm's response to the NYPA audit.

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INTRODUCTION

Background

The New York Power Authority (NYPA) is the largest state-owned utility in the United States, providing about one-quarter of the electricity used in New York State. NYPA operates five large power plants, 12 smaller generating facilities and more than 1,400 circuit miles of transmission lines. NYPA sells its electricity to non-residential customers, which are mostly government entities and investor-owned utilities in New York State, large industrial customers in New York State and governmental agencies in the New York City area. With one exception, the Niagara Falls Transit Authority, NYPA's major governmental customers, such as the City of New York and the Metropolitan Transportation Authority, are located in the New York City area.

NYPA began operating power plants in 1958. Its two oldest plants, the St. Lawrence plant (1958) and the Niagara plant (1961), are large hydroelectric plants that were constructed by NYPA and are capable of generating 800 megawatts and 2,400 megawatts of electricity, respectively. (One megawatt is generally considered enough electricity to light 1,000 typical homes.) In the 1970s, NYPA built two more large plants (a 1,040-megawatt pumped storage hydroelectric plant in the Schoharie Valley and a 820-megawatt nuclear facility on Lake Ontario), and initiated a program of developing small hydroelectric generating facilities throughout the State, five of which began operation between 1982 and 1986.

NYPA established itself in the New York City area in 1974 as a result of financial difficulties encountered by Consolidated Edison, the primary source of electricity in the area at that time. NYPA was authorized by the Governor and State Legislature to buy two partially-built power plants from Consolidated Edison, complete the construction of the plants, and operate both plants (the 825-megawatt fossil-fueled Poletti plant in Queens and the 970-megawatt nuclear Indian Point 3 plant in northern Westchester County). As part of this arrangement, NYPA was expected to sell most of the electricity produced by these two plants to certain government agencies in New York City and

Westchester County that were formerly customers of Consolidated Edison.

Since that time, NYPA has added to its presence in the New York City area. In 1994, it began operating a 136-megawatt fossil-fueled plant on Long Island, after it was awarded the contract to build the plant by the utility providing most of the power to Long Island. In 2001, in response to projected power shortages in the New York City metropolitan area, NYPA installed 11 small generating units at six sites in New York City and one site on Long Island. Together these seven sites can produce about 450 megawatts of electricity. In late 2002, NYPA broke ground in the construction of a new 500-megawatt plant at the site of the existing Poletti plant in Queens. The new plant is expected to begin operation in 2005. NYPA has also announced that, between 2008 and 2010, it will retire the existing 825-megawatt Poletti plant in Queens.

To reduce its operating risks, NYPA sold both its nuclear plants to the Entergy Corporation in November 2000. As part of the sales agreement, NYPA agreed to purchase the plants' output through 2004. NYPA has not decided whether it will seek new long-term purchase contracts for some or all of this output, which includes 980 megawatts of electricity from Indian Point 3 for government agencies.

The power industry in New York State has changed significantly since 1996, when competitive wholesale and retail markets were created in an effort to deregulate the industry. Most of New York's regulated utilities sold their generating plants to new owners, who are expected to compete with one another and other power generators in the new wholesale market. In the new retail market, the utilities and other energy services companies were expected to compete with one another in obtaining this power from the wholesale producers and selling the power to consumers. Since NYPA is not subject to the regulations of the New York State Public Service Commission, it was not required to sell its generating plants. Consequently, NYPA competes in both the wholesale and retail markets.

These markets are overseen by the New York Independent System Operator (NYISO). The NYISO, which was formed in 1998, is a not-for-profit entity regulated by the Federal Energy Regulatory Commission. The sale, purchase and transmission of electricity in the wholesale market are overseen by the

NYISO. To protect against problems caused by disruptions in the transmission of electricity to New York City, the NYISO requires that every power supplier serving customers in New York City be able to obtain at least 80 percent of its customers' power (peak usage) from power plants located within the City. To meet the requirement, power suppliers may either own generating facilities within the City or have purchase agreements with such facilities. NYPA has agreed to comply with this 80 percent in-City capacity requirement in the New York City area.

NYPA is a public benefit energy corporation created by the State Legislature. NYPA is governed by a Board of Trustees that is appointed by the Governor and confirmed by the State Senate. NYPA receives no State appropriations. It sells electricity to obtain operating revenue and issues bonds to finance construction projects.

Audit Scope, Objective and Methodology

We audited selected aspects of NYPA's operations for the period August 1, 1996 through August 31, 2003. The objective of our performance audit was to evaluate the processes used by NYPA in deciding to provide additional power in the New York City area by (1) building and operating a new 500-megawatt generating plant in Queens and (2) installing and operating 11 small generating units with a combined capacity of about 450 megawatts in New York City and Long Island (the PowerNow! Project).

To accomplish this objective, we interviewed NYPA officials and reviewed documents that were provided by NYPA. These documents included detailed cost and revenue analyses prepared by NYPA staff and consultants hired by NYPA. In particular, the following analyses were identified by NYPA as critical to their decision to build and operate the new plant in Queens: the 1998 Poletti Repowering Study prepared by NYPA staff, a 1999 study prepared by the consultant Pace Global Energy Services, an August 2000 staff analysis, a December 2001 staff analysis, and a May 2002 staff analysis update. We did not review the documentation supporting NYPA's estimates of future electricity prices, because complete documentation was not retained by NYPA. In addition, we did not interview NYPA's Board of Trustees, because we were not permitted by NYPA officials to conduct interviews with the Trustees.

The matters addressed in this report are a continuation of certain matters that were addressed in our prior audit report 2000-S-61, issued on July 31, 2001 in accordance with Chapter 469 of the Laws of 1989 as amended by Chapter 298 of the Laws of 1990. To comply with this law, beginning in 1991, the Office of the State Comptroller has performed at five-year intervals a comprehensive audit of NYPA's management and operations, and has issued a report disclosing the audit results on or before July 31 of every fifth year. In order to issue our prior report by July 31, 2001, we had to suspend our examination of NYPA's plans to provide additional power in the New York City area. As is described in detail in that report, our examination of this issue was delayed because NYPA was slow to provide us with certain documents related to its plans for providing additional power in the New York City area. We subsequently returned to NYPA, reviewed the documents that had been withheld as well as more recent documents that had become relevant in the intervening period, and completed our examination.

In the performance of both the continuation audit and the original audit, we contracted with The Liberty Consulting Group of Quentín, Pennsylvania, a utility management-consulting firm. We relied on this firm's expertise and considerable experience in evaluating utility operations. The Liberty Consulting Group provided detailed analysis of the NYPA operations addressed by our audit objective. The Office of the State Comptroller nevertheless maintained overall management responsibility for the conduct of the audit and ensured full compliance with generally accepted government auditing standards. Such standards require that we plan and perform our audit to adequately assess those operations of NYPA included within our audit scope. Further, these standards require that we understand NYPA's internal control structures and its compliance with those laws, rules and regulations that are relevant to the operations included in our audit scope. An audit includes examining, on a test basis, evidence supporting transactions recorded in the accounting and operating records and applying such other auditing procedures as we consider necessary in the circumstances. An audit also includes assessing the estimates, judgments and decisions made by management. We believe that our audit provides a reasonable basis for our findings, conclusions and recommendations.

The Office of the State Comptroller is required by law to do a program, financial and operations audit of NYPA at least once every five years. To fulfill this statutory mandate, prior to the actual audit, we identified a number of specific concerns and issues which, with the assistance of The Liberty Consulting Group, have been pursued during this continuation audit and during the original audit. During the audit process, we refined the audit areas as circumstances warranted. Thus, this report and our prior report 2000-S-61 do not necessarily address all the concerns and issues originally identified because the reports are prepared on an “exception basis” and therefore are focused on areas in need of improvement and not on areas where NYPA is considered to meet minimum industry standards and demonstrate adequate controls and sound management practices.

In addition to being the State Auditor, the Comptroller performs certain other constitutionally and statutorily mandated duties as the chief fiscal officer of New York State, several of which are performed by the Division of State Services. These include operating the State’s accounting system; preparing the State’s financial statements; and approving State contracts, refunds, and other payments. In addition, the Comptroller appoints members to certain boards, commissions and public authorities, some of whom have minority voting rights. These duties may be considered management functions for purposes of evaluating organizational independence under Generally Accepted Government Auditing Standards. In our opinion, these management functions do not affect our ability to conduct independent audits of program performance.

Response of NYPA Officials to Audit

Draft copies of this report were provided to NYPA officials for their review and comments. Their comments were considered in preparing this report. Where appropriate, we have made changes to our report to recognize relevant factual information conveyed in NYPA’s response. NYPA’s response is included as Appendix B of this report. Our rejoinder to the NYPA response is contained in Appendix C of this report. Appendix D is the consulting firm’s response to the NYPA audit.

NYPA officials disagree with most of our conclusions and recommendations. For example, NYPA officials contend that their decision to build and operate the new 500 megawatt

combined-cycle generating facility came after extensive studies and research. However, we conclude that NYPA made this decision without evaluating the feasibility of alternatives commonly considered by utilities contemplating large construction projects.

NYPA officials also disagree with our conclusion that NYPA needs long-term power-purchase contracts with its New York City governmental customers. NYPA officials state that their existing contracts with these customers are long-term contracts. However, these contracts are actually rolling three-year contracts, because they can be terminated by the customers with three years' notice. We also note that NYPA management considered it necessary to try to negotiate true long-term contracts with these customers before investing in the new power plant.

NYPA officials also disagree with our conclusion that improvements are needed in their cost estimating process for construction projects. They indicate that the reasons for the \$275 million increase in the expected cost of the new plant could not reasonably have been foreseen by NYPA. We disagree and note that both the magnitude of the increase (73 percent) and the nature of some of the costs that were not anticipated by NYPA raise questions about the effectiveness of NYPA's cost estimating practices.

Although NYPA officials disagree with our audit report, we stand by the audit's conclusions and recommendations, which were developed by career OSC auditors and a national utility management-consulting firm with considerable experience evaluating the management and operations of public and private utilities in many states.

Within 90 days after final release of this report, as required by Section 170 of the Executive Law, the Chairman of the New York Power Authority shall report to the Governor, the State Comptroller, and the leaders of the Legislature and fiscal committees, advising what steps were taken to implement the recommendations contained herein, and where recommendations were not implemented, the reasons therefor.

THE DECISION TO BUILD A NEW PLANT

The main reason NYPA decided to build a new 500-megawatt plant in New York City was to obtain the additional in-City capacity that it needed to continue providing power to its New York City governmental customers. NYPA officials have worked towards operating in a manner that is in accordance with the 80 percent in-City capacity requirement. NYPA decided that the most cost-effective method of obtaining this additional capacity was to build and operate a new plant at the site of its existing Poletti plant in Queens.

We believe that NYPA committed to building the new plant in October 1999, when the Board of Trustees authorized the purchase of the major components for the plant (in conjunction with this authorization, in December 1999, the Board formally resolved to issue \$370 million of bonds to pay for expenditures in connection with the plant). We examined the basis for this decision, and in particular, the analyses performed by NYPA in support of this decision. Our objective was to determine whether the available options were adequately evaluated by NYPA prior to committing to this project, and whether the information used by NYPA in its decision-making process was reliable.

We found that a number of critical options were not considered in the decision-making process prior to the October 1999 commitment. We also found that NYPA's decision to build the plant was based, in large part, on unreliable cost estimates. As a result, the course of action taken by NYPA may not have been the best available course of action in the circumstances, and the revenue from the plant may not be sufficient to cover the costs of building and operating the plant. We recommend that a number of improvements be made in NYPA's decision-making process before any other power plants are constructed by NYPA.

We also found that NYPA has done little to secure long-term contracts with its New York City customers. Although NYPA has had long-standing contracts with its New York City customers, these customers have the right to terminate the contracts after three years; therefore, we do not consider them

to be strictly long-term contracts. In the new competitive market for electricity, these customers are likely to be sought by other power suppliers and may choose to obtain their power from sources other than NYPA. If this happens, NYPA's new plant may become a "merchant" plant competing with other merchant plants in the risky and volatile wholesale electric market. Such a role was not intended for the plant when its construction was authorized and its bonds sold, and such a role may not be appropriate for a facility owned by a public agency such as NYPA. We recommend that NYPA take immediate action to initiate the process of negotiating long-term contracts with its New York City customers.

Evaluation of Alternative Options

In 1997, in its in-house Poletti Repowering Study, NYPA began to formally analyze whether it would be cost-effective to add 500 megawatts of generating capacity to the site of its Poletti plant in Queens. The analysis was prompted by NYPA's belief, shared by others in the power industry, that the 80 percent in-City capacity requirement would soon be imposed on all power suppliers serving customers in New York City. According to NYPA's estimates, NYPA would need about 500 megawatts of additional in-City capacity if it were to meet the requirement and continue serving its existing New York City customers, as follows:

In-City Demand:

Coincident Peak Demand of NYPA's NYC Customers:	1,700 megawatts
80 Percent of Peak Demand:	<u>1,360 megawatts</u>

In-City Capacity:

Poletti Plant:	<u>847 megawatts*</u>
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Amount of Additional In-City Capacity Needed: 513 megawatts

* 847 megawatts was used by NYPA in their analysis

NYPA's main customers in New York City are the City of New York (peak demand of 875 megawatts), the Metropolitan Transportation Authority (peak demand of 598 megawatts), the New York City Housing Authority (peak demand of 211 megawatts), the Port Authority of New York and New Jersey (peak demand of 110 megawatts), and the New York State Office of General Services (peak demand of 62 megawatts). The coincident peak demand of all of NYPA's New York City

customers (i.e., their highest peak demand when they are treated as the equivalent of one customer) is less than the sum of their individual peak demands, and totals about 1,700 megawatts.

NYPA serves these customers with power generated by the existing Poletti plant in New York City, power generated by its plants located outside New York City, power purchased from the Indian Point 3 plant located outside New York City, and power purchased on a spot basis from other producers both inside and outside New York City. While NYPA must be able to obtain at least 80 percent of these customers' power from generating facilities located within the City, if it is to comply with the NYISO's in-City capacity requirement, it is not required to use its full in-City capacity and on most days may obtain the bulk of the customers' power from sources outside New York City. However, the in-City capacity must be available so that it can be called on when sufficient supplies of power cannot be reliably transmitted from sources outside New York City.

NYPA's Poletti Repowering Study was completed in 1998. It considered different options for either expanding the capacity of the existing Poletti plant or building additional stand-alone capacity at the site. NYPA staff concluded that the most cost-effective of these particular options was the option that entailed the construction of a 500-megawatt combined cycle natural gas-fueled power plant at the site. The major components of the 500-megawatt plant would be two gas turbines, a heat recovery steam generator, a steam turbine, a dry cooling system and a condenser. The plant, which would be fueled primarily by natural gas (but could also be fueled by oil), would use state-of-the-art technology designed to achieve high levels of operating efficiency.

On the basis of this analysis, on December 15, 1998, NYPA officials asked the NYPA Board of Trustees to approve the expenditure of up to \$7.5 million for licensing and engineering services that would be needed to further explore the possibility of pursuing this option (all capital expenditures of \$3 million or more must be approved in advance by the Board of Trustees). The Board approved this request, and on October 26, 1999, approved a further request to authorize \$23 million for additional licensing, engineering and procurement activities and \$191.4 million for a contract with General Electric Company to build the turbines and other major components for the 500-megawatt

combined cycle plant. With this approval, NYPA effectively committed itself to this option, and in December 1999, the Board of Trustees formally resolved to issue \$370 million of bonds to pay for expenditures in connection with the plant. At that time, NYPA estimated the total cost of construction would be \$375 million.

At no point before October 26, 1999, when NYPA began to implement the option recommended by the Poletti Repowering Study, did NYPA formally consider any other options (other than the limited technical options addressed by the Poletti Repowering Study) for meeting the 80 percent in-City capacity requirement, even though hundreds of millions of dollars were at stake and an extensive evaluation of alternative options is often required of utility companies seeking approval for large construction projects. In particular, the following options were not considered prior to the commitment to proceed with the new plant:

- **Solicit Bids to Build and Operate a Plant** - Additional in-City power and generating capacity could have been obtained from a new plant that was built and operated by another power producer. The plant did not have to be built by NYPA or operated by NYPA; it only had to supply power to NYPA. NYPA could have solicited bids to determine whether any other power producers were interested in such an arrangement. It was in response to just such a solicitation that NYPA built, and operates, its Flynn plant on Long Island; the plant itself supplies power to the Long Island Power Authority. We note that Consolidated Edison recently solicited bids for power to come from a new power plant to be built in New York City, received several bids in response, and in April 2003, announced that it had signed a ten-year contract to receive 500 of the 1,000 megawatts of electricity to be produced by the plant that will be built by the winning bidder.
- **Joint Venture** - Additional in-City power could have been obtained from a new plant that was built by someone else, but operated by NYPA or the partner. The plant could have been built to NYPA's specifications to meet NYPA's operating needs. If this option had been pursued, NYPA might have been able to obtain more realistic cost estimates for the construction process (as is

discussed in the following section of this report, NYPA's estimate of the construction costs has increased from \$375 million to \$650 million).

- **Long-Term Contracts to Purchase Power and Capacity** - Additional in-City power and capacity could have been obtained through long-term purchase contracts with other suppliers, either existing plants or plants that would be built in the future. If NYPA had publicly expressed an interest in obtaining such power, a power producer may have been willing to build a new plant to help meet this demand, just as several producers were willing to build a plant to meet the needs of Consolidated Edison. However, NYPA made no solicitations for purchased power until August 2001, when it solicited bids to replace the power it was purchasing from its former nuclear plants (this purchase contract will expire in 2004).
- **Reduced Presence in New York City** - The need for additional in-City power could have been reduced or eliminated if NYPA had explored the option of allowing its New York City customers to obtain some or all of their power from other suppliers. While NYPA is required by law to continue supplying customers who want to remain customers, customers may receive better offers from other suppliers and NYPA can elect not to match those offers. However, NYPA did not formally analyze the possible consequences of this course of action in New York City. Notwithstanding NYPA officials' objections to the contrary, NYPA's long-range financial plan for 2001 (the most current long-range financial plan made available to us by NYPA) clearly projects future net losses on its New York City customers, but these losses are expected to be offset in NYPA's consolidated financial statements by the large margins realized on NYPA's sale of power from its two large hydroelectric plants. We also note that, if NYPA had elected to withdraw from the New York City market because it could not meet the 80 percent in-City capacity requirement, other power producers might have found it worthwhile to enter the market and build new plants in the City. The power industry in New York State was restructured, and separate wholesale and retail markets were created, to encourage private development of this kind. NYPA

officials believe that NYPA's tax status ensures that its power prices will continue to be below market prices.

Since NYPA did not consider these options prior to its commitment to proceed with the new plant, we conclude that NYPA's decision-making process was flawed. While it is possible that none of these alternative options would have been found to be preferable to the course of action actually taken by NYPA, it is also possible that one or more of these alternatives would have been a better choice.

The utilities that are subject to the requirements of state public service commissions are often required to institute a comprehensive planning process that evaluates the feasibility of all reasonable alternatives when considering a commitment to build a new generating plant. This type of process requires the utility to consider a variety of alternatives in addition to new construction, such as long-term purchases of capacity and energy, as well as demand-side measures that would reduce the need for more resources. Utilities are required to do this type of planning because, in the past, they often made costly mistakes when they built new generating plants. We believe NYPA would benefit from the use of a more comprehensive evaluation and planning process.

NYPA's two most recently completed construction projects were the Flynn plant on Long Island and the eleven generating units that were installed as the PowerNow! project. The Flynn plant initially lost money because of an unfavorable gas-supply contract, and the PowerNow! units cost far more than expected to construct (\$640 million compared to the initial estimate of \$450 million). In NYPA's ongoing construction project (the 500-megawatt plant in Queens), the expected cost of construction has increased from \$375 million to \$650 million. It should be noted that, even though large combined cycle plants like the plant under construction are not a new concept, they are nonetheless complex to build and operate and have challenged organizations more experienced than NYPA.

We therefore recommend that more comprehensive evaluation, planning and decision processes be used by NYPA prior to making commitments to build new generating facilities. While no new construction projects were being actively considered at the conclusion of our audit field work, NYPA had been considering the construction of another plant at the Poletti site in

Queens with a capacity of either 750 or 800 megawatts. This plant was going to replace the current Poletti plant that will be retired sometime between 2008 and 2010. In 1999 and 2000, NYPA staff and a consultant hired by NYPA (Pace Global Energy Services) performed various analyses assessing the cost-effectiveness of this proposed plant at the same time that they analyzed the cost-effectiveness of the 500-megawatt plant. According to these analyses, the replacement plant would have been cost-effective, but NYPA officials subsequently decided to set aside definitive plans for such a plant, at least for the present. If these plans are revived, more comprehensive evaluation, planning and decision processes should be used to evaluate the cost-effectiveness of all reasonable alternatives prior to a commitment to proceed with any of the alternatives.

Estimate of Construction Costs

In October 1999, NYPA began to implement the option recommended by the Poletti Repowering Study: the construction of a new 500-megawatt plant in Queens. NYPA also performed other in-house analyses at periodic intervals to assess the cost-effectiveness of proceeding with this option. When the Board of Trustees gave its approval to proceed with this option, the estimated cost of construction was \$375 million. When NYPA assessed the cost-effectiveness of this option in 1998, 1999 and most of 2000, its assessments were based on an estimated cost of \$375 million.

In making these assessments, NYPA staff compared the total cost per megawatt-hour of producing power at the plant (both capital and operating costs) to the likely market price per megawatt-hour for the power. According to these assessments, the plant would be cost-effective because the per megawatt-hour sale price of the power would exceed the per megawatt-hour cost of the power. For example, according to the estimate performed in August 2000, during the 2005 through 2007 period, the sale price would exceed the cost by \$5 per megawatt-hour.

However, after 1999, the estimated cost of construction began to increase. First, the contract actually awarded to General Electric to build the turbines for the plant was about \$30 million higher than expected, primarily because of changes during the detailed engineering phase of the project. Also, NYPA had planned on using cooling towers, but the towers had to be

replaced by a dry cooling system because of other regulatory/licensing requirements, concerns over possible fish kills caused by wet cooling, and because it was determined that moisture clouds from the towers would interfere with the operations of nearby LaGuardia Airport. Since a dry cooling system is more expensive than cooling towers, the estimated cost of the construction process increased by an additional \$40 million.

Eight different contract amendments were also added that further increased the cost of the contract with General Electric by an additional \$13 million. For example, a \$4.0 million amendment was needed to expedite the delivery of pipes (NYPA officials state that this amendment represented a reclassification of previously authorized expenditures), a \$4.1 million amendment was needed to enable the turbines to be powered by fuel oil as well as by natural gas (the original contract did not provide for dual-fuel capability), and a \$1.3 million amendment was needed for a compressor to modify the pressure of the natural gas that was going to be supplied to the plant (the gas could not be used by the plant at delivery pressures). The expected cost of construction also increased by an additional \$17 million for other miscellaneous reasons, such as unexpected project management and engineering costs.

These various increases raised the estimated cost of construction from \$375 million to \$475 million, as follows:

Estimate Provided to Board of Trustees	\$375 million
Increase in Contract Awarded to	
General Electric	30 million
Cost to Install Dry Cooling System	40 million
Amendments in Contract to General Electric	13 million
Miscellaneous	<u>17 million</u>
Revised Estimate	<u>\$475 million</u>

NYPA did not include any of these additional costs in its various formal analyses of the project's cost-effectiveness until December 2000, when an analysis presented to NYPA's Executive Management Committee included a partially updated cost estimate of \$400 million. The fully updated cost estimate of \$475 million was not presented to the Board of Trustees until December 2001.

NYPA officials state that Trustees receive monthly reports, including progress reports that showed construction cost increases and there is a log of what is included in these information packages. However, we were unable to determine whether NYPA's Board of Trustees was promptly and fully informed about these cost increases, because NYPA does not maintain a record of the documents that are provided to the Board members at their meetings (generally, a thick binder of documents is provided to each member at each meeting), and we were not permitted by NYPA officials to conduct interviews with Board members. Prompt and full disclosure of such matters is crucial if NYPA – a public entity – is to maintain appropriate standards of public accountability and transparency of major decisions. We therefore recommend that NYPA maintain a detailed record of all documents as provided to Board members at Board meetings.

In April and May of 2002, NYPA's estimates of the construction costs increased again. In April 2002, NYPA received the bids for the general works contract to build the power plant equipment. Only two bids were received. NYPA was expecting contract costs to be about \$97 million, but the bid accepted by NYPA was for \$243 million – \$146 million more than expected. This and other cost increases were reflected in an updated project cost estimate prepared by NYPA in May 2002 for review and approval by the Board of Trustees. These increases raised the estimated cost of construction from \$475 million to \$650 million, as follows:

Previous Revised Estimate	\$475 million
Increase in General Work Contract	146 million
Cost of Meeting Certain Regulatory Requirements	10 million
Electrical Interconnection	10 million
Insurance	13 million
Certain Offsets and Credits	(11 million)
Miscellaneous	<u>7 million</u>
New Revised Estimate	<u>\$650 million</u>

As of August 2003, NYPA officials believe this cost estimate will not have to be revised again, because all the equipment has been procured and all significant contracts have been signed for construction and construction management. These officials estimate the project will be completed, and the plant tested and operational, by the Spring of 2005.

Thus, NYPA's estimated construction cost for the new plant increased from \$375 million at the beginning of the planning phase to \$650 million at the close of the planning phase. While some increase in estimated costs during the planning phase of a construction project is not unusual, both the magnitude of the increase (\$275 million, or an additional 73 percent) and the nature of some of the costs that were not anticipated by NYPA raise questions about the effectiveness of NYPA's cost estimating practices.

In particular, we question how NYPA could underestimate, by such a large amount, the cost of the general works contract. More than half of the \$275 million increase in estimated costs relates to this contract, which was awarded for \$146 million more than NYPA expected.

According to the minutes from a meeting of NYPA's Board of Trustees in November 2002, the cost of the contract was so much higher than expected because it was difficult to find a contractor who was willing to (1) bid on a lump sum basis and (2) accept the cost and potential liabilities associated with large construction projects in New York City. However, NYPA had just completed a series of construction projects in New York City as part of the PowerNow! project, and consequently, should have been familiar with the difficulties of obtaining contractors in that environment. Moreover, since the cost of the PowerNow! project significantly exceeded NYPA's initial estimates, NYPA should have been alert to the possibility that its initial cost estimate for the general works contract might have to be adjusted.

We also question whether certain other costs that were not identified until later in the planning process should have been identified earlier in the process, as follows:

- Costs increased by \$40 million because the cooling towers planned by NYPA had to be replaced by a more expensive method of cooling. This change was made in response to (1) regulatory/licensing requirements that became known to NYPA in June 2000 and (2) the cooling towers' interference with the operations of nearby LaGuardia Airport. We believe the need to accommodate Airport operations could have been anticipated by NYPA, and regulatory requirements known in June 2000 should have been incorporated into official

NYPA project cost estimates before the December 2001 analysis and presentation to the Board. NYPA officials add that there were also issues over the extent of fish kills caused by wet cooling.

- Costs increased by \$9.5 million because the contract with General Electric had to be amended to accommodate certain needs not addressed by NYPA in the original contract (i.e., the need for the new plant to be able to use two types of fuel, the need to modify the pressure of the natural gas supplied to the plant, and the need to expedite the normal delivery time of the pipes required for the plant). We believe these needs should have been identified in the original contract. NYPA knew the new plant was to be dual-fuel capable, should have known that the pressure of the natural gas would have to be modified (it has operated the gas-powered Poletti plant at that site for more than 20 years), and should have known the normal delivery time of the pipes.

Costs increased by about \$66 million for various other reasons, including additional engineering and other miscellaneous costs (\$17 million), additional insurance (\$13 million), the need for electrical interconnection (\$10 million), the need to meet a regulatory requirement (\$10 million) and other reasons. While it may not be reasonable to expect that NYPA (or anyone else) could have anticipated all of these costs, NYPA's inability to anticipate any of these costs raises questions about the effectiveness of its cost estimating practices.

NYPA's decision to proceed with the construction of the new plant was based in large part on its determination that the plant would be cost-effective (i.e., would produce power that would cost less than forecast wholesale prices). This determination was based on its estimates of the plant's likely costs and revenues. It was thus critical that these estimates be as accurate as possible. However, NYPA's estimate of the plant's construction costs was surprisingly inaccurate, as it identified only \$375 million of the \$650 million currently estimated. As a result of this inaccuracy, NYPA's earlier analyses of the new plant's cost-effectiveness were not reliable.

For example, if the current estimate of \$650 million had been used in NYPA's August 2000 analysis (rather than the earlier estimate of \$375 million that was actually used), the analysis

would have indicated that the plant would operate at a deficit and thus not be cost-effective. Specifically, the analysis would have indicated that the power produced by the plant would have to be sold at a price that was \$2 per-megawatt-hour lower than the cost of producing the power.

We therefore conclude that, if NYPA's cost estimates had been more accurate, NYPA may have been encouraged to explore the other available options for meeting the new 80 percent in-City capacity requirement, and may have identified an option that was likely to be more cost-effective. We recommend that NYPA improve its cost estimating process for construction projects by taking action to correct the weaknesses that were responsible for the inaccuracies in the estimate for the new plant.

Estimate of Fuel Costs

The most significant operating cost, by far, for a plant like NYPA's new plant in Queens is the cost of the natural gas that is used as fuel by the power-generating turbines. While NYPA's new plant is also capable of running on fuel oil, it is expected that fuel oil will actually be used less than 2 percent of the time as a back-up fuel. Consequently, the cost of natural gas is expected to account for about 65 percent of the plant's total costs each year (both the operating costs and the amortized construction/finance costs).

We examined whether NYPA's estimates for natural gas prices were reliable. We found that the estimates were not as accurate, and therefore not as reliable, as they could have been because they were not based on a consistent fuel supply strategy.

NYPA can use a number of different approaches in purchasing natural gas for the new plant. To begin with, it can either buy the gas on a spot basis or buy it through contracts with suppliers. The nature of the purchase contracts can also vary significantly, ranging from short-term to long-term and from fixed price to variable pricing. NYPA can also use a portfolio approach that combines these different methods to varying degrees. For example, it could buy 20 percent of its natural gas on a spot basis, 20 percent through a short-term fixed-price contract with supplier A, 20 percent through a short-term variable-priced contract with supplier B, 20 percent through a

long-term fixed-price contract with supplier A, and 20 percent through a long-term variable-priced contract with supplier D. The particular approach, or fuel supply strategy, selected by the purchaser is crucial, as the overall price per unit for the natural gas can vary significantly depending on how it is actually purchased.

However, we found that NYPA has yet to decide on a fuel supply strategy for the new plant. In its initial assessments of plant costs, NYPA assumed all the natural gas would be purchased on a spot basis. At the end of 2001, NYPA began assuming that all the gas could be purchased through a ten-year fixed-price contract. In early 2003, NYPA was considering a portfolio approach that incorporated some combination of short-term, mid-term and long-term purchase contracts. However, as of May 2003, NYPA had yet to settle on a specific strategy and NYPA officials did not anticipate that a specific strategy would be finalized for another six to twelve months.

In the absence of a definite fuel supply strategy, the cost estimates developed by NYPA were not as accurate as they could have been. Moreover, in NYPA's December 2001 in-house analysis, the estimated gas prices were based on the responses provided by just two suppliers to NYPA's informal telephone survey seeking to determine a price that might be offered on a ten-year fixed-price contract. Such limited information should not be used to project as much as 65 percent of a power plant's annual costs, especially when more reliable information could readily be obtained from a number of available sources. It was not until later in the process that NYPA expanded its analytical capabilities by evaluating numerous different possible scenarios.

For example, the consultant hired by NYPA (Pace Global Energy Services) to assess the cost-effectiveness of proceeding with the option recommended by the Poletti Repowering Study also performed other studies for NYPA, including studies addressing issues related to the new plant's fuel supply. This consultant could have performed a thorough, detailed analysis of expected natural gas prices under various fuel supply strategies. This or another such consultant also could have helped NYPA develop a more specific fuel supply strategy by addressing such critical details as how the risk of fuel price variability will be managed. The objectives of any hedging strategy must be clear, such as either to limit the volatility of

prices or to limit the maximum price. Since these two objectives are very different, they require very different strategies.

We note that NYPA's Flynn plant on Long Island, which is also powered by natural gas, has not been profitable in large part because of a long-term fuel-supply contract that is unfavorable to NYPA (the price agreed to by NYPA has been well above the prices available from other sources). To avoid such errors in the future, we recommend that NYPA hire outside experts to develop fuel supply strategies and accompanying fuel price projections for its power plants, and base its cost estimates on the information developed by those experts. We also recommend that NYPA act without further delay to finalize the fuel-supply strategy for its new plant in Queens. Further delays in finalizing the fuel-supply strategy could result in significantly higher gas prices for NYPA. NYPA officials told us that Pace Global Energy Services is now assisting them in the development of this strategy.

Customers for the Power

NYPA has had contracts to supply power to governmental agencies in and around New York City ever since the mid-1970s, when NYPA was authorized to purchase two partially-built power plants from Consolidated Edison when that utility had serious financial problems. These contracts generally enable NYPA to be the sole supplier of power for these governmental agencies (the agencies are allowed by the contracts to "shop" for a portion of their power requirements). While the contracts have beginning and ending dates and are formally renewed at regular intervals, none of the contracts can be terminated, regardless of their ending dates, unless one of the parties (either NYPA or the customer) formally notifies the other party that it wants to terminate the contract. If such notice is given, the contract will still continue to be effective for another three years, regardless of its formal ending date. Thus, while NYPA officials maintain that these contracts are long-term, these contracts to supply power in the New York City area are effectively rolling three-year contracts.

Since the customers served through these contracts are generally located in New York City (only Westchester County is located outside the City), most of the power provided through the contracts is affected by the 80 percent in-City capacity requirement. Because of this requirement, if NYPA does not

increase its in-City capacity by about 500 megawatts, it cannot continue to be the sole supplier of power for all these governmental agencies.

However, none of these governmental agencies is required to remain customers of NYPA for more than three years. In the past, the agencies were limited in their options for power suppliers, since competition among suppliers was generally not permitted by regulators. Now such competition is encouraged by regulators. As the market for electricity becomes more developed, other suppliers will seek new customers. Since the peak demand of NYPA's top three governmental customers in New York City accounts for about 16 percent of the City's total peak demand, NYPA's customers are not likely to be overlooked by suppliers seeking new customers.

It is therefore critical that NYPA secure long-term contracts with these customers. The new plant in Queens was built for the express purpose of supplying power to these customers, and a period of 25 to 30 years is usually needed to recover a capital investment of this kind. The three-year commitment entailed in NYPA's current purchase contracts leaves the bulk of the recovery period unprovided for. The need for such long-term purchase contracts was recognized by NYPA officials. For example, an internal report prepared in December 2001 states that "longer-term sales contracts [are] desirable and preferred, given the level of investment considered." In the absence of such contracts, some or all of NYPA's government customers may someday decide to obtain their power elsewhere, and much of the power produced by the new plant may have to be sold in competitive markets at prevailing market prices. If so, the revenue obtained for the power may not be sufficient to cover NYPA's costs.

We examined the actions taken by NYPA to secure long-term purchase contracts with its government customers. As part of our review, we interviewed officials representing the three largest customers: the City of New York (peak demand of 875 megawatts), the Metropolitan Transportation Authority (peak demand of 598 megawatts) and the New York City Housing Authority (peak demand of 211 megawatts), which together account for about 85 percent of the total peak demand of NYPA's New York City customers. We found that NYPA has been slow to initiate the negotiation of new contracts with these three critical customers, and is not close to securing long-term

contracts with any of its New York City customers. We recommend that NYPA take immediate action to initiate the process of negotiating new long-term power purchase contracts with its largest government customers. We further recommend that NYPA seek contracts of at least ten years in length. If such contracts can be secured, NYPA will be in a better position to determine whether new long-term power purchase agreements should be entered into with its former nuclear plants or other power suppliers.

The new plant in Queens was built for the purpose of supplying power to NYPA's government customers. Before committing funds to the construction of a new power plant, which is always a costly venture and can be a risky venture, a power supplier should formally analyze the expected market for the power to be produced by the new plant. If the demand in this market is not likely to be sufficient to provide enough revenue to cover the costs of producing the power, it is generally considered unwise for the power supplier to proceed with the construction of the new plant.

As will be discussed later in this report, NYPA worked with two consultants to develop a sophisticated computer model for estimating the future electricity prices in the market to be served by the new plant. As was previously noted, NYPA then compared the likely revenue from the plant's sale of electricity in this market to the expected costs of producing the electricity. However, the electricity prices and electricity sales in these analyses did not relate to expected transactions with NYPA's government customers. Rather, these prices and sales were based on an analysis of the market in general. We therefore conclude that NYPA did not analyze the expected market for the power to be produced by its new plant in Queens. This plant is expected, mainly, to provide power to a few particular customers (NYPA's current government customers), not the market in general. However, the analyses performed by NYPA addressed the market in general, not the government customers in particular.

We specifically asked NYPA officials to provide us with any formal studies or other documents indicating that they had analyzed or formally considered some aspect of this expected market. For example, NYPA officials could, and should, have considered the possibility that some of their government customers might decide to obtain some or all of their power from

other sources, and analyzed the likely effect of such decisions on NYPA's revenue. NYPA officials also could, and should, have formally analyzed the prices likely to be sought by their government customers in long-term purchase contracts with NYPA, since the prices negotiated by large customers such as the City of New York or the Metropolitan Transportation Authority could well be lower than the prices paid by other customers in the market. However, NYPA officials provided no documents indicating that they had performed any analyses relating to their government customers.

This lack of analysis, in these circumstances, is contrary to the principles of sound management in a public agency. NYPA committed to the expenditure of hundreds of millions of dollars to build a plant that was to serve these customers, yet did not even make a reasonable effort to determine whether the customers were willing to continue to be served at prices acceptable to NYPA. If some or all of these customers decide to obtain some or all of their power elsewhere, much of the power produced by the new plant may have to be sold in competitive markets at prevailing market prices. While the analyses performed by NYPA indicate that the plant would still be cost-effective in those circumstances, these analyses may not be reliable because, as is discussed elsewhere in this report, the cost of building the plant was underestimated, the plant's initial operating capacity was overestimated, and the time periods examined in formal presentations to management were not long enough to provide a reliable view of the plant's long-term economic viability.

Moreover, if much of the power produced by the new plant is in fact sold in competitive markets at prevailing market prices, the plant will be a "merchant" plant competing with other private merchant plants in a risky and volatile wholesale market. If this happens, the plant will serve a purpose that was not intended when its construction was authorized, and may not be appropriate for a facility owned by a public agency such as NYPA.

It should be further noted that the tax-exempt status of NYPA's bonds under certain conditions could be jeopardized by such "merchant" activity. Since NYPA is a public agency, its bondholders are not required to pay income tax on the interest that is earned from NYPA's bonds. However, the interest could be taxed if the plant financed by the bonds is used primarily in

merchant markets. If the bonds for the new plant in Queens do lose their tax-exempt status, NYPA may find it more difficult to sell new bonds in the future and may have to pay higher interest rates on the bonds.

NYPA officials state that they currently use a comprehensive planning and evaluation process that evaluates the feasibility of all reasonable alternatives. However, we concluded that such a process was not in place when actual program decisions were made.

Reasonableness of Assumptions

When NYPA staff assessed the cost-effectiveness of the new plant in the Poletti Repowering Study and subsequent analyses, they made a number of assumptions about plant operations and market conditions. Such assumptions must be made in analyses of this kind, as the analyses examine future events that cannot be known with certainty. We evaluated whether these assumptions were reasonable at the time of the analyses. We found that the assumptions were reasonable, with the following two exceptions: (1) the assumption that the plant would operate at 75 percent of its capacity in its first few years of operation was overly optimistic, and (2) the three or four-year future analysis period in the management and Board presentations, upon which decisions were expected to be made, was not long enough to provide a reliable view of the plant's long-term economic viability. As a result of these two inappropriate assumptions, and underestimated construction costs, the analyses performed by NYPA may not have been reliable.

The new plant to be built in Queens will be a combined cycle power plant. Because these plants are complex, in their first few years of operation they usually do not operate at high capacity factors. The various presentations to NYPA executive management and the Board of Trustees examined the first three or four years of the new plant's operation (2005 through 2007, or 2005 through 2008). In each of these analyses, a capacity factor of 75 percent was assumed. However, new plants of this kind have actually tended to operate at lower capacity levels. As a result of this overly optimistic estimate of plant usage, NYPA overestimated the amount of revenue likely to be produced by the plant in its first few years of operation.

When a utility is considering whether or not to build a new power plant, it is a standard industry practice to evaluate the cost-effectiveness of the prospective plant. NYPA conformed to this practice when it performed various analyses regarding the cost-effectiveness of its new plant in Queens. It is also a current industry practice for such analyses to cover a period of ten years or more.

However, in its presentations to executive management and the Board of Trustees, NYPA examined only the first three or four years of the new plant's operation. While this horizon provides valuable economic information in relation to this period, it ignores the economics of the plant past the first few years of its operating life. Changes in the operations of the plant or in market pricing in later years could change the economics of the plant in later years. Thus, a "snapshot" presentation of three or four years is a potentially poor predictor of future performance, and not a sufficient horizon to form the basis of management decision-making. A presentation of economic analysis over ten or more years, as is the current industry practice, would provide a more complete view of the long-term economic viability of the plant.

Estimate of Revenue

As was previously noted, NYPA worked with two consultants (The Electric Power Research Institute and the firm of Northbridge) to develop a sophisticated computer model for estimating the future electricity prices in the market to be served by the new plant in Queens. NYPA developed this pricing model because it realized that more sophisticated tools for predicting prices would be needed as power markets became more competitive. As NYPA refined its analyses of the new plant, it hired Northbridge to expand the model and specifically customize it for NYPA's use. The customized Northbridge Model runs on its own server and contains the single largest database in the entire NYPA system.

The primary purpose of the Northbridge Model is to predict market prices for electricity for up to a ten-year period in the New York State market. NYPA uses the Model for economic analysis, risk management activities, and in developing its long-range financial plan. NYPA used the Northbridge Model to predict the prices of the electricity that would be sold by the new plant in Queens. These predictions formed the basis for

NYPA's estimates of the revenue that was likely to be generated by the new plant. These revenue estimates were compared to the estimated costs of producing the electricity to determine whether the plant would be cost-effective under various market conditions.

We attempted to evaluate whether the prices predicted by the Northbridge Model were valid. In order to make this evaluation, we needed to review the documentation of the assumptions that were used by the Model at the time the prices were predicted. However, NYPA officials told us that they did not retain this documentation of the results that were used and presented to the Trustees. In the absence of this documentation, we were unable to determine whether the prices predicted by the Northbridge Model were valid, and consequently, were unable to determine whether the revenue estimates for NYPA's new plant in Queens were valid. We recommend that, in the future, NYPA retain the documentation relating to the use of the Northbridge Model.

While we were unable to evaluate the validity of the electricity prices used by NYPA in its assessments of the new plant's likely cost-effectiveness, we were nonetheless able to accomplish our overall audit objectives of determining whether (1) the available options were adequately evaluated by NYPA prior to committing to this project (they were not), and (2) the information used by NYPA in its decision-making process was reliable (a significant amount of the information was not reliable).

Recommendations

1. When deciding whether to construct new power generating facilities:
 - (a) Use a comprehensive planning and evaluation process that evaluates the feasibility of all reasonable alternatives. At a minimum, the evaluation of alternatives should include long-term power purchase contracts, the solicitation of bids from developers interested in building and operating a plant that would supply NYPA, a joint venture in which the plant would be built by a developer and operated by NYPA, and allowing customers to obtain power from other suppliers.

Recommendations (Cont'd)

(NYPA officials disagree and state that this practice is already in place.)

Auditor's Comments: The process was not in place at the October 1999 decision point.

(b) Improve the cost estimating process by taking action to correct the weaknesses that were responsible for the inaccuracies in the estimate for the new plant in Queens.

(NYPA officials disagree and state that this practice is already in place.)

Auditor's Comments: The process was not in place at the October 1999 decision point.

(c) Hire recognized experts outside the NYPA organization to develop fuel supply strategies as early as possible in the decision process.

(NYPA officials disagree and state that this practice is already in place.)

Auditor's Comments: The process was not in place at the October 1999 decision point.

(d) Use capacity estimates that reflect the actual experience of similar facilities.

(NYPA officials disagree and state that their capacity estimates are conservative and are based on NYPA's Flynn plant.)

Auditor's Comments: The Flynn plant is not a comparable plant, because the Flynn plant is much smaller than the new plant (136 megawatts compared to 500 megawatts), the Flynn plant was built ten years ago, and the Flynn plant had a single customer under long-term contract to purchase the electricity produced by the plant when it first began operating.

Recommendations (Cont'd)

(e) Cover a period of at least ten years in management and Board of Trustee presentations assessing the cost-effectiveness of the facilities.

(NYPA officials disagree and state they use long-term and short-term analyses to assess the cost-effectiveness of the facilities.)

Auditor's Comments: NYPA officials used three and four-year estimates in their presentations to executive management and the Board of Trustees.

2. When constructing power generating facilities that are primarily intended to serve certain customers, analyze the future position of and/or take steps to secure long-term contracts with these customers before proceeding with the construction of the facilities.

(NYPA officials state that these contracts date back to the mid-1970s and will likely remain in effect because NYPA's electric prices are below market prices.)

Auditor's Comments: As there are cancellation clauses in the contracts, they are actually three-year rolling contracts.

3. Maintain a detailed record of the documents that are provided to the Board of Trustees at Board meetings.

(NYPA officials disagree and state that this practice is already in place.)

Auditor's Comments: The practice in place is not sufficient, because the record maintained by NYPA is not sufficiently detailed and sufficiently descriptive. NYPA should maintain copies of the information packages given to the Trustees.

4. Finalize the fuel-supply strategy for the new plant in Queens without further delay.

(NYPA's response suggests that this recommendation has been implemented.)

Recommendations (Cont'd)

5. Take immediate action to initiate the process of negotiating new long-term power purchase contracts (of at least ten years in length) with the large government customers in New York City.

(NYPA officials state that these contracts date back to the mid-1970s and will likely remain in effect because NYPA's electric prices are below market prices.)

Auditor's Comments: As there are cancellation clauses in the contracts, they are actually three-year rolling contracts.

6. Retain documentation of the assumptions used by the Northbridge Model in predicting electricity prices.

(NYPA officials state that this practice is already in place but the auditors declined to review it.)

Auditor's Comments: NYPA officials explained that the documentation kept by their consultant was for current runs of the computer simulation and that no documentation was retained related to the computer simulations that were used in earlier analyses that were presented to the Trustees.

THE POWERNOW! PROJECT

In the year 2000, power shortages were projected in the New York City metropolitan area by the NYISO and the New York State Public Service Commission. In the absence of additional generating capacity in the area, it was feared that rolling blackouts, such as those that had recently been imposed in California, would soon become necessary, especially during the peak-demand periods of Summer. In response to this public need, NYPA quickly installed eleven small power plants in the New York City area that together added about 450 megawatts of new generating capacity. This action, which was known as the PowerNow! project, was initiated in August 2000 and completed in time for the summer of 2001. The additional power provided by these new generators was considered crucial in meeting the area's peak demands during the Summer months, and NYPA's responsiveness was commended by the Public Service Commission.

The eleven gas-fired combustion turbines that were placed in service by NYPA as part of the PowerNow! project were installed at six sites in New York City and one site on Long Island. The turbines are always available for operation if their cost is competitive, but are generally operated only during periods of peak demand. Their capacity and energy are sold in the NYISO wholesale market. Thus, the power from the turbines generally is not used by NYPA's regular customers in New York City, but by other users in the area.

The turbines, which can be started up with 15 to 20 minutes notice, have been used at about 20 percent of their total capacity (i.e., they are in use about 20 percent of the time, on average), and NYPA expects that this rate of use will decline to between 5 and 18 percent of capacity as additional power generating facilities are built in the New York City area. The turbines are used so seldom because they are relatively costly to operate. They could be installed quickly because of their simple design (they are large jet engines).

The PowerNow! units are intended to provide a temporary solution to New York City's lack of power generating facilities. At the end of 2004, the operating permits of the eleven units will

be subject to review, and at least one of the units may be shut down at that point. Simple gas-fired turbines like the PowerNow! units are used by a number of power suppliers across the country to provide additional power in times of peak demand.

The PowerNow! units were constructed by NYPA at a total cost of about \$640 million. NYPA's operating losses on the facilities totaled about \$29 million for 2001 and \$21 million for 2002. In addition, to reflect the unprofitable expected future performance of the facilities (i.e., NYPA is generally able to recover the variable costs of operating the turbines, but is not likely to recover all of its fixed costs), NYPA has also recognized \$125 million in additional losses on the facilities through asset impairment write-offs. Thus, in less than two full years of operation, NYPA has lost approximately \$175 million on the facilities. NYPA officials state that their economic analyses of these units indicate there is a reasonable opportunity to recover their investment over a 20-year period. However, such a pay-back period is now considered too long in the electric industry.

We examined the process used by NYPA in deciding to construct the PowerNow! units. NYPA officials told us that the PowerNow! project was very different from most NYPA operations. They stated that they undertook the project to meet a public need, and regarded it as a "have-to project" for the general public good. For this reason, they did not analyze the likely cost-effectiveness of the units before proceeding with their construction. They did prepare, and ask a consultant to prepare, such analyses after construction was underway, and these analyses indicated that the units were not likely to realize a positive cash flow until after their debt service was paid off. NYPA officials stated that the units might be sold to the private sector after they were up and running, and according to a rough estimate prepared by NYPA staff in early 2003, the market value at that time for the ten units in New York City was between \$200 and \$300 million.

We asked NYPA officials whether their current plans provide for the units to be sold to the private sector. The officials stated that their current plans, while not formally documented, are to continue operating the PowerNow! units as necessary, and that there are no specific plans to sell any of the units. The officials also indicated that their prior statements about selling the units

meant that NYPA would consider any serious offers to purchase the units, but no such offers have been made.

We conclude that the PowerNow! units were constructed by NYPA as a public service to meet an urgent public need. Consequently, the decision to construct the units should not be evaluated in the same financial terms that are used to evaluate NYPA's other business decisions, such as the decision to construct the new plant in Queens. The additional power generators were needed to prevent blackouts. NYPA provided the generators, and they may have prevented blackouts. Thus, NYPA achieved its objective, and the public need was met.

However, we question whether NYPA should have to bear the entire financial burden of providing power that benefits everyone in the New York City area. For example, the NYISO routinely assesses additional charges on power suppliers who use congested transmission lines. These charges are paid to the builder of the transmission line to help reimburse transmission costs and encourage the creation of additional transmission capacity.

We further note that NYPA's decision to retain the PowerNow! units, rather than sell them to the private sector, should be evaluated on an ongoing basis. If the units could be sold to other power producers, the public need would still be met, because the power produced by the generators would still be available for use in the New York City area. The units do not have to continue to be operated by NYPA for this public need to be met. Thus, NYPA's decision to continue operating the units can be evaluated in the same manner as NYPA's other business decisions. We recommend that NYPA perform such an evaluation.

Specifically, NYPA should formally analyze its various options for the PowerNow! units. That is, NYPA could sell some or all of the units to other power producers, lease some or all of the units to other power producers, or continue to own and operate all of the units. NYPA should analyze the likely consequences (both financial and public policy) of each of these options, eliminate from further consideration the options (if any) that fail to meet the public need for power in the New York City area, and select the most financially advantageous option to NYPA that is consistent with public policy.

NYPA is not a private company that is in business solely to make a profit. As a public agency, NYPA is expected to balance its need for financial self-sufficiency with its need to serve the public interest. In serving the public interest, NYPA may perform certain activities that are not financially advantageous, such as the acquisition and installation of the PowerNow! generators.

However, as a public agency, NYPA is also expected to avoid, if possible, financial losses such as those related to the PowerNow! units. In addition, the more volatile types of business risks that might be acceptable for private companies are not acceptable for a State authority such as NYPA. NYPA officials have frequently indicated that activities involving such risks are not consistent with NYPA's public mission. If NYPA does continue to own and operate the PowerNow! units, it will be engaging in a risky activity; competing with private companies in the merchant power market. This activity has already cost NYPA approximately \$175 million in losses, and additional losses could well be incurred.

NYPA's full participation in this merchant market (the PowerNow! units have no other use at present) is also contrary to the intent of the actions initiated in 1996 when New York State began to restructure its power industry to promote competition among private power producers. Such competition is not promoted if additional generating capacity that might be provided by private companies is provided by NYPA instead.

NYPA officials note that they were asked to install the PowerNow! units by the New York State Public Service Commission. The officials therefore contend that their actions must be consistent with the deregulation order. However, NYPA officials are failing to distinguish between their installation of the units and their continued ownership of the units. The units do not have to continue to be operated by NYPA. As we stated in our prior audit report of NYPA (Report 2000-S-61), if private sector energy companies are to be expected to make rational investment decisions that promote the long-term reliability and economy of the power available to the New York City area, there needs to be a clear articulation of NYPA's role in this area. We urge NYPA officials to articulate this role, and to consider this role in their formal evaluation of their options for the PowerNow! units. We further urge that NYPA officials make this role known both to the power industry and to the public.

Recommendations

7. Recommendation deleted.
8. Formally analyze the various options available to NYPA for the PowerNow! units, select the most financially advantageous option that is consistent with public policy, and publicize NYPA's plan for the units. Include in this plan a clear articulation of NYPA's role in the New York City retail and wholesale power markets.

(NYPA officials disagree and state that their plans are to operate PowerNow! units as efficiently, economically and cleanly as possible as part of an integrated supply plan.)

Auditor's Comments: NYPA has yet to formalize any operational or strategic plan for the PowerNow! units.

MAJOR CONTRIBUTORS TO THIS REPORT

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Arnold M. Bellis
Vice President and
Controller

December 24, 2003

Ms. Carmen Maldonado
Audit Director
Office of the State Comptroller
Division of State Services
123 William Street – 21st Floor
New York, NY 10038

Dear Ms. Maldonado:

Attached please find the New York Power Authority's executive summary, detailed comments and responses to recommendations in the draft audit report (2001-S-64) entitled: New York Power Authority – Power Generation in the New York City Area.

If you have any questions please do not hesitate to contact me at 914.681.6767.

Thank you.

Very truly yours,

A handwritten signature in black ink, appearing to read 'Arnold M. Bellis'.

Arnold M. Bellis
Vice President – Controller
and Acting Chief Financial Officer

AMB/kfb
Attachment

New York Power Authority

2003 Management Audit

Power Generation in the New York City Area
Continuation Audit 2001-S-64

New York Power Authority Response to
OSC Management Audit Draft Final Report

Response of the New York Power Authority
2003 Continuation Audit by the Office of the State Comptroller

Executive Summary

Background

Through a time of extraordinary change in the electric power industry, the New York Power Authority (NYPA) remains New York's largest supplier of electricity and a vital asset serving the Empire State's economic and environmental goals.

NYPA meets more than one-quarter of New York's electricity needs. NYPA does not use any State tax dollars to provide valuable public benefits such as low-cost electricity, energy efficiency programs and clean energy sources, to the people of New York State. The economical electricity NYPA supplies to its governmental customers and the cost-cutting energy-saving measures it installs in public buildings saves taxpayers millions of dollars annually. NYPA's energy efficiency and clean energy technology projects help to enhance the state's energy independence and improve air quality for New Yorkers.

The Power Authority's low-cost electricity helps to protect more than 400,000 jobs at hundreds of businesses and non-profits throughout the State. It benefits consumers served through New York's public and private utilities, including the State's 51 municipal electric systems and rural cooperatives. In the New York City metropolitan area, it saves taxpayers more than \$300 million annually through its use by government agencies for public buildings, schools, subway and commuter trains, and other public facilities and purposes.

Projects completed under NYPA's nationally-recognized energy efficiency programs for schools and other public buildings throughout the State save taxpayers an additional \$81 million a year, including \$50 million in the New York City area, and NYPA continues to invest \$100 million per year statewide in these energy efficiency programs. The Power Authority's leadership in promoting new technologies for producing and delivering power and in electric transportation is helping to lay the foundation for a reliable power supply and a cleaner environment.

Well in advance of the introduction of competitive wholesale and retail markets in New York State, NYPA recognized it needed to prepare itself for this new environment. In the mid-1990s, NYPA began a program to improve its operations, strengthen its balance sheet and drive down its costs. In 1998, NYPA completed a \$2.6 billion debt restructuring plan. The Authority's innovative new Bond Resolution provides the flexibility it needs to function in the deregulated market. These very successful efforts led to over a \$1 billion reduction in outstanding debt and reduced the Authority's debt to total capitalization ratio from 69% to 58%. As a result of these and other actions taken by NYPA, the Authority's long term bond rating was upgraded in 2000 to Aa2 by Moody's, to AA by Fitch Ratings, and confirmed as AA- by Standard & Poor's.

Today NYPA maintains this solid financial and operational performance in the eyes of the investment community, allowing NYPA continued access to the capital markets at extremely attractive rates. Lower borrowing costs translate into lower costs for construction, which in turn benefits NYPA's customers in the form of lower electric rates. In October 2002, to fund the 500 mw combined-cycle plant (which is one of the topics of this audit) NYPA issued \$532 million in long-term fixed rate bonds at record-low interest rates.

The Audit

According to Chapter 469 of the Laws of 1989, as amended, the Office of the State Comptroller (OSC) is required to perform at least once every five years an evaluation of NYPA's management and operations. The OSC has taken the unprecedented step of turning this into an on-going process, requiring expensive and labor-intensive efforts producing reports of little or no value or recommendations that were already part of our business practices. The OSC has charged NYPA \$1 million for the Primary and Continuation Audits. It has cost NYPA an additional \$2 million—for a total cost of \$3 million—to supply OSC the information it requested through over 1,500 documents and 471 interviews, and involving over 21,000 person-hours of NYPA staff time. The Primary Audit was completed in 2001 and reviewed by NYPA.

In reviewing the recently completed Continuation Audit, it is apparent that this audit has again failed to provide the Governor, the Legislature, the New York Power Authority, its customers and the people of the New York State a benefit commensurate with the substantial costs incurred to prepare it. Egregious errors of fact have led to incorrect conclusions.

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* See State Comptroller's Rejoinder, pages 129-130

Highlighted below are some of the key errors and oversights of the Continuation Audit, followed by a detailed response.

500 MW Combined Cycle Plant

The New York Power Authority is building one of the cleanest, most efficient power plants in New York City's history in Astoria, Queens, next to its Charles Poletti Power Project. This highly efficient, 500 mw combined-cycle generating facility will help meet the needs of the Authority's New York City customers in the new era of electric industry deregulation and will provide significant environmental benefits as the cleanest source of base-load generation ever constructed in New York City. It will provide the additional generating capacity that NYPA is required to have within the city limits in order to continue serving its customers. In addition, this facility will contribute to the enhanced reliability of electricity supplies for New York City.

The 500mw plant has the support of local elected officials, and local and national environmental groups in an historic agreement with NYPA for this plant's construction by linking it to the phase-out of NYPA's older Poletti plant.

NYPA's decision to build this facility came after extensive studies and research by NYPA's own staff, by outside consultants and through evaluations relative to a request for proposals to purchase additional supplies. By studying a myriad of potential supply portfolios for the government customers, it was determined that the leading outcome in providing for continued savings relative to the competitive marketplace was the construction of the new 500 mw combined-cycle facility at the Poletti site. All three independent approaches came to the same conclusion. NYPA stands firmly behind this decision.

Key Errors and Oversights – 500 MW Combined Cycle Plant

In its review of the economic analyses supporting the construction of a new, 500 mw combined-cycle plant to serve NYPA's government customers in the New York City area, the OSC states, "We believe that NYPA committed to building the plant in October 1999, when the Board of Trustees authorized the purchase of the major components of the plant..." And further, "We found that a number of critical options were not considered in the decision-making process prior to the October 1999 commitment." This is in error, and an important one since a major conclusion of the Audit is based on this erroneous concept.

The October 1999 Trustee action was simply to authorize a \$9.25 million deposit on the equipment so as to reserve a slot in the manufacturing queue for the gas turbines and to fund certain additional licensing and engineering services. Approving a down payment and authorizing additional work, which included additional economic analyses, does not constitute a “commitment” to build the plant. NYPA had the option to sell its “place in the queue” if such additional studies showed this to be the incorrect path to follow. It was not until September 2002, well after several additional reports to NYPA’s Board of Trustees on the economics of the new facility (all of which were shared with the OSC), that the Board gave its approval for construction to begin.

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Based on this error of fact, the Continuation Audit concludes “This lack of analysis, in these circumstances, is contrary to the principles of sound management in a public agency.” The Power Authority firmly disagrees. As described above, the issue was fully and completely assessed by NYPA and the Authority stands by its decision. These assessments, which were performed between the initial review in 1998 and May 2002, were comprised of multiple internal analyses, external consultants’ reports and the results of a request for proposals. These three independent approaches came to the same conclusion – all of which were reported to the Board of Trustees – that NYPA could maximize the benefits of its low cost power by constructing the proposed facility.

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It is especially noteworthy that the inaccurate conclusion reached by the Continuation Audit directly contradicts the conclusion the OSC drew in its Primary Audit in July 2001 when on pages 13-14, it stated, “We note that the ground has yet to be broken for the Poletti expansion, and NYPA can still ‘walk away’ from this project during the year 2001, if it should be determined that the project should not be continued. While NYPA has been authorized by the Board of Trustees to spend \$197 million (sic) towards this project, these funds are to be used primarily to make advance payments to General Electric to schedule the new Poletti facility’s turbine generator in the manufacturing process.”

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Electricity industry regulators, energy policy experts and the business community all agree that thousands of megawatts of new capacity are desperately needed in New York State over the next five years, with most of it recommended for downstate and Long Island. The New York Independent System Operator’s Power Alert III report, dated May, 2003, recommends the addition of 5,000 to 7,000 mw. A January 2002 report, Power to Grow, by the Public Policy

* See State Comptroller's Rejoinder, pages 130-132

Institute of the Business Council of New York State concludes that, “New York must still add at least a dozen new power plants with at least 9,200 megawatts of additional electricity-generating capacity within the next five years to avoid the risk of serious economic damage.” NYPA can finance and build its 500 mw facility because it has the financial strength, expertise and customer base to do so. While designed to meet the needs of NYPA’s customers, this new facility will also contribute to this overall capacity requirement. However, as it represents only a small percentage of the needed increase in generating capacity, it will not solve the full problem, nor should it deter other developers from participating in the market.

Key Errors and Oversights – PowerNow! Units

With regard to the PowerNow! units, NYPA acknowledges the OSC’s recognition that a serious public need was met through this emergency construction program, indicating that “NYPA provided the generators and prevented the blackouts.” However, in neither the Primary nor Continuation Audit, did the OSC acknowledge the significant, considerable environmental benefits of these small clean power plants in the New York City area (and for that matter the 500 mw project under construction in Astoria). The small power plants are the cleanest power sources in the city, according to a recent independent study by a nationally recognized environmental consulting firm. The independent report by M.J. Bradley & Associates was commissioned by NYPA and Communities United for Responsible Energy (CURE) in cooperation with the Natural Resources Defense Council. The study also stated that the units’ pending air-quality permits will be among the strictest in the nation for similar facilities. Because of their locations and the severe constraints on transmission lines serving New York City, these plants frequently displace older, less efficient and less clean plants within the city, resulting in an overall improvement in air quality. The independent study verified that during summer operations these small clean power plants would cut NOx emissions in the city by between 719 and 9,246 tons depending which units it displaced. Winter operations would displace an average of 288 tons of NOx.

This point was also emphasized in the New York Independent System Operator’s Power Alert III report, which stated: “The siting of new electric generation, as is proposed in this report, will improve New York’s air quality. This has been demonstrated by the small clean power plants that the New York Power Authority (NYPA) installed in six locations in New York City

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* See State Comptroller's Rejoinder, page 132

in 2001. During 2002, these plants emitted less than one-tenth of a pound of nitrogen oxides per megawatt hour—close to a 99 percent reduction compared with typical small older units in the City.”

While neglecting the importance of the environmental benefits of these units, the OSC also demonstrates a misunderstanding of the role played by these small clean power plants in maintaining reliable electric service to the people of New York City. The New York Independent System Operator has found these units necessary to serve “load pockets” of power need, which must be served by locally-based power sources due to transmission constraints, thus ensuring local reliability of the electric grid to New Yorkers. In other words, these units continue to do throughout the year what they were built for – prevent blackouts related to inadequate supply.

Moreover, the OSC report implies that no economic analyses were prepared before construction began. This is not accurate. While not as detailed as those performed for the 500 mw combined cycle plant due to the emergency nature of the construction, NYPA nevertheless reviewed the relative economics and the prospects for recovery of its investment over time. It was determined after this review that there was a reasonable opportunity for NYPA to recover its investment over a twenty-year period. By looking beyond near-term quarterly earnings, the Power Authority has achieved lasting benefits for the people of New York. Many of the projects undertaken by NYPA and now considered major assets of the State – such as the Niagara and St. Lawrence-FDR hydroelectric projects – would never have been constructed if a short payback period was the prevailing investment criterion.

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Additional Commentary and Detailed Response

The time and expense spent explaining to the OSC auditors the Authority’s issues, analyses and views of the current and future state of the electric market was enormous; and to have it so misunderstood and misinterpreted is frustrating. A simple fact – such as the type of contractual relationship NYPA has with its governmental customers – is one example. It is characterized in the report as having “...beginning and ending dates and are formally renewed at regular intervals...” This is simply inaccurate. These agreements, which have been in place for nearly 30 years, since the mid-1970s, have no specific expiration date and are not renewed at regular intervals.

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* See State Comptroller's Rejoinder, pages 132-133

Another example is the unfounded criticism that NYPA only reviewed the first three or four years of operations of the 500 mw plant in the economic analyses presented to the Authority's Board of Trustees. Yet the very example cited by OSC in this case included descriptions of four, separate 10 to 20 year studies performed by or for NYPA. NYPA reviewed both long-term studies for overall returns and short-term studies in great detail so as to understand fully the competitive advantages NYPA might realize for its customers' benefit. If simple facts such as these are misstated or misunderstood, and are used as the basis for the Audit's conclusions, the entire credibility of the Audit must be questioned.

The items noted above are just a few of the comments NYPA would like to highlight. NYPA has reviewed the entire Continuation Audit in detail and attached are NYPA's additional comments and responses to recommendations resulting from this review.

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***A REPORT BY THE NEW YORK STATE
OFFICE OF THE STATE COMPTROLLER***

Alan G. Hevesi
COMPTROLLER

DRAFT

**NEW YORK POWER AUTHORITY
*POWER GENERATION IN THE NEW YORK CITY AREA***

2001-S-64

DRAFT

DIVISION OF STATE SERVICES

Alan G. Hevesi
COMPTROLLER

Report 2001 -S-64

Mr. Louis P. Ciminelli
Chairman
New York Power Authority
30 South Pearl Street
Albany, New York 12207

Dear Mr. Ciminelli:

The following is our audit report addressing the processes used by the New York Power Authority in deciding to provide additional electrical energy and capacity in the New York City area by building and operating a new 500-megawatt generating plant in Queens and installing and operating small generating units in New York City and Long Island (the PowerNow! project). The matters addressed in this report are a continuation of matters that were not fully addressed in our prior audit report 2000-S-61.

This audit was performed pursuant to the State Comptroller's authority as set forth in Chapter 469 of the Laws of 1989, as amended. In performing this audit, we were assisted by The Liberty Consulting Group of Quentín, Pennsylvania, a utility management-consulting firm. Major contributors to this report are listed in Appendix A.

DRAFT

Division of State Services

110 STATE STREET • ALBANY, NEW YORK 12236
123 WILLIAM STREET, NEW YORK, NEWYORK 10038

EXECUTIVE SUMMARY

NEW YORK POWER AUTHORITY POWER GENERATION IN THE NEW YORK CITY AREA

SCOPE OF AUDIT

The New York Power Authority (NYPA) is the largest state-owned utility in the United States, operating power plants that provide about one-quarter of the electricity used in New York State. NYPA sells most of its electricity to **investor-owned utilities** and governmental agencies in the New York City area. The peak demand of these agencies accounts for about 16 percent of New York City's total peak demand, with most of the power going to three customers: the City of New York, the Metropolitan Transportation Authority, and the New York City Housing Authority.

NYPA COMMENTS:

Please change "investor-owned utilities" to "investor-owned utilities in New York State, large industrial customers in New York State"

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To protect customers in New York City against problems caused by transmission failures and other disruptions in the supply of electricity, the power suppliers serving these customers must be able to obtain at least 80 percent of the customers' power from generating facilities located within New York City. In response to this requirement, NYPA decided to build a new power plant in New York City. In addition, in the PowerNow! project that was completed in 2001 in response to projected power shortages, NYPA installed 11 small generating units in the New York City area. With the assistance of a management consulting firm specializing in utility operations, we audited the processes used by NYPA in deciding to build the new plant and install the PowerNow! units.

AUDIT OBSERVATIONS AND CONCLUSIONS

We found that improvements are needed in NYPA's decision-making processes if the actions taken by NYPA are to be as effective as they could be. While NYPA's new plant in New York City will provide much needed generating capacity to the area, NYPA did not evaluate all available alternatives for providing this capacity and based its decision to build the plant on information

* See State Comptroller's Rejoinder, page 133

that was unreliable and incomplete. NYPA also did not pursue **[A] available surcharge mechanisms** that could have offset its steep financial losses on the PowerNow! units, **[B] and has not analyzed whether it should retain the units or sell them to private power producers, as originally intended.** NYPA plays a critical role in New York State's power industry. It is thus critical that NYPA's decision making processes not be vulnerable to unnecessary risks.

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NYPA COMMENT:

- [A] We will consider a surcharge in the context of overall cost recovery for future projects, if appropriate. With respect to the PowerNow! units, negotiations which would have been required to effect a surcharge would have delayed construction of this project that was critically needed, in an expedited time frame, to help prevent blackouts in 2001, which it did. Under the emergency circumstances of their construction, this delay would not have been acceptable.**
- [B] NYPA never said that it wanted to or intended to sell the plants. In response to questions at a legislative hearing, NYPA indicated that NYPA would be willing to consider third party offers to purchase the plants if any such offers ever materialized. NYPA also indicated that NYPA would expect to recover its costs in any such offer. To date, NYPA has received no such offers.**

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If NYPA is to continue supplying power to its large government customers in New York City, it will need a certain amount of additional generating capacity within the City. NYPA decided that the most cost-effective method of obtaining this additional capacity was to build and operate a new plant in New York City. We examined the analyses performed by NYPA in relation to this decision to determine whether the available options were adequately evaluated before NYPA committed itself to this particular course of action, and whether the information used in the decision-making process was reliable.

[A] We found that several alternative courses of action commonly taken by utilities were not evaluated by NYPA prior to committing to build the new plant. For example, NYPA did not consider whether it would have been preferable to have a contractor build and operate the new plant for NYPA, as is often done in the power industry. **[B]** This process was recently followed in New York City by Consolidated Edison. We also found that NYPA's decision to build the plant was based on unreliable cost estimates. If these cost estimates had been more accurate, NYPA's analyses may have indicated that it would not have been cost-effective to proceed with this particular option for obtaining additional generating capacity in New York City.

NYPA COMMENT:

[A] NYPA currently uses a comprehensive planning and evaluation process that evaluates the feasibility of all reasonable alternatives. This comprehensive process includes testing the viability of the plant under multiple fuel price and generating capacity scenarios with corresponding changes in electricity prices. Advanced modeling techniques were also utilized by NYPA to estimate future prices of electricity in New York State.

[B] This statement is incorrect. Con Edison contracted to purchase power, not a generation facility.

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* See State Comptroller's Rejoinder, pages 133, 134

[A] We also found that NYPA has done little to secure long-term contracts with its large New York City government customers. **[B]** In the new competitive market for electricity, these customers are likely to be sought by other power suppliers and may chose to obtain their power from sources other than NYPA. If this happens, NYPA's new plant may become a "merchant" plant competing with other merchant plants in the risky and volatile wholesale electric market. Such a role was not intended for the plant when its construction (and tax-exempt financing) was authorized, such a role may not be appropriate for a facility owned by a public agency, and such a role may jeopardize the tax-exempt status of the financing. We recommend that NYPA take immediate action to initiate the process of negotiating long-term contracts with its large government customers.

NYPA COMMENTS:

[A] As aptly noted in the OSC's preliminary audit findings, "NYPA does have 'evergreen' contracts with its SENY customers..." An "evergreen" contract is a long term contract as the name implies. NYPA has been serving its governmental customers under such contracts since the mid-1970s and expects to continue to serve these customers because of our ability to provide this service at below-market prices. While the original contract had a much shorter notice period, 180 days, in 1989 we extended the notice period to 3 years. However, based on our nearly 30 years of service to these customers under these arrangements, that is long term by anyone's definition. In a December 2003 report, Fitch Rating, in issuing its AA rating of NYPA, confirmed this view when it stated that "NYPA's potential loss of SENY load (35% of operating revenues) in 2006 is largely mitigated by the Authority's position as the low cost power provider in the State and region."

[B] This plant is being built to serve a specific customer base, one in which NYPA after thorough analysis believes it can continue to provide savings. The possibility of the plant becoming one in which NYPA relies on in the wholesale market for its revenues (i.e., a merchant plant) is remote. However, NYPA analyzed this unlikely event and found that the plant would still be expected to earn a positive return.

Two major factors ignored in this statement are that (1) the 500mw plant will be substantially more efficient to operate and also significantly cleaner than any baseload plant in SENY and (2) because of the difficulties of getting financing (due to the impact of Enron and others nationwide) and the unique difficulties of construction in New York City, few, if any, plants are being built in the NYC area.

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* See State Comptroller's Rejoinder, pages 132, 134

In the PowerNow! project, NYPA acted quickly to install 11 small generating units in response to power shortages that were projected by power industry regulators. In less than two full years of operation, NYPA has lost about \$175 million on the facilities, which are typically operated only during periods of peak demand to provide power for the wholesale market. The units are not used to supply NYPA's regular government customers. **NYPA officials previously stated that the units would be sold to the private sector after they were up and running, but now state that they plan to retain the units.**

NYPA COMMENTS:

This is not correct. NYPA never said that it wanted to or intended to sell the plants. In response to questions at a legislative hearing, NYPA indicated that NYPA would be willing to consider third party offers to purchase the plants if any such offers ever materialized. NYPA also indicated that NYPA would expect to recover its costs in any such offer. To date, NYPA has received no such offers.

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We found that the PowerNow! units were constructed as a public service to meet an urgent public need without regard for the financial consequences to NYPA. While it was appropriate for a public agency such as NYPA to respond to this need, we question whether NYPA should have to bear the entire financial burden of providing power that benefits everyone in the New York City area. Surcharge mechanisms are available to help spread the costs among those who actually

NYPA COMMENTS:

The OSC report implies that no economic analyses were prepared before construction began. This is not accurate. While not as detailed as those performed for the 500 mw combined-cycle plant due to the emergency nature of the construction, NYPA nevertheless reviewed the relative economics and the prospects of it being able to get its investment back over time. It was determined after this review that there was a reasonable opportunity for NYPA to get its investment back over a twenty-year period.

We will consider a surcharge in the context of overall cost recovery for future projects, if appropriate. With respect to the PowerNow! units, negotiations which would have been required to effect a surcharge would have delayed construction of this project that was critically needed, in an expedited time frame, to help prevent blackouts in 2001, which it did. Under the emergency circumstances of their construction, this delay would not have been acceptable.

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* See State Comptroller's Rejoinder, pages 132, 133-134

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use the power. While it may not be possible, at this late date, to obtain regulatory approval for such a surcharge, we recommend that NYPA seek a surcharge or other form of compensation in all future public benefit projects.

[A] We further note that NYPA's decision to retain the PowerNow! units, rather than sell them to the private sector, should be evaluated on an ongoing basis. The facilities do not have to be operated by NYPA; [B] if they were operated by a private developer, their power would still be available to the New York City area. NYPA has not prepared a formal evaluation justifying its decision to retain the facilities. We recommend that such an evaluation be prepared. We further recommend that a plan for the PowerNow! units be developed. This plan should include a strategy for either continued ownership or disposition of these units, and should also include [C] a clear statement of NYPA's role in the New York City wholesale and retail power markets. In the absence of a clear and public statement on this topic, private sector investment in the area may be discouraged.

NYPA COMMENTS:

[A] NYPA never said that it wanted to or intended to sell the plants. In response to questions at a legislative hearing, NYPA indicated that NYPA would be willing to consider third party offers to purchase the plants if any such offers ever materialized. NYPA also indicated that NYPA would expect to recover its costs in any such offer. To date, NYPA has received no such offers.

[B] These units are currently part of an integrated supply plan for NYPA, are the cleanest sources of generation in New York City and enhance the reliability of the city's transmission grid to help prevent blackouts due to inadequate supply.

[C] A clear statement of NYPA's role is in the Public Authorities Law, Article 5, Title 1.

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COMMENTS OF NYPA OFFICIALS

Preliminary copies of the matters contained in this report, were provided to NYPA officials for their review and for their comment. Their comments were considered, in preparing this draft report.

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INTRODUCTION

Background

The New York Power Authority (NYPA) is the largest state-owned utility in the United States, providing about one-quarter of the electricity used in New York State. NYPA operates five large power plants, 12 smaller generating facilities and more than 1,400 circuit miles of transmission lines. NYPA sells its electricity to non-residential customers, which are **[A] mostly government entities and the investor-owned utilities operating in New York State. [B].** Most of NYPA's major governmental customers, such as the City of New York and the Metropolitan Transportation Authority, are located in the New York City area.

NYPA COMMENTS:

[A] Please change to: "investor-owned utilities in New York State, large industrial customers in New York State and governmental agencies in the New York City area."

[B] Change "Most" to "With one exception". The Niagara Falls Transit Authority is a governmental customer upstate.

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NYPA began operating power plants in 1958. Its two oldest plants, the St. Lawrence plant (1958) and the Niagara plant (1961), are large hydroelectric plants that were constructed by NYPA and are capable of generating 800 megawatts and 2,400 megawatts of electricity, respectively. (A megawatt is generally considered enough electricity to light 1,000 typical homes.) In the 1970s, NYPA built two more large plants (a 1,040-megawatt pumped storage hydroelectric plant in the **Catskill Mountains** and a 820-megawatt nuclear facility on Lake Ontario), and initiated a program of developing small hydroelectric generating facilities throughout the State, five of which began operation between 1982 and 1986.

NYPA COMMENTS:

Change "Catskill Mountains" to "Schoharie Valley".

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* See State Comptroller's Rejoinder, pages 133, 135

NYPA established itself in the New York City area in 1974 as a result of financial difficulties encountered by Consolidated Edison, the primary source of electricity in the area at that time. NYPA was **directed** by the Governor and State Legislature to buy two partially-built power plants from Consolidated Edison, complete the construction of the plants, and operate both plants (the 825-megawatt fossil-fueled Poletti plant in Queens and the 970-megawatt nuclear Indian Point 3 plant in northern Westchester County). As part of this arrangement, NYPA was expected to sell most of the electricity produced by these two plants to certain government agencies in New York City and Westchester County that were formerly customers of Consolidated Edison.

NYPA COMMENTS:

Change “directed” to “authorized”

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Since that time, NYPA has added to its presence in the New York City area. In 1994, it began operating a 136-megawatt fossil-fueled plant on Long Island, after it was awarded the contract to build the plant by the utility providing most of the power to Long Island. In 2001, in response to projected power shortages in the New York City metropolitan area, NYPA installed eleven small generating units at six sites in New York City and one site on Long Island. Together these seven sites can produce about 450 megawatts of electricity. In late 2002, NYPA broke ground in the construction of a new 500-megawatt plant at the site of the existing Poletti plant in Queens. The new plant is expected to begin operation in 2005. NYPA has also announced that, between 2008 and 2010, it will retire the existing 825-megawatt Poletti plant in Queens.

* See State Comptroller's Rejoinder, page 133

To reduce its operating risks, NYPA sold both its nuclear plants to the Entergy Corporation in November 2000. As part of the sales agreement, NYPA **[A]** was required to purchase the plants' output through 2004. NYPA has not decided whether it will seek new long-term purchase contracts for some or all of this output, which includes **[B]** 800 megawatts of electricity from Indian Point 3 for government agencies.

NYPA COMMENTS:

[A] Change "was required" to "agreed"

[B] Change "800" to "980"

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The power industry in New York State has changed significantly since **[A]** 1996, when competitive wholesale and retail markets **[B]** were created in an effort to deregulate the industry. Most of New York's regulated utilities sold their generating plants to new owners, who are expected to compete with one another and other power generators in the new wholesale market. In the new retail market, the utilities and other energy services companies **[C]** are expected to compete with one another in obtaining this power from the wholesale producers and selling the power to consumers. Since NYPA is not subject to the regulations of the New York State Public Service Commission, it was not required to sell its generating plants. Consequently, NYPA competes in both the wholesale and retail markets.

NYPA COMMENTS:

[A] Change "1996" to "1999"

[B] Replace "were created" with "arose with the implementation of the NYISO. In 1996, the New York State PSC approved various utility plans to sell their generation and to open up their markets..."

[C] Change "are" to "were"

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* See State Comptroller's Rejoinder, pages 133, 135

These markets are overseen by the New York Independent System Operator (NYISO). The NYISO, which was formed in 1998, is a not-for-profit entity regulated by the Federal Energy Regulatory Commission. All sales, purchases and transmission of electricity in New York are overseen by the NYISO. To protect against problems caused by disruptions in the transmission of electricity to New York City, the NYISO requires that every power supplier serving customers in New York City

NYPA COMMENTS:

After "1998" insert: "and went into operation in November 1999,"

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be able to obtain at least 80 percent of its customers' power (peak usage) from power plants located within the City. To meet the requirement, power suppliers may either own generating facilities within the City or have purchase agreements with such facilities. NYPA has agreed to comply with this 80 percent in-City capacity requirement in the New York City area.

NYPA is a [A] **public benefit corporation** created by the State Legislature. NYPA is governed by a Board of Trustees that is appointed by the Governor and [B] **the State Legislature**. NYPA receives no State appropriations. It sells electricity to obtain operating revenue and issues bonds to finance construction projects.

NYPA COMMENTS:

[A] Replace "public benefit corporation" with "corporate municipal instrumentality of the state"

[B] Replace "the State Legislature" with "confirmed by the State Senate"

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* See State Comptroller's Rejoinder, pages 133, 135

Audit Scope, Objective and Methodology

We audited selected aspects of NYPA's operations for the period August 1, 1996 through August 31, 2003. The objective of our performance audit was to evaluate the processes used by NYPA in deciding to provide additional power in the New York City area by (1) building and operating a new 500-megawatt generating plant in Queens and (2) installing and operating 11 small generating units with a combined capacity of about 450 megawatts in New York City and Long Island as part of the PowerNow! project.

To accomplish this objective, we interviewed NYPA officials and reviewed documents that were provided by NYPA. These documents included detailed cost and revenue analyses prepared by NYPA staff and consultants hired by NYPA, in particular the following analyses, which were identified by NYPA as critical to their decision to build and operate the new plant in Queens: the 1998 Poletti Repowering Study prepared by NYPA staff, a 1999 study prepared by the consultant Pace Global Energy Services, an August 2000 staff analysis, a December 2001 staff analysis, and a May 2002 staff analysis update. We did not review the documentation supporting NYPA's estimates of future electricity prices, **because this documentation was not retained by NYPA**. In addition, we did not interview NYPA's Board of Trustees.

NYPA COMMENTS:

Voluminous documentation of the assumptions used by the Northbridge model was retained by NYPA and copies were supplied to the auditors. Additional documentation has been retained by NYPA's consultant in this area. NYPA offered to provide access to this information at the consultant's offices but the OSC auditors declined. To imply that the documentation was not attainable or accessible is incorrect.

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The matters addressed in this report are a continuation of certain matters that were addressed in our prior audit report 2000-S-61, issued on July 31, 2001 in accordance with Chapter

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* See State Comptroller's Rejoinder, page 135

469 of the Laws of 1989 as amended by Chapter 298 of the Laws of 1990. As a result of this law, beginning in 1991, the Office of the State Comptroller has been required to perform at five-year intervals a comprehensive audit of NYPA's management and operations, and to issue a report disclosing the audit results on or before July 31 of every fifth year. In order to comply with this law and issue our prior report by July 31, 2001, we had to suspend our examination of NYPA's plans to provide additional power in the New York City area. As is described in detail in that report, **our examination of this issue was delayed because NYPA did not provide us with certain documents related to its plans for providing additional power in the New York City area. We subsequently returned to NYPA, reviewed the documents that had been withheld as well as more recent documents that had become relevant in the intervening period, and completed our examination.**

NYPA COMMENTS:

This is not correct. No documents were withheld. During the Primary Audit, OSC requested analyses on NYPA projects which were in progress. When OSC returned for the Continuation Audit, the analyses were given to them as work had been completed. However, the focus of the Continuation Audit was not on the documents which the OSC stated that it did not have sufficient time to review, but on those documents which were produced subsequent to the end of the Primary Audit field work period and therefore not subject to either the Primary or Continuation Audit. These documents should have been reviewed as part of the next Primary Audit. The length of this Continuation Audit has exceeded all of the other management audits to date.

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In the performance of both the continuation audit and the original audit, we contracted with The Liberty Consulting Group of Quentín, Pennsylvania, a utility management-consulting firm. We relied on this firm's expertise and considerable experience in evaluating utility operations. The Liberty Consulting Group provided detailed analysis of the NYPA operations addressed by our audit objective. The Office of the State Comptroller nevertheless maintained overall management responsibility for the conduct of the audit and ensured full compliance with generally accepted government auditing standards. Such

* See State Comptroller's Rejoinder, page 135

standards require that we plan and perform our audit to adequately assess those operations of NYPA included within our audit scope. Further, these standards require that we understand NYPA's internal control structures and its compliance with those laws, rules and regulations that are relevant to the operations included in our audit scope. An audit includes examining, on a test basis, evidence supporting transactions recorded in the accounting and operating records and applying such other auditing procedures as we consider necessary in the circumstances. An audit also includes assessing the estimates, judgments and decisions made by management. We believe that our audit provides a reasonable basis for our findings, conclusions and recommendations.

The Office of the State Comptroller is required by law to do a program, financial and operations audit of NYPA at least once every five years. To fulfill this statutory mandate, prior to the actual audit, we identified a number of specific concerns and

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issues which, with the assistance of The Liberty Consulting Group, have been pursued during this continuation audit and during the original audit. During the audit process, we refined the audit areas as circumstances warranted. Thus, this report and our prior report 2000-S-61 do not necessarily address all the concerns and issues originally identified because the reports are prepared on an "exception basis" and therefore are focused on areas in need of improvement and not on areas where NYPA is considered to meet minimum industry standards and demonstrate adequate controls and sound management practices.

Response of NYPA Officials to Audit

Preliminary copies of the matters contained in this report were provided to NYPA officials for their review and comment. Their comments were considered in preparing this draft report.

Within 90 days after final release of this report, as required by Section 170 of the Executive Law, the Chairman of the New York Power Authority shall report to the Governor, the State Comptroller, and the leaders of the Legislature and fiscal committees, advising what steps were taken to implement the recommendations contained herein, and where recommendations were not implemented, the reasons therefor.

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THE DECISION TO BUILD A NEW PLANT

The main reason NYPA decided to build a new 500-megawatt plant in New York City was to obtain the additional in-City capacity that it needed to continue providing power to its New York City governmental customers. NYPA officials have worked towards operating in a manner that is in accordance with the 80 percent in-City capacity requirement. NYPA decided that the most cost-effective method of obtaining this additional capacity was to build and operate a new plant at the site of its existing Poletti plant in Queens.

We believe that NYPA committed to building the new plant in October 1999, when the Board of Trustees authorized the purchase of the major components for the plant (in conjunction with this authorization, in December 1999, the Board authorized the issuance of \$375 million of bonds specifically to finance the construction of the plant). We examined the basis for this decision, and in particular, the analyses performed by NYPA in support of this decision. Our objective was to determine whether the available options were adequately evaluated by NYPA prior to committing to this project, and whether the information used by NYPA in its decision-making process was reliable.

NYPA COMMENTS:

This is not correct. NYPA's Board did not authorize the issuance of \$375 million of bonds to finance construction in December 1999. The Board did indicate its intent to issue tax-exempt debt at a later date.

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* See State Comptroller's Rejoinder, page 135

We found that a number of critical options were not considered in the decision-making process prior to the October 1999 commitment. We also found that NYPA's decision to build the plant was based, in large part, on unreliable cost estimates. As a result, the course of action taken by NYPA may not have been the best available course of action in the circumstances, and the revenue from the plant may not be sufficient to cover the costs of building and operating the plant. We recommend that a number of improvements be made in NYPA's decision-making process before any other power plants are constructed by NYPA.

NYPA COMMENTS:

NYPA disagrees.

NYPA's decision to build this facility came after extensive studies and research by NYPA's own staff, by outside consultants and through evaluations relative to a request for proposals to purchase additional supplies. By studying a myriad of potential supply portfolios for the government customers, it was determined that the leading outcome in providing for continued savings relative to the competitive marketplace was through the construction of the new 500 mw combined-cycle facility at the Poletti site. All three independent approaches came to the same conclusion. NYPA stands firmly behind this decision.

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We also found that NYPA has done little to secure long-term contracts with its New York City customers. In the new competitive market for electricity, these customers are likely to be sought by other power suppliers and may chose to obtain their power from sources other than NYPA. If this happens,

NYPA COMMENTS:

NYPA has evergreen contracts with its SENY customers which are long-term by definition. NYPA believes that appropriate steps are being taken to maintain our long-term relationships and provide continued savings to these customers.

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* See State Comptroller's Rejoinder, pages 131, 132-133

NYPA's new plant may become **[A]** a "merchant" plant competing with other merchant plants in the risky and volatile wholesale electric market. Such a role was not intended for the plant when its construction was authorized and its bonds sold, and such a role may not be appropriate for a facility owned by a public agency such as NYPA. We recommend that NYPA take immediate action to **[B]** initiate the process of negotiating long-term contracts with its New York City customers.

NYPA COMMENTS:

[A] This plant is being built to serve a specific customer base, one in which NYPA after thorough analysis believes it can continue to provide savings. The possibility of the plant becoming one in which NYPA relies on the wholesale market for its revenues (i.e., a merchant plant) is remote. However, NYPA analyzed this unlikely event and found that the plant would still be expected to earn a positive return.

If due to unanticipated SENY governmental customer load reductions, the Authority is forced to sell the excess output of the new 500 mw project into the NYISO markets or sell such output on a short term basis not exceeding 3 years, the tax-exempt status of the bonds would not be affected.

[B] NYPA has evergreen contracts with its SENY customers which are long-term by definition. NYPA believes that appropriate steps are being taken to maintain our long-term relationships and provide continued savings to these customers.

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* See State Comptroller's Rejoinder, pages 133-133, 134-135

Evaluation of Alternatives

In 1997, in its in-house Poletti Repowering Study, NYPA began to formally analyze whether it would be cost-effective to add 500 megawatts of generating capacity to the site of its Poletti plant in Queens. The analysis was prompted by NYPA's belief, shared by others in the power industry, that the 80 percent in-City capacity requirement would soon be imposed on all power suppliers serving customers in New York City. According to NYPA's estimates, NYPA would need about 500 megawatts of additional in-City capacity if it was to meet the requirement and continue serving its existing New York City customers, as follows:

In-City Demand:

Coincident Peak Demand of NYPA's NYC Customers:	1,700 Megawatts
80 Percent of Peak Demand:	<u>1,360 megawatts</u>

In-City Capacity:

Poletti Plant:	<u>847 megawatts*</u>
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Amount of Additional In-City Capacity Needed: 513 megawatts

* 847 megawatts was used by NYPA in their analysis

NYPA's main customers in New York City are the City of New York (peak demand of 875 megawatts), the Metropolitan Transportation Authority (peak demand of 598 megawatts), the New York City Housing Authority (peak demand of 211 megawatts), the Port Authority of New York and New Jersey (peak demand of 110 megawatts), and the New York State Office of General Services (peak demand of 62 megawatts). The coincident peak demand of all of NYPA's New York City customers (i.e., their highest peak demand when they are treated as the equivalent of one customer) is less than the sum of their individual peak demands, and totals about 1,700 megawatts.

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NYPA serves these customers with power generated by the existing Poletti plant in New York City, power generated by its plants located outside New York City, power purchased from the Indian Point 3 plant located outside New York City, and power purchased on a spot basis from other producers both inside and outside New York City. While NYPA must be able to obtain at least 80 percent of these customers' power from generating facilities located within the City, if it is to comply with the

NYISO's in-City capacity requirement, it is not required to use its full in-City capacity and on most days may obtain the bulk of the customers' power from sources outside New York City. However, the in-City capacity must be available so that it can be called on when sufficient supplies of power cannot be reliably transmitted from sources outside New York City.

NYPA's Poletti Repowering Study was completed in 1998. It considered different options for either expanding the capacity of the existing Poletti plant or building additional stand-alone capacity at the site. NYPA staff concluded that the most cost-effective of these particular options was the option that entailed the construction of a 500-megawatt combined cycle natural gas-fueled power plant at the site. The major components of the 500-megawatt plant would be two gas turbines, a heat recovery steam generator, a steam turbine, a dry cooling system and a condenser. The plant, which would be fueled primarily by natural gas (but could also be fueled by oil), would use state-of-the-art technology designed to achieve high levels of operating efficiency.

On the basis of this analysis, on December 15, 1998, NYPA officials asked the NYPA Board of Trustees to approve the expenditure of up to \$7.5 million for licensing and engineering services that would be needed to further explore the possibility of pursuing this option (all capital expenditures of \$3 million or more must be approved in advance by the Board of Trustees). The Board approved this request, and on October 26, 1999, approved a further request to authorize \$23 million for additional licensing, engineering and procurement activities and \$191.4 million for a contract with General Electric Company to build the turbines for the 500-megawatt combined cycle plant. **With this approval, NYPA effectively committed itself to this option,** and in December 1999, the Board of Trustees approved the issuance of up to \$370 million in bonds specifically to finance the construction of the plant. At that time, NYPA estimated the total cost of construction would be \$375 million.

NYPA COMMENTS:

This is not correct. The Board action in October 1999 only authorized a \$9.25 million down payment on the \$191.4 million contract which was referenced as \$197 million in the Primary Audit and corrected in the Continuation Audit. The G.E. contract had cancellation provisions with set amounts NYPA would have had to pay. For more detailed discussion, see Executive Summary under section titled, "Key Errors and Oversights – 500 mw Combined-Cycle Plant."

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* See State Comptroller's Rejoinder, pages 130-131

At no point before October 26, 1999, when NYPA began to implement the option recommended by the Poletti Repowering Study, did NYPA formally consider any other options (other than the limited technical options addressed by the Poletti Repowering Study) for meeting the 80 percent in-City capacity requirement, even though hundreds of millions of dollars were at stake and an extensive evaluation of alternatives is often required of utility companies seeking approval for large construction projects. In particular, the following options were not considered prior to the commitment to proceed with the new plant:

- **Solicit Bids to Build and Operate a Plant - Additional in-City power and generating capacity could have been obtained from a new plant that was built and operated by another power producer. The plant did not have to be built by NYPA or operated by NYPA; it only had to supply power to NYPA. NYPA could have solicited bids to determine whether any other power producers were interested in such an arrangement. It was in response to just such a solicitation that NYPA built, and operates, its Flynn plant on Long Island; the plant itself supplies power to the Long Island Power Authority. We note that Consolidated Edison recently solicited bids for the construction of a power plant in New York City, received several bids in response, and in April 2003, announced that it had signed a ten-year contract to receive 500 of the 1,000 megawatts of electricity to be produced by the plant that will be built by the winning bidder.**
- **Joint Venture - Additional in-City power could have been obtained from a new plant that was built by someone else, but operated by NYPA or the partner. The plant could have been built to NYPA's specifications to meet NYPA's operating needs. If this option had been pursued, NYPA might have been able to obtain more realistic cost estimates for the construction process (as is discussed in the following section of this report, NYPA's estimate of the construction costs has increased from \$375 million to \$650 million).**
- **Long-Term Contracts to Purchase Power and**

Capacity - Additional in-City power and capacity could have been obtained through long-term purchase contracts with other suppliers, either existing plants or

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plants that would be built in the future. If NYPA had publicly expressed an interest in obtaining such power, a power producer may have been willing to build a new plant to help meet this demand, just as several producers were willing to build a plant to meet the needs of Consolidated Edison. However, NYPA made no solicitations for purchased power until August 2001, when it solicited bids to replace the power it was purchasing from its former nuclear plants (this purchase contract will expire in 2004).

NYPA COMMENTS:

The appropriate alternatives were considered prior to the Trustees approving the 500 mw plant.

None of these options make sense for NYPA since they do not take advantage of NYPA's major advantage over private parties-i.e., NYPA's tax exempt status. A private entity wouldn't be able to issue tax exempt debt. Also, their cost of capital would be higher due to the requirement of funding the equity (or profit) component of their capital structure. NYPA, on the other hand, is 100% debt funded. Few private entities have equivalent bond ratings to NYPA and thus their cost of capital would be higher for that reason as well. We pass these advantages on to our customers.

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- **Reduced Presence in New York City** - The need for additional in-City power could have been reduced or eliminated if NYPA had explored the option of allowing its New York City customers to obtain some or all of their power from other suppliers. While NYPA is required by law to continue supplying customers who want to remain customers, customers may receive better offers from other suppliers and NYPA can elect not to match those

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* See State Comptroller's Rejoinder, pages 135-136

offers. However, [A] NYPA did not formally analyze the possible consequences of this course of action in New York City. [B] We note that NYPA's long-range financial plan projects future net losses on its New York City customers, but these losses are expected to be offset in NYPA's consolidated financial statements by the large margins realized on NYPA's sale of power from its two large hydroelectric plants. [C] We also note that, if NYPA had elected to withdraw from the New York City market because it could not meet the 80 percent in-City capacity requirement, other power producers might have found it worthwhile to enter the market and build new plants in the City. The power industry in New York State was restructured, and separate wholesale and retail markets were created, to encourage private development of this kind.

NYPA COMMENTS:

- [A] NYPA most certainly did review this – if NYPA customers went elsewhere for service, NYPA studies indicated they would pay more. All of our analyses looked to compare NYPA's cost to the competing alternative.
- [B] This is a misleading statement. NYPA has until very recently broken even in this market (while providing savings of 20% to 40% to its customers) and does not rely on other segments of its business to support these customers. Based on internal studies, the work of outside consultants, and the results of an RFP, NYPA believes it can continue to provide savings to its customers since its costs remain below the competitive alternative.
- [C] As noted, this would give up the tax-advantaged status of NYPA and its customers would pay higher rates because they would have to pay market prices. Relating to NYPA's governmental customers, this would mean that taxes, transit fares and the costs of other governmental services would have to be increased to cover higher costs.

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We therefore conclude that NYPA's decision-making process was flawed. Prior to the commitment to proceed with the new plant, NYPA failed to consider several alternative courses of action commonly taken by power suppliers prior to committing to a project. While it is possible that none of these alternative courses of action would have been found to be preferable to the course of action actually taken by NYPA, it is also possible that one or more of these alternatives would have been a better choice.

NYPA COMMENTS:

NYPA has gone over in detail with the auditors its reasons for not considering certain options and why certain options have been taken into consideration in its market price analyses.

NYPA did not seriously consider walking away from its governmental customers because we believe that we have an obligation to serve this customer segment. As stated numerous times during the course of this audit, NYPA provides savings in the range of 20 to 40% to this financially challenged customer segment. The existing Power Authority agreement with these customers allows them to seek out lower-priced alternatives if available. As explained repeatedly in audit interviews, the current agreement provides for a "market test" option. Since 1998, the first available option date, no Authority customer has exercised this "market test" right, which would lead most reasonable people to believe that it was because no such lower-priced option existed. Further, in the third quarter of 2001, The City of New York, one of the largest electricity consumers in the country, went out with a Request for Proposal to solicit an alternate electricity supply from the market and they received not one bid.

Yes, the OSC is correct in stating that we chose not to abandon our government customers as an alternative to building the new 500 mw plant. Likewise, our customers never exercised their option of terminating at least a portion of their service with us. The logical inference being that our customers have made a concerted choice to continue being 100% served by the lowest cost supplier currently available – that is, the New York Power Authority. Likewise, we will plan to continue to serve these customers as long as we can provide them with reasonable savings.

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* See State Comptroller's Rejoinder, pages 136-137

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[A] The utilities that are subject to the requirements of state public service commissions are often required to institute a comprehensive planning process that evaluates the feasibility of all reasonable alternatives when considering a commitment to build a new generating plant. This type of process requires the utility to consider a variety of alternatives in addition to new construction, such as long-term purchases of capacity and energy, **[B]** as well as demand-side measures that would reduce the need for more resources. Utilities are required to do this type of planning because, in the past, they often made costly mistakes when they built new generating plants. We believe NYPA would benefit from the use of a more comprehensive evaluation and planning process.

NYPA COMMENTS:

- [A]** NYPA currently uses a comprehensive planning and evaluation process that evaluates the feasibility of all reasonable alternatives. This comprehensive process includes testing the viability of the plant under multiple fuel price and generating capacity scenarios with corresponding changes in electricity prices. Advanced modeling techniques were also utilized by NYPA to estimate future prices of electricity in New York State.
- [B]** NYPA is spending about \$100 million per year on energy efficiency and conservation and has a very active and innovative peak load reduction program.

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NYPA's two most recently completed construction projects were the Flynn plant on Long Island and the eleven generating units that were constructed for the PowerNow! project. The Flynn plant initially lost money because of an unfavorable gas-supply contract, and the PowerNow! units cost far more than expected to construct (\$640 million compared to the initial estimate of \$450 million). In NYPA's ongoing construction project (the 500-megawatt plant in Queens), the expected cost of construction

* See State Comptroller's Rejoinder, pages 134, 137

has increased from \$375 million to \$650 million. It should be noted that, even though large combined cycle plants like the plant under construction are not a new concept, they are nonetheless complex to build and operate and have challenged organizations more experienced than NYPA.

We therefore recommend that more comprehensive evaluation, planning and decision processes be used by NYPA prior to making commitments to build new generating facilities. While no new construction projects were being actively considered at the conclusion of our audit field work, NYPA had been considering the construction of another plant at the Poletti site in Queens with a capacity of either 750 or 800 megawatts. This plant was going to replace the current Poletti plant that will be retired sometime between 2008 and 2010. In 1999 and 2000, NYPA staff and a consultant hired by NYPA (Pace Global Energy Services) performed various analyses assessing the cost-effectiveness of this proposed plant at the same time that they analyzed the cost-effectiveness of the 500-megawatt plant. According to these analyses, the replacement plant would have been cost-effective, but NYPA officials subsequently decided to set aside definitive plans for such a plant, at least for the present. If these plans are revived, **more comprehensive**

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evaluation, planning and decision processes should be used to evaluate the cost-effectiveness of all reasonable alternatives prior to a commitment to proceed with any of the alternatives.

NYPA COMMENTS:

NYPA disagrees with this recommendation since NYPA currently uses a comprehensive planning and evaluation process that evaluates the feasibility of all reasonable alternatives. This comprehensive process includes testing the viability of the plant under multiple fuel price and generating capacity scenarios with corresponding changes in electricity prices. Advanced modeling techniques were also utilized by NYPA to estimate future prices of electricity in New York State.

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* See State Comptroller's Rejoinder, page 134

Estimate of Construction Costs

In October 1999, NYPA began to implement the option recommended by the Poletti Repowering Study: the construction of a new 500-megawatt plant in Queens. NYPA also performed other in-house analyses at periodic intervals to assess the cost-effectiveness of proceeding with this option. When the Board of Trustees gave its approval to proceed with this option, the estimated cost of construction was \$375 million. When NYPA assessed the cost-effectiveness of this option in 1998, 1999 and most of 2000, its assessments were based on an estimated cost of \$375 million.

In making these assessments, NYPA staff compared the total cost per megawatt-hour of producing power at the plant (both capital and operating costs) to the likely market price per megawatt-hour for the power. According to these assessments, the plant would be cost-effective because the per megawatt-hour sale price of the power would exceed the per megawatt-hour cost of the power. For example, according to the estimate performed in August 2000, during the 2005 through 2007 period, the sale price would exceed the cost by \$5 per megawatt-hour.

However, after 1999, the estimated cost of construction began to increase. First, the contract actually awarded to General Electric to build the turbines for the plant was about **[A] \$30 million** higher than expected, primarily because of changes during the detailed engineering phase of the project. Also, NYPA had planned on using cooling towers, but the towers had to be replaced by a **[B] dry cooling system** because of other regulatory/licensing requirements and because it was determined that moisture clouds from the towers would interfere with the operations of nearby LaGuardia Airport. Since a dry cooling system is more expensive to install than cooling towers, the estimated cost of the construction process increased by an additional \$40 million.

NYPA COMMENTS:

[A] The \$30 million change order was in March 2001.

[B] Dry cooling came about not because of airport fog concerns but because of Article X Siting Board and DEC decisions over the extent of fish kills caused by wet cooling. That is why NYPA went to dry cooling.

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* See State Comptroller's Rejoinder, pages 135, 137

Eight different contract amendments were also added that further increased the cost of the contract with General Electric by an additional \$13 million. For example, a \$4.0 million

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amendment was needed to expedite the delivery of pipes, a \$4.1 million amendment was needed to enable the turbines to be powered by fuel oil as well as by natural gas (the original contract did not provide for dual-fuel capability), and a \$1.3 million amendment was needed for a compressor to modify the pressure of the natural gas that was going to be supplied to the plant (the gas could not be used by the plant at delivery pressures). The expected cost of construction also increased by an additional \$17 million for other miscellaneous reasons, such as unexpected project management and engineering costs.

NYPA COMMENTS:

This inaccuracy, from the Primary Audit, continues to be misunderstood or misrepresented. The \$4.1 million was not an amendment for an increase, but for the reclassification of previously authorized expenditures from the construction contract to the GE procurement contract.

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These various increases raised the estimated cost of construction from \$375 million to \$475 million, as follows:

Estimate Provided to Board of Trustees	\$375 million
Increase in Contract Awarded to General Electric	30 million
Cost to Install Dry Cooling System	40 million
Amendments in Contract to General Electric	13 million
Miscellaneous	<u>17 million</u>
Revised Estimate	<u>\$475 million</u>

* See State Comptroller's Rejoinder, page 133

NYPA did not include any of these additional costs in its various formal analyses of the project's cost-effectiveness until December 2000, when an analysis presented to NYPA's Executive Management Committee included a partially updated cost estimate of \$400 million. **The fully updated cost estimate of \$475 million was not included in a formal NYPA analysis or presented to the Board of Trustees until December 2001.**

NYPA COMMENTS:

This statement is incorrect. The \$475 million construction cost estimate was not established until July 2001. In October 2001, an economic analysis was presented to Senior Management reflecting the \$475 million revised construction cost estimate as of July 2001. The economic analysis was presented to the Board in December 2001.

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[A] We were unable to determine whether NYPA's Board of Trustees was promptly and fully informed about these cost increases, because NYPA does not maintain a record of the documents that are provided to the Board members at their meetings (generally, a thick binder of documents is provided to each member at each meeting), and we were not permitted by

* See State Comptroller's Rejoinder, page 133

NYPA officials to conduct interviews with Board members. [B] Prompt and full disclosure of such matters is crucial if NYPA - a public entity — is to maintain appropriate standards of public accountability. [C] We therefore recommend that NYPA maintain a detailed record of the documents provided to Board members at Board meetings.

NYPA COMMENTS:

[A] NYPA disagrees with this statement.

The Trustees receive monthly project reports and such reports were provided to the auditors. The monthly project reports reported the increases in construction cost estimates as they occurred. Information packages relevant to the decision-making process were provided to the Auditors including:

- Minutes of all Trustee meetings from January 1999-August 2002
- Budget approval and spending authorizations
- December 18, 2001 and May 2002 Staff Reports
- Monthly Project Reports (2000 – 2002) on the 500 mw project

The Auditors were also offered access to the records of the Secretary's Office for any follow-up requirements.

[B] NYPA takes very seriously its responsibility to maintain appropriate standards of public accountability.

[C] NYPA disagrees. Copies of the analyses and documentation provided to the Board of Trustees relative to this issue were provided to the OSC during the audit process.

The Secretary's Office maintains a log of the information packages provided to the Trustees. The auditors could have easily matched the information packages provided to the auditors to the log of the Secretary's Office. This would have confirmed that the information packages provided to the auditors were the same as those provided to the Trustees.

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* See State Comptroller's Rejoinder, pages 135, 137

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In April and May of 2002, NYPA's estimates of the construction costs increased again. In April 2002, NYPA received the bids for the general work contract to construct and install the power plant equipment. Only two bids were received. NYPA was expecting contract costs to be about \$97 million, but the bid accepted by NYPA was for \$243 million — \$146 million more than expected. This and other cost increases were reflected in an updated project cost estimate prepared by NYPA in May 2002 for review and approval by the Board of Trustees. These increases raised the estimated cost of construction from \$475 million to \$650 million, as follows:

Previous Revised Estimate	\$475 million
Increase in General Work Contract	146 million
Cost of Meeting Certain Regulatory Requirement	10 million
Electrical Interconnection	10 million
Insurance	13 million
Certain Offsets and Credits	(11 million)
Miscellaneous	<u>7 million</u>
 New Revised Estimate	 <u>\$650 million</u>

As of August 2003, NYPA officials believe this cost estimate will not have to be revised again, because all the equipment has been procured and all significant contracts have been signed for construction and construction management. These officials estimate the project will be completed, and the plant tested and operational, by the Spring of 2005.

Thus, NYPA's estimated construction cost for the new plant increased from \$375 million at the beginning of the planning phase to \$650 million at the close of the planning phase. While some increase in estimated costs during the planning phase of a construction project is not unusual, both the magnitude of the increase (\$275 million, or an additional 73 percent) and the nature of some of the costs that were not anticipated by NYPA raise questions about the effectiveness of NYPA's cost estimating practices.

In particular, we question how NYPA could underestimate, by such a large amount, the cost of the general work contract. More than half of the \$275 million increase in estimated costs relates to this contract, which was awarded for \$146 million more than NYPA expected.

NYPA COMMENTS:

The Authority reviews the planning and cost estimating process for each of its projects and applies the lessons learned going forward as a matter of course. However, in developing this recommendation, the OSC errs in attributing the increase in the Project cost estimate to NYPA cost estimating practices, its alleged inability to develop accurate construction cost estimates and its failure to use outside resources to develop cost estimates. The report fails to take into account factors which had a significant impact on the cost estimate including prevailing gas turbine market conditions, changing regulatory environment, lack of competition for construction services, and construction practices in general within New York City.

In the case of large scale capital projects, such as the 500 mw, NYPA's estimating group is normally called upon during inception stage of a project to provide an order of magnitude cost estimate. As a project progresses through various approval and development stages, NYPA relies on outside consultants for assistance in preparation of project execution plans including cost estimates. On a typical large scale project, the initial order of magnitude estimate is updated several times as the project progresses from licensing, to engineering and design, to contracting phases.

For the 500 mw Project, NYPA followed its own and the industry standard practice to develop the cost estimate. The table below provides a summary of the cost estimating process. NYPA hired Burns & Roe and Sargent & Lundy, two widely recognized power plant engineering firms and General Electric, the leading combined cycle power plant manufacturer, to develop conceptual, preliminary and detailed cost estimates for the 500 mw Project. During preparation of the construction fair cost estimate, NYPA Staff intimately familiar with the PowerNow! Project, worked with Sargent & Lundy in sharing their experience with the construction contracting and practices in the area.

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* See State Comptroller's Rejoinder, pages 137-138

NYPA COMMENTS: (continuation)

SUMMARY OF COST ESTIMATES						
Date	Total Amount	Material Cost	Labor Cost	Estimated By	In Service	Comments
Nov. 1997	\$360 M	—	—	NYPA	5/2002	Order of magnitude estimate prepared by NYPA; Holtsville CC plant used as reference. In-service date Jan. 2002.
Oct. 1998	\$375 M	—	—	NYPA	5/2002	Order of magnitude estimate; added cooling tower.
Nov. 1999	\$375 M	\$209 M	\$108M	Burns&Roe / NYPA	5/2002	Conceptual estimate included GE bid of \$192 M for power island.
July 2001	\$475 M	\$258 M	\$146M	Burns&Roe / NYPA	5/2004	Preliminary estimate including dry cooling and stricter emission standards.
May 2002	\$650 M	\$255M	\$330M	Sargent & Lundy/GE/ NYPA	2/2005	Final estimate based on completed design and construction bid prices.

The increase in the cost estimate from the initial order of magnitude value of \$375 million to the current detailed estimate of \$ 650 million is mainly attributed to the unexpected high cost of construction and the increase in the equipment cost due to changed regulatory requirements. Other than NYPA's PowerNow! Project, there was no major power plant constructed in New York City in the last twenty five years. NYPA and its consultants had basically no prior power plant construction cost data for the area. Construction costs included in the conceptual and preliminary cost estimates were developed based on cost data for similar plants built in other parts of the country, adjusted upward to account for expected higher costs in New York City. The full impact on the construction cost due to lack of competition for construction services and construction practices in New York City was not apparent until the construction bids were actually received. Initially, NYPA had requested proposals on an Engineer, Procure, Construct (EPC) basis. The contract packaging had to be revised due to the lack of bidder response to the EPC inquiry. Other owners currently constructing large power plants in New York City appear to have experienced similar unforeseen growth in construction costs. Increase in the equipment cost attributed to licensing and environmental requirements could not have been identified earlier in the process.

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* See State Comptroller's Rejoinder, page 138

NYPA COMMENTS: (continuation)

The audit report indicates other cost that NYPA should have identified earlier in the Project development process, including the need to expedite delivery of piping, additional insurance, and need for electrical interconnection. The \$4.1 million addition of piping with a long delivery time to the GE contract was not an amendment for an increase, but for the reclassification of previously authorized expenditures from the construction contract to the GE procurement contract. As a cost saving measure, NYPA elected to provide construction insurance for the 500 mw Project as opposed to the construction contractors providing insurance as part of their contract price. The electrical interconnection to Con Ed was not overlooked in the planning stage of the Project. However, details of the interconnection and needed modifications within the Con Ed facilities could not be determined until the licensing process and detailed system planning and engineering studies were completed.

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According to the minutes from a meeting of NYPA's Board of Trustees in November 2002, the cost of the contract was so much higher than expected because it was difficult to find a contractor who was willing to (1) bid on a lump sum basis and (2) accept the cost and potential liabilities associated with large construction projects in New York City. However, NYPA had just completed a series of construction projects in New York City as part of the PowerNow! project, and consequently, should have been familiar with the difficulties of obtaining contractors in that environment. Moreover, since the cost of the PowerNow! project significantly exceeded NYPA's initial estimates, NYPA should have been alert to the possibility that its initial cost estimate for the general work contract might have to be adjusted.

NYPA COMMENTS:

NYPA does not believe that the cost knowledge acquired from the PowerNow! units is or was transferable to the 500 mw plant or to any other project. NYPA awarded contracts and started construction of the small clean power plants well before engineering was complete. Therefore, NYPA did not have well defined bid packages, and required many changes. NYPA staff had nine months from the time they received the assignment until they were expected to be operational. NYPA paid for acceleration at every turn, whether it was overtime, expedited shipping, etc. These issues were discussed and decisions made in our weekly video conference meetings.

The 500 mw plant was designed and is being constructed in a more conventional manner. The major cost increase became apparent after NYPA got the construction bids. NYPA tried without success to get an EPC contract up front.

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We also question whether certain other costs that were not identified until later in the planning process should have been identified earlier in the process, as follows:

- Costs increased by \$40 million because the cooling towers planned by NYPA had to be replaced by a more expensive method of cooling. This change was made in

* See State Comptroller's Rejoinder, page 138

response to [A] (1) regulatory/licensing requirements that became known to NYPA in June 2000 and (2) the cooling towers' interference with the operations of nearby LaGuardia Airport. We believe the need to accommodate Airport operations could have been anticipated by NYPA, and [B] regulatory requirements known in June 2000 should have been incorporated into official NYPA project cost estimates before the December 2001 analysis and presentation to the Board.

NYPA COMMENTS:

[A] The first issue was the deciding factor, not the second.

Dry cooling came about not because of airport fog concerns but because of Article X Siting Board and DEC decisions over the extent of fish kills caused by wet cooling. That is why NYPA went to dry cooling.

[B] The regulatory requirements became known in early 2001 and were incorporated July 2001 in a Summary of Cost Estimates provided to the OSC in connection with the Preliminary Findings.

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- Costs increased by \$9.5 million because the contract with General Electric had to be amended to accommodate certain needs not addressed by NYPA in the original contract (i.e., the need for the new plant to be able to use two types of fuel, the need to modify the pressure of the natural gas supplied to the plant, and the need to expedite the normal delivery time of the pipes required for the plant). We believe these needs should have been identified in the original contract. NYPA knew the new plant was to be dual-fuel capable, should have known that the pressure of the natural gas would have to be modified (it has operated the gas-powered Poletti plant at

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that site for more than 20 years), and should have known the normal delivery time of the pipes.

Costs increased by about \$66 million for various other reasons, including additional engineering and other miscellaneous costs

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* See State Comptroller's Rejoinder, pages 135, 137

(\$17 million), additional insurance (\$13 million), the need for electrical interconnection (\$10 million), the need to meet a regulatory requirement (\$10 million) and other reasons. While it may not be reasonable to expect that NYPA (or anyone else) could have anticipated all of these costs, NYPA's inability to anticipate any of these costs raises questions about the effectiveness of its cost estimating practices.

NYPA's decision to proceed with the construction of the new plant was based in large part on its determination that the plant would be cost-effective. This determination was based on its estimates of the plant's likely costs and revenues. It was thus critical that these estimates be as accurate as possible. However, NYPA's estimate of the plant's construction costs was surprisingly inaccurate, as it identified only \$375 million of the \$650 million currently estimated. **As a result of this inaccuracy, NYPA's earlier analyses of the new plant's cost-effectiveness were not reliable.**

NYPA COMMENTS:

This is not correct. The final decision to proceed was made by the Board in September 2002, well after having been briefed by staff in May 2002 of the economics of the facility based on a \$650 million construction cost.

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For example, if the current estimate of \$650 million had been used in NYPA's August 2000 analysis (rather than the earlier estimate of \$375 million that was actually used), **the analysis would have indicated that the plant would not be cost-effective.** Specifically, the analysis would have indicated that the power produced by the plant would be sold at a price that was \$2 per megawatt-hour lower than the cost of producing the power.

NYPA COMMENTS:

As indicated in the comment box directly above, this is not correct. The OSC fails to recognize that higher construction costs translate into fewer plants being built. Fewer plants being built leads to higher market prices. It was our finding that the construction cost increase, in concert with the announced reduction in the number of new units being built, left little change in the plant's economics relative to other market alternatives. Any analysis must take into account the effect of changes in all related variables.

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* See State Comptroller's Rejoinder, pages 130-131, 138-139

the other available options for meeting the new 80 percent in-City capacity requirement, and may have identified an option that was more likely to be cost-effective. **We recommend that NYPA improve its cost estimating process for construction projects by taking action to correct the weaknesses that were responsible for the inaccuracies in the estimate for the new plant.**

NYPA COMMENTS:

NYPA strongly disagrees with this OSC conclusion. Prior to the PowerNow! units, the last two major investments by NYPA, the Long Island Sound Cable project and the Flynn plant, were completed at a cost variance of 1 percent of their respective original budgets.

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Estimate of Fuel Costs

The most significant operating cost, by far, for a plant like NYPA's new plant in Queens is the cost of the natural gas that is used as fuel by the power-generating turbines. While NYPA's new plant is also capable of running on fuel oil, it is expected that fuel oil will actually be used less than 2 percent of the time as a back-up fuel. Consequently, the cost of natural gas is expected to account for about 65 percent of the plant's total costs each year (both the operating costs and the amortized construction/finance costs).

We examined whether NYPA's estimates for natural gas prices were reliable. We found that the estimates were not as accurate, and therefore not as reliable, as they could have been because they were not based on a consistent fuel supply strategy.

NYPA can use a number of different approaches in purchasing natural gas for the new plant. To begin with, it can either buy the gas on a spot basis or buy it through contracts with suppliers. The nature of the purchase contracts can also vary significantly, ranging from short-term to long-term and from fixed price to variable pricing. NYPA can also use a portfolio approach that combines these different methods to varying degrees. For example, it could buy 20 percent of its natural gas

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* See State Comptroller's Rejoinder, page 139

on a spot basis, 20 percent through a short-term fixed-price contract with supplier A, 20 percent through a short-term variable-priced contract with supplier B, 20 percent through a long-term fixed-price contract with supplier A, and 20 percent through a long-term variable-priced contract with supplier D. The particular approach, or fuel supply strategy, selected by the purchaser is crucial, as the overall price per unit for the natural gas can vary significantly depending on how it is actually purchased.

However, we found that NYPA has yet to decide on a fuel supply strategy for the new plant. In its initial assessments of plant costs, NYPA assumed all the natural gas would be purchased on a spot basis. At the end of 2001, NYPA began assuming that all the gas could be purchased through a ten-year fixed-price contract. In early 2003, NYPA was considering a portfolio approach that incorporated some combination of short-term, mid-term and long-term purchase contracts. However, as of May 2003, NYPA had yet to settle on a specific

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strategy and NYPA officials did not anticipate that a specific strategy would be finalized for another six to twelve months.

NYPA COMMENTS:

NYPA and its consultant, Pace, are comfortable with the time frame set forth. There are lessons to be learned from industry turmoil. For example we could have committed to interstate pipeline capacity or supply arrangements with entities that have cancelled their projects or are no longer viable.

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* See State Comptroller's Rejoinder, page 135

In the absence of a definite fuel supply strategy, the cost estimates developed by NYPA were not as accurate as they could have been. [A] Moreover, in NYPA's December 2001 in-house analysis, the estimated gas prices were based on the responses provided by just two suppliers to NYPA's informal telephone survey seeking to determine a price that might be offered on a ten-year fixed-price contract. [B] Such limited information should not be used to project as much as 65 percent of a power plant's annual costs, especially when more reliable information could readily be obtained from a number of available sources.

NYPA COMMENTS:

[A] This is incorrect. The telephone survey quotes were for one specific analysis: to test a 10-year fixed electric price purchase versus the 500 mw plant.

[B] This is incorrect. By the time of these 2001-2002 analyses, NYPA expanded its analytical capabilities to include testing 55 different fuel price scenarios (whose average price was the NYMEX level) and corresponding electric prices. NYPA, therefore, tested the viability of the plant under high gas price scenarios, low gas price scenarios and everything in between. The fuel price information, characterized above as the basis for the decision, was just one of several approaches that were considered in the decision to proceed with the plant.

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For example, the consultant hired by NYPA (Pace Global Energy Services) to assess the cost-effectiveness of proceeding with the option recommended by the Poletti Repowering Study also performed other studies for NYPA, including studies addressing issues related to the new plant's fuel supply. This consultant could have performed a thorough, detailed analysis of expected natural gas prices under various fuel supply strategies. This or another such consultant also could have helped NYPA develop a more specific fuel supply strategy by addressing such critical details as how the risk of fuel price variability will be managed. The objectives of any hedging strategy must be clear, such as either to limit the volatility of prices or to limit the maximum price. Since these two objectives are very different, they require very different strategies.

* See State Comptroller's Rejoinder, pages 135, 139

We note that NYPA's [A] Flynn plant on Long Island, which is also powered by natural gas, has not been profitable in large part because of a long-term fixed-price fuel-supply contract that is unfavorable to NYPA (the price agreed to by NYPA has been well above the prices available from other sources). To avoid such errors in the future, we recommend that NYPA hire outside experts to develop fuel supply strategies and accompanying fuel price projections for its power plants, and base its cost estimates on the information developed by those experts. We also recommend that NYPA act without further delay to finalize the fuel-supply strategy for its new plant in Queens. [B] Further delays in finalizing the fuel-supply strategy could result in significantly higher gas prices for NYPA. NYPA officials told us that Pace Global Energy Services is now assisting them in the development of this strategy.

NYPA COMMENTS:

[A] The Flynn plant has cumulatively fully recovered its costs since inception, even though there were periods of time when it operated at a loss.

[B] This is pure conjecture. A delay could just as easily result in significantly lower prices.

In summary, NYPA is comfortable with where it is and is using consultants at the appropriate times.

NYPA has relied on Pace's expertise in development of a fuel-supply strategy since 1999. The fuel-supply strategy is in place and continues to be evaluated based on market conditions. The three areas included in the strategy are as follows: 1) Analysis of the costs associated with Con Ed gas transportation issues relating to quantity requirements, character of service and infrastructure enhancements. 2) Analysis of interstate pipeline options. The Fuel Strategy includes commitments to firm transport, provided that it makes commercial and economic sense. According to Pace, there is no need at this time to commit to long-term firm transportation capacity and in fact NYPA has benefited by not committing instead maintaining flexibility as pipeline projects continue to evolve, 3) Commodity pricing of gas. Not until such time as commitments are made to interstate pipeline capacity will negotiations for commodity pricing commence. The Fuel Strategy includes a portfolio approach to supply including firm supply and transportation for baseload requirements and city-gate delivered supply for daily "swing" gas requirements.

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* See State Comptroller's Rejoinder, page 135

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NYPA has had contracts to supply power to governmental agencies in and around New York City ever since the mid-1970s, when NYPA was directed to purchase two partially-built power plants from Consolidated Edison when that utility had serious financial problems. These contracts generally enable NYPA to be the sole supplier of power for these governmental agencies (the agencies are allowed by the contracts to "shop" for a portion of their power requirements).

While the contracts have beginning and ending dates and are formally renewed at regular intervals, none of the contracts can be terminated, regardless of their ending dates, unless one of the parties (either NYPA or the customer) formally notifies the other party that it wants to terminate the contract. If such notice is given, the contract will still continue to be effective for another three years, regardless of its formal ending date. Thus, NYPA's contracts to supply power in the New York City area are effectively rolling three-year contracts.

NYPA COMMENTS:

This is incorrect. As aptly noted in the OSC's preliminary audit findings, "NYPA does have 'evergreen' contracts with its SENY customers..." An "evergreen" contract is a long term contract as the name implies. NYPA has been serving its governmental customers under such contracts since the mid-1970s and expects to continue to serve these customers because of our ability to provide this service at below-market prices. While the original contract had a much shorter notice period, 180 days, in 1989 we extended the notice period to 3 years. However, based on our nearly 30 years of service to these customers under these arrangements, that is long term by anyone's definition. In a December 2003 report, Fitch Rating, in issuing its AA rating of NYPA, confirmed this view when it stated that "NYPA's potential loss of SENY load (35% of operating revenues) in 2006 is largely mitigated by the Authority's position as the low cost power provider in the State and region."

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* See State Comptroller's Rejoinder, page 134

Since the customers served through these contracts are generally located in New York City (only Westchester County is located outside the City), most of the power provided through the contracts is affected by the 80 percent in-City capacity requirement. Because of this requirement, if NYPA does not increase its in-City capacity by about 500 megawatts, it cannot continue to be the sole supplier of power for all these governmental agencies.

However, none of these governmental agencies are required to remain customers of NYPA for more than three years. In the past, the agencies were limited in their options for power suppliers, since competition among suppliers was generally not permitted by regulators. Now such competition is encouraged by regulators. As the market for electricity becomes more developed, other suppliers will seek new customers. Since the peak demand of NYPA's governmental customers in New York City accounts for about 16 percent of the City's total peak demand, NYPA's customers are not likely to be overlooked by suppliers seeking new customers.

It is therefore critical that NYPA secure [A] long-term contracts with these customers. The new plant in Queens was built for the express purpose of supplying power to these customers, and 25 to 30 years are usually needed to recover a capital investment

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of this kind. The three-year commitment entailed in NYPA's current purchase contracts leaves the bulk of the recovery period unprovided for. The need for such long-term purchase contracts was recognized by NYPA officials. For example, an internal report prepared in December 2001 states that "longer-term sales contracts [are] desirable and preferred, given the level of investment considered." In the absence of such contracts, some or all of NYPA's government customers may someday decide to obtain their power elsewhere, and much of the power produced by the new plant may have to be sold in competitive markets at prevailing market prices. If so, [B] the revenue obtained for the power may not be sufficient to cover NYPA's costs.

NYPA COMMENTS:

[A] NYPA has evergreen contracts with its SENY customers which are long-term by definition. NYPA believes that appropriate steps are being taken to maintain our long-term relationships and provide continued savings to these customers.

[B] This plant is being built to serve a specific customer base, one in which NYPA after thorough analysis believes it can continue to provide savings. The possibility of the plant becoming one in which NYPA relies on the wholesale market for its revenues (i.e., a merchant plant) is remote. However, NYPA analyzed this unlikely event and found that the plant would still be expected to earn a positive return.

If due to unanticipated SENY governmental customer load reductions, the Authority is forced to sell the excess output of the new 500 mw project into the NYISO markets or sell such output on a short term basis not exceeding 3 years, the tax-exempt status of the bonds would not be affected.

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* See State Comptroller's Rejoinder, pages 132-133, 134

We examined the actions taken by NYPA to secure long-term purchase contracts with its government customers. As part of our review, **we interviewed officials representing the three largest customers:** the City of New York (peak demand of 875 megawatts), the Metropolitan Transportation Authority (peak demand of 598 megawatts) and the New York City Housing Authority (peak demand of 211 megawatts), which together account for about 85 percent of the total peak demand of NYPA's New York City customers. We found that NYPA has been slow to initiate the negotiation of new contracts with these three critical customers, and is not close to securing long-term

NYPA COMMENTS:

NYPA questions the appropriateness of the OSC conducting interviews with officials representing our largest SENY governmental customers as part of this audit. These audit interviews could potentially have a negative impact on our contract negotiations with these customers. Potentially, the negotiating positions of our customers and the Authority could have been compromised during these interviews. It is important to note that these customers are also under the audit jurisdiction of the OSC. Under these circumstances, these customers were, we believe, placed in a difficult position.

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contracts with any of its New York City customers. We recommend that NYPA take immediate action to initiate the process of negotiating new long-term power purchase contracts with its largest government customers. We further recommend that NYPA seek contracts of at least ten years in length. If such contracts can be secured, NYPA will be in a better position to determine whether new long-term power purchase agreements should be entered into with its former nuclear plants or other power suppliers.

The new plant in Queens was built for the purpose of supplying power to NYPA's government customers. Before committing funds to the construction of a new power plant, which is always

* See State Comptroller's Rejoinder, page 139

a costly venture and can be a risky venture, a power supplier should formally analyze the expected market for the power to be produced by the new plant. If the demand in this market is not likely to be sufficient to provide enough revenue to cover the costs of producing the power, it is generally considered unwise for the power supplier to proceed with the construction of the new plant.

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As will be discussed later in this report, NYPA worked with two consultants to develop a sophisticated computer model for estimating the future electricity prices in the market to be served by the new plant. As was previously noted, NYPA then compared the likely revenue from the plant's sale of electricity in this market to the expected costs of producing the electricity. However, the electricity prices and electricity sales in these analyses did not relate to expected transactions with NYPA's government customers. Rather, these prices and sales were based on an analysis of the market in general. We therefore conclude that NYPA did not analyze the *expected* market for the power to be produced by its new plant in Queens. This plant is *expected*, mainly, to provide power to a few particular customers (NYPA's current government customers), not the market in general. However, the analyses performed by NYPA addressed the market in general, not the government customers in particular.

We specifically asked NYPA officials to provide us with any formal studies or other documents indicating that they had analyzed or formally considered some aspect of this expected market. For example, NYPA officials could, and should, have considered the possibility that some of their government customers might decide to obtain some or all of their power from other sources, and analyzed the likely effect of such decisions on NYPA's revenue. NYPA officials also could, and should, have formally analyzed the prices likely to be sought by their government customers in long-term purchase contracts with NYPA, since the prices negotiated by large customers such as the City of New York or the Metropolitan Transportation Authority could well be lower than the prices paid by other

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customers in the market. However, NYPA officials provided no documents indicating that they had performed any analyses relating to their government customers.

This lack of analysis, in these circumstances, is contrary to the principles of sound management in a public agency.

NYPA COMMENTS:

NYPA disagrees. NYPA currently uses a comprehensive planning and evaluation process that evaluates the feasibility of all reasonable alternatives. Each of these alternatives specifically tested the expected level of savings for the customer relative to the market. This comprehensive process includes testing the viability of the plant under multiple fuel price and generating capacity scenarios with corresponding changes in electricity prices. Advanced modeling techniques were also utilized by NYPA to estimate future prices of electricity in New York State. See Executive Summary under "Key Errors and Oversights – 500 mw Combined Cycle Plant."

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NYPA committed to the expenditure of hundreds of millions of dollars to build a plant that was to serve these customers, yet did not even make a reasonable effort to determine whether the customers were willing to continue to be served at prices acceptable to NYPA. If some or all of these customers decide to obtain some or all of their power elsewhere, much of the power produced by the new plant may have to be sold in competitive markets at prevailing market prices. While the

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* See State Comptroller's Rejoinder, page 134

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analyses performed by NYPA indicate that the plant would still be cost-effective in those circumstances, **these analyses may not be reliable because, as is discussed elsewhere in this report, the cost of building the plant was underestimated, the plant's initial operating capacity was overestimated, and the time periods examined in formal presentations to management were not long enough to provide a reliable view of the plant's long-term economic viability.**

NYPA COMMENTS:

NYPA disagrees with this statement.

Current analysis including the \$650 million plant cost still support the building of the 500 mw plant. NYPA used conservative estimates based on the actual experience of similar facilities. Data provided to NYPA by GE (also provided to the OSC) showed that availability factors for the type of unit we are purchasing have exceeded 90%. Moreover, in its first three years of operation, NYPA's Flynn plant, also a combined-cycle unit, had actual capacity factors 98.5%, 74.4% and 96.3%. In its analyses of the 500 mw plant, NYPA used a 75 percent capacity factor. As compared to the actual capacity factor of the Flynn plant, using a 75 percent capacity factor may appear conservative, but that is NYPA's preferred approach to the analysis of the 500 mw plant. NYPA has indicated the time periods used in analyses may vary according to the objectives of the analyses.

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Moreover, if much of the power produced by the new plant is in fact sold in competitive markets at prevailing market prices, the plant will be a "merchant" plant competing with other private merchant plants in a risky and volatile wholesale market. If this happens, the plant will serve a purpose that was not intended when its construction was authorized, and may not be appropriate for a facility owned by a public agency such as NYPA.

It should be further noted that the **tax-exempt status of NYPA's bonds** could be jeopardized by such "merchant" activity. Since NYPA is a public agency, its bondholders are not required to pay income tax on the interest that is earned from NYPA's bonds. However, the interest could be taxed if the plant financed by the bonds is used primarily in merchant markets. If the bonds for the new plant in Queens do lose their tax-exempt status, NYPA may find it more difficult to sell new bonds in the future and may have to pay higher interest rates on the bonds.

NYPA COMMENT:

If due to unanticipated SENY governmental customer load reductions, the Authority is forced to sell the excess output of the new 500 mw project into the NYISO markets or sell such output on a short term basis not exceeding 3 years, the tax-exempt status of the bonds would not be affected.

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* See State Comptroller's Rejoinder, page 133

Reasonableness of Assumptions

When NYPA staff assessed the cost-effectiveness of the new plant in the Poletti Repowering Study and subsequent analyses, they made a number of assumptions about plant operations and market conditions. Such assumptions must be made in analyses of this kind, as the analyses examine future events that cannot be known with certainty. We evaluated whether these assumptions were reasonable at the time of the analyses. **We found that the assumptions were reasonable, with the following two exceptions: (1) the assumption that the plant would operate at 75 percent of its capacity in its first few years of operation was overly optimistic, and (2) the three or four-year future analysis period in the management and Board presentations, upon which decisions were expected to be made, was not long enough to provide a reliable view of the plant's long-term economic viability.** As a result of these two

NYPA COMMENT:

- (1) NYPA used conservative estimates based on the actual experience of similar facilities. Data provided to NYPA by GE (also provided to the OSC) showed that availability factors for the type of unit we are purchasing have exceeded 90%. Moreover, in its first three years of operation, NYPA's Flynn plant, also a combined-cycle unit, had actual capacity factors 98.5%, 74.4% and 96.3%. In its analyses of the 500 mw plant, NYPA used a 75 percent capacity factor. As compared to the actual capacity factor of the Flynn plant, using a 75 percent capacity factor may appear conservative, but that is NYPA's preferred approach to the analysis of the 500 mw plant.**
- (2) Disagree with implication. NYPA also used long-term studies which were provided to the auditors. In some studies, NYPA focused on just a few years in particular to delve into the details and understand the drivers of our competitive advantage.**

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* See State Comptroller's Rejoinder, page 139

inappropriate assumptions, and underestimated construction costs, the analyses performed by NYPA may not have been reliable.

The new plant to be built in Queens will be a combined cycle power plant that relies on gas-fired combustion turbines. In their first few years of operation, such turbines usually do not function as smoothly as they do after they have been "broken in." For this reason, during these initial years, plants using such turbines often must operate at lower capacity levels than they otherwise would. The various presentations to NYPA executive management and the Board of Trustees examined the first three or four years of the new plant's operation (2005 through 2007, or 2005 through 2008). In each of these analyses, a capacity factor of 75 percent was assumed. However, new plants of this kind have actually tended to operate at lower capacity levels. As a result of this overly optimistic estimate of plant usage, NYPA overestimated the amount of revenue likely to be produced by the plant in its first few years of operation.

When a utility is considering whether or not to build a new power plant, it is a standard industry practice to evaluate the cost-effectiveness of the prospective plant. NYPA conformed to this practice when it performed various analyses regarding the cost-effectiveness of its new plant in Queens. **It is also a current industry practice for such analyses to cover a period of ten years or more.**

NYPA COMMENT:

This statement is incorrect. The OSC states that NYPA only reviewed the first three or four years of operations of the 500 mw plant in the economic analyses presented to the Authority's Board of Trustees. Yet the very example cited by OSC in this case included descriptions of four, separate 10 to 20 year studies performed by or for NYPA. NYPA reviewed both long-term studies for overall returns and short-term studies in great detail so as to understand fully the competitive advantages NYPA might realize for its customers' benefit.

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* See State Comptroller's Rejoinder, page 139

However, in its presentations to executive management and the Board of Trustees, **NYPA examined only the first three or four years of the new plant's operation.** While this horizon provides valuable economic information in relation to this period, it ignores the economics of the plant past the first few years of its operating life. **Changes in the operations of the plant or in market pricing in later years could change the economics of the plant in later years. Thus, a "snapshot" presentation of three or four years is a potentially poor predictor of future performance, and not a sufficient horizon to form the basis of management decision-making.** A presentation of economic analysis over ten or more years, as is the current industry practice, would provide a more complete view of the long-term economic viability of the plant.

NYPA COMMENT:

This statement is incorrect. NYPA also used long-term studies which were provided to the auditors. In some studies, NYPA focused on just a few years in particular to delve into the details and understand the drivers of our competitive advantage.

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Estimate of Revenue

As was previously noted, NYPA worked with two consultants (The Electric Power Research Institute and the firm of Northbridge) to develop a sophisticated computer model for estimating the future electricity prices in the market to be served by the new plant in Queens. NYPA developed this pricing model because it realized that more sophisticated tools for predicting prices would be needed as power markets became more competitive. As NYPA refined its analyses of the new plant, it hired Northbridge to expand the model and specifically customize it for NYPA's use. The customized Northbridge Model runs on its own server and contains the single largest database in the entire NYPA system.

The primary purpose of the Northbridge Model is to predict prices for electricity for up to a ten-year period in the New York State market. NYPA uses the Model for economic analysis, risk management activities, and in developing its long-range

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* See State Comptroller's Rejoinder, page 139

financial plan. NYPA used the Northbridge Model to predict the prices of the electricity that would be sold by the new plant in Queens. These predictions formed the basis for NYPA's estimates of the revenue that was likely to be generated by the new plant. These revenue estimates were compared to the estimated costs of producing the electricity to determine whether the plant would be cost-effective.

NYPA COMMENT:

This is incorrect. NYPA uses the Northbridge Model to predict a range of electric market prices, not its revenues for the project. NYPA then compares its costs of the project to this range of market prices to test for the margin of savings for the customer under the full range of market conditions.

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We attempted to evaluate whether the prices predicted by the Northbridge Model were valid. In order to make this evaluation, we needed to review the documentation of the assumptions that were used by the Model at the time the prices were predicted. However, NYPA officials told us that **they did not retain this documentation**. In the absence of this documentation, we were unable to determine whether the prices predicted by the Northbridge Model were valid, and consequently, were unable to determine whether the revenue estimates for NYPA's new plant in Queens were valid. We recommend that, in the future, NYPA retain the documentation relating to the use of the Northbridge Model.

NYPA COMMENT:

Voluminous documentation of the assumptions used by the Northbridge Model was retained by NYPA and copies were supplied to the auditors. Additional documentation has been retained by the NYPA's consultant in this area. NYPA offered to provide access to this information at the consultant's offices but the OSC auditors declined. To imply that the documentation was not attainable or accessible is incorrect.

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* See State Comptroller's Rejoinder, pages 133, 135

While we were unable to evaluate the validity of the electricity prices used by NYPA in its assessments of the new plant's likely cost-effectiveness, we were nonetheless able to accomplish our overall audit objectives of determining whether (1) the available options were adequately evaluated by NYPA prior to committing

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to this project (they were not), and (2) the information used by NYPA in its decision-making process was reliable (a significant amount of the information was not reliable).

Recommendations

NYPA Comment:

See attached for NYPA's Responses to Recommendations.

1. When deciding whether to construct new power generating facilities:
 - (a) Use a comprehensive planning and evaluation process that evaluates the feasibility of all reasonable alternatives. At a minimum, the evaluation of alternatives should include long-term power purchase contracts, the solicitation of bids from developers interested in building and operating a plant that would supply NYPA, a joint venture in which the plant would be built by a developer and operated by NYPA, and allowing customers to obtain power from other suppliers.
 - (b) Improve the cost estimating process by taking action to correct the weaknesses that were responsible for the inaccuracies in the estimate for the new plant in Queens.

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- (c) Hire recognized experts outside the NYPA organization to develop fuel supply strategies as early as possible in the decision process.
 - (d) Use capacity estimates that reflect the actual experience of similar facilities.
 - (e) Cover a period of at least ten years in management and Board of Trustee presentations assessing the cost-effectiveness of the facilities.
2. When constructing power generating facilities that are primarily intended to serve certain customers, analyze the future position of and/or take steps to secure long-term contracts with these customers before proceeding with the construction of the facilities.
 3. Maintain a detailed record of the documents that are provided to the Board of Trustees at Board meetings.

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Recommendations (Cont'd)

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4. Finalize the fuel-supply strategy for the new plant in Queens without further delay.
5. Take immediate action to initiate the process of negotiating new long-term power purchase contracts (of at least ten years in length) with the large government customers in New York City.
6. Retain documentation of the assumptions used by the Northbridge Model in predicting electricity prices.

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THE POWERNOW! PROJECT

In the year 2000, power shortages were projected in the New York City metropolitan area by the NYISO and the New York State Public Service Commission. In the absence of additional generating capacity in the area, it was feared that rolling blackouts, such as those that had recently been imposed in California, would soon become necessary, especially during the peak-demand periods of Summer. In response to this public need, NYPA quickly constructed eleven small power plants in the New York City area that together added about 450 megawatts of new generating capacity. This action, which was known as the PowerNow! project, was initiated in August 2000 and completed in time for the summer of 2001. The additional power provided by these new generators was considered crucial in meeting the area's peak demands during the Summer months, and NYPA's responsiveness was commended by the Public Service Commission.

The eleven gas-fired combustion turbines that were placed in service by NYPA as part of the PowerNow! project were installed at six sites in New York City and one site on Long Island. The turbines are always available for dispatch according to the needs of the NYISO, **but are generally operated only during periods of peak demand**, when their capacity and energy are sold to the NYISO for resale in the wholesale market. Thus, the power from the turbines generally is not used by NYPA's regular customers in New York City, but by the customers of other power suppliers in the area.

NYPA COMMENTS:

This is not correct. The PowerNow! units are part of an integrated power supply plan for NYPA, are the cleanest sources of generation in New York City and provide local reliability to serve "load pockets" of power need in areas of New York City with transmission constraints.

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* See State Comptroller's Rejoinder, page 133

The turbines, which can be started up on [A] a few hours notice, have been used at about 20 percent of their total capacity (i.e., they are in use about 20 percent of the time, on average), and NYPA expects that this rate of use will decline to between 5 and 18 percent of capacity as additional power generating facilities are built in the New York City area. The turbines are used so seldom because they are relatively costly to operate. They could be installed quickly because of their simple design (they are like giant jet engines), but [B] this simple design makes them an inefficient, and thus costly, source of power, as they require more fuel than standard power plants to produce the same amount of electricity.

NYPA COMMENTS:

[A] Replace "a few hours" with "15-20 minutes"

[B] The PowerNow! units have efficiency comparable to existing baseload steam plants. New combined-cycle plants are more efficient, but also more costly and take longer to build.

In addition, this comment ignores the significant "clean air" benefits of these units as a recent independent study calls them "the cleanest power sources in the city."

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The PowerNow! units are intended to provide a temporary solution to New York City's lack of power generating facilities. [A] At the end of 2004, the operating permits of the eleven units will be subject to review, [B] and at least one of the units is already scheduled to be shut down at that point. Simple gas-fired turbines like the PowerNow! units are used by a number of power suppliers across the country to provide additional power in times of peak demand.

NYPA COMMENTS:

[A] Replace "At the end of 2004" with "By Spring 2005"

[B] Replace "is already scheduled to" with "may"

NYPA has no schedule to shut it down. It will be the decision of the Mayor of the City of New York.

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* See State Comptroller's Rejoinder, pages 133, 135, 139

The PowerNow! units were constructed by NYPA at a total cost of about \$640 million. NYPA's operating losses on the facilities totaled about \$29 million for 2001 and \$21 million for 2002. In addition, to reflect the unprofitable expected future performance of the facilities (i.e., NYPA is generally able to recover the variable costs of operating the turbines, but is not likely to recover all of its fixed costs), NYPA has also recognized \$125 million in additional losses on the facilities through asset impairment write-offs. Thus, in less than two full years of operation, NYPA has lost approximately \$175 million on the facilities.

NYPA COMMENTS:

The OSC report implies that no economic analyses were prepared before construction began. This is not accurate. While not as detailed as those performed for the 500 mw combined cycle plant due to the emergency nature of the construction, NYPA nevertheless reviewed the relative economics and the prospects for recovery of its investment over time. It was determined after this review that there was a reasonable opportunity for NYPA to recover its investment over a twenty-year period. By looking beyond near-term quarterly earnings, the Power Authority has achieved lasting benefits for the people of New York. Many of the projects undertaken by NYPA and now considered major assets of the State – such as the Niagara and St. Lawrence-FDR hydroelectric projects – would never have been constructed if a short payback period was the prevailing investment criterion.

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We examined the process used by NYPA in deciding to construct the PowerNow! units. NYPA officials told us that the PowerNow! project is very different from most NYPA operations. They stated that they undertook the project to meet a public need, and regarded it as a "have-to project" for the general public good. For this reason, they did not analyze the likely cost-effectiveness of the units before proceeding with their construction. They did prepare, and ask a consultant to prepare,

* See State Comptroller's Rejoinder, page 132

such analyses after construction was underway, and these analyses indicated that the units were not likely to realize a positive cash flow until after their debt service was paid off. **NYPA officials stated that the units would be sold to the private sector** after they were up and running, and according to a rough estimate prepared by NYPA staff in early 2003, the market value at that time for the ten units in New York City was between \$200 and \$300 million.

NYPA COMMENTS:

NYPA never said that it wanted to or intended to sell the plants. In response to questions at a legislative hearing, NYPA indicated that NYPA would be willing to consider third party offers to purchase the plants if any such offers ever materialized. NYPA also indicated that NYPA would expect to recover its costs in any such offer. To date, NYPA has received no such offers.

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We asked NYPA officials whether they still planned to sell the units. The officials stated that the current plan, while not formally documented, is to continue operating the PowerNow! units as necessary, and that there are no specific plans now to sell any of the units.

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We conclude that the PowerNow! units were constructed by NYPA as a public service to meet an urgent public need. Consequently, the decision to construct the units should not be evaluated in the same financial terms that are used to evaluate NYPA's other business decisions, such as the decision to construct the new plant in Queens. The additional power generators were needed to prevent blackouts. NYPA provided the generators and prevented the blackouts. Thus, NYPA achieved its objective, and the public need was met.

* See State Comptroller's Rejoinder, pages 133-134

However, we question whether NYPA should have to bear the entire financial burden of providing power that benefits everyone in the New York City area, **[A] especially when surcharge mechanisms are available to help spread the costs among those who actually use the power. [B] For example, the NYISO routinely assesses a surcharge on power suppliers who use congested transmission lines.** The surcharge is paid to the builder of the transmission line to help reimburse transmission costs and encourage the creation of additional transmission capacity. As was noted in our prior audit of NYPA (Report 2000-S-61), such surcharge revenue is paid to NYPA for improvements it recently made to certain of its transmission facilities. We believe this type of surcharge should have been sought by NYPA when it proposed the construction of the PowerNow! units. While it may not be possible, at this late date, to obtain regulatory approval for a surcharge on the units' power, we recommend that NYPA seek a surcharge or other form of compensation in all future public benefit projects.

NYPA COMMENTS:

- [A] We will consider a surcharge in the context of overall cost recovery for future projects, if appropriate. With respect to the PowerNow! Units, negotiations that would have been required to effect a surcharge would have delayed construction of this project which was critically needed in an expedited time frame to help prevent blackouts in 2001, which it did. Under the emergency circumstances of their construction, such a delay would not have been acceptable.**
- [B] This is not a surcharge. Congestion is a component of the transmission use charge set forth in the ISO tariff.**

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* See State Comptroller's Rejoinder, page 133

We further note that NYPA's decision to retain the PowerNow! units, rather than sell them to the private sector, should be evaluated on an ongoing basis. If the units could be sold to other power producers, as was previously intended, the public need would still be met, because the power produced by the generators would still be available for use in the New York City area. The units do not have to continue to be operated by NYPA for this public need to be met. Thus, NYPA's decision to continue operating the units can be evaluated in the same manner as NYPA's other business decisions. We recommend that NYPA perform such an evaluation.

NYPA COMMENTS:

NYPA never said that it wanted to or intended to sell the plants. In response to questions at a legislative hearing, NYPA indicated that NYPA would be willing to consider third party offers to purchase the plants if any such offers ever materialized. NYPA also indicated that NYPA would expect to recover its costs in any such offer. To date, NYPA has received no such offers.

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Specifically, NYPA should formally analyze its various options for the PowerNow! units. That is, NYPA could sell some or all of the units to other power producers, lease some or all of the units to other power producers, or continue to own and operate all of

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the units. NYPA should analyze the likely consequences (both financial and public policy) of each of these options, eliminate from further consideration the options (if any) that fail to meet the public need for power in the New York City area, and select the most financially advantageous option to NYPA that is consistent with public policy.

NYPA COMMENTS:

NYPA has told the Auditors that its plan with respect to the PowerNow! units is to run them as efficiently, economically and cleanly as possible. The PowerNow! units are part of an integrated supply plan for NYPA, are the cleanest sources of generation in New York City and provide local reliability to serve "load pockets" of power need in areas of New York City with transmission constraints.

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* See State Comptroller's Rejoinder, pages 133-134, & 140

NYPA is not a private company that is in business solely to make a profit. As a public agency, NYPA is expected to balance its need for financial self-sufficiency with its need to serve the public interest. In serving the public interest, NYPA may perform certain activities that are not financially advantageous, such as the acquisition and installation of the PowerNow! generators.

However, as a public agency, NYPA is also expected to avoid, if possible, financial losses such as those related to the PowerNow! units. In addition, the more volatile types of business risks that might be acceptable for private companies are not acceptable for a State authority such as NYPA. NYPA officials have frequently indicated that activities involving such risks are not consistent with NYPA's public mission. If NYPA does continue to own and operate the PowerNow! units, it will be engaging in a very risky activity; competing with private companies in the volatile merchant power market. This activity has already cost NYPA approximately \$175 million in losses, and additional losses could well be incurred.

NYPA COMMENTS:

NYPA has statutory mandates to engage in the New York electric market and those mandates set forth what is acceptable. Contrary to the implication of this paragraph, NYPA does not go beyond its statutory powers and mandates.

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* See State Comptroller's Rejoinder, page 140

[A] NYPA's full participation in this merchant market [B] the PowerNow! units have no other use at present) is also contrary to the intent of the actions taken in 1996 [C] when New York State's power industry was restructured to promote competition among private power producers. Such competition is not promoted if additional generating capacity that might be provided by private companies is provided by NYPA instead. As we stated in our prior audit report of NYPA (Report 2000-S-61), if private sector energy companies are to be expected to make rational investment decisions that promote the long-term reliability and economy of the power available to the New York City area, there needs to be a clear articulation of NYPA's role in this area. We urge NYPA officials to articulate this role, and to consider this role in their formal evaluation of their options for the PowerNow! units. We further urge that NYPA officials make this role known both to the power industry and to the public.

NYPA COMMENTS:

- [A] The New York PSC asked NYPA to build the PowerNow! units. Therefore, their construction must be consistent with the PSC's 1996 order.
- [B] This statement is incorrect. The PowerNow! units are part of an integrated power supply plan for NYPA, are the cleanest sources of generation in New York City and provide local reliability to serve "load pockets" of power need in areas of New York City with transmission constraints.
- [C] No private or independent producer stepped forward to say they would build any of the plants at that time so NYPA did not suppress competition.

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Recommendations

NYPA Comment:

See attached for NYPA's Responses to Recommendations.

7. Prior to committing to public benefit projects, seek a surcharge or other form of compensation to enable NYPA to fully recover its costs.
8. Formally analyze the various options available to NYPA for the PowerNow! units, select the most financially advantageous option that is consistent with public policy, and publicize NYPA's plan for the units. Include in this plan a clear articulation of NYPA's role in the New York City retail and wholesale power markets.

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Appendix A

**New York Power Authority
2002 Continuation Audit
Management Audit Recommendations
2001-S-64**

The Decision to Build a New Plant

Responses to Recommendations

1. When deciding whether to construct new power generating facilities:
 - (a) Use a comprehensive planning and evaluation process that evaluates the feasibility of all reasonable alternatives. At a minimum, the evaluation of alternatives should include long-term power purchase contracts, the solicitation of bids from developers interested in building and operating a plant that would supply NYPA, a joint venture in which the plant would be built by a developer and operated by NYPA, and allowing customers to obtain power from other suppliers.

NYPA Response

This recommendation is a practice that is already in place at NYPA.

NYPA currently uses a comprehensive planning and evaluation process that evaluates the feasibility of all reasonable alternatives. This comprehensive process includes testing the viability of the plant under multiple fuel price and generating capacity scenarios with corresponding changes in electricity prices. Advanced modeling techniques were also utilized by NYPA to estimate future prices of electricity in New York State. Please refer to our detailed comments attached regarding the consideration of the alternatives, in the section titled "Evaluation of Alternatives."

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* See State Comptroller's Rejoinder, page 134

- (b) Improve the cost estimating process by taking action to correct the weaknesses that were responsible for the inaccuracies in the estimate for the new plant in Queens.

NYPA Response

This recommendation is a practice that is already in place at NYPA.

The Authority reviews the planning and cost estimating process for each of its projects and applies the lessons learned going forward as a matter of course. However, in developing this recommendation, the OSC errs in attributing the increase in the Project cost estimate to NYPA cost estimating practices, its alleged inability to develop accurate construction cost estimates and its failure to use outside resources to develop cost estimates. The report fails to take into account factors which had a significant impact on the cost estimate including prevailing gas turbine market conditions, changing regulatory environment, lack of competition for construction services, and construction practices in general within New York City.

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- (c) Hire recognized experts outside the NYPA organization to develop fuel supply strategies as early as possible in the decision process.

NYPA Response

This recommendation is a practice already in place at NYPA.

NYPA has already hired recognized experts outside the NYPA organization to assist in developing fuel supply strategies for the 500 mw plant. NYPA has also tested the viability of the 500 mw plant under many fuel price conditions so that if the "experts" were wrong, NYPA could see how the investment would fare under a full range of market conditions.

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* See State Comptroller's Rejoinder, pages 137-138, 140

- (d) Use capacity estimates that reflect the actual experience of similar facilities.

NYPA Response

NYPA disagrees with the implication that the capacity factor assumptions used in the analyses do not reflect the actual experience of similar facilities.

NYPA used conservative estimates based on the actual experience of similar facilities. Data provided to NYPA by GE (also provided to the OSC) showed that availability factors for the type of unit we are purchasing have exceeded 90%. Moreover, in its first three years of operation, NYPA's Flynn plant, also a combined-cycle unit, had actual capacity factors 98.5%, 74.4% and 96.3%. In its analyses of the 500 mw plant, NYPA used a 75 percent capacity factor. As compared to the actual capacity factor of the Flynn plant, using a 75 percent capacity factor may appear conservative, but that is NYPA's preferred approach to the analysis of the 500 mw plant.

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- (e) Cover a period of at least ten years in management and Board of Trustee presentations assessing the cost-effectiveness of the facilities.

NYPA Response

NYPA disagrees with the implication of this recommendation. NYPA did use both long-term analyses (including 10 to 20 year studies) and near-term analyses to assess the cost-effectiveness of the facilities.

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2. When constructing power generating facilities that are primarily intended to serve certain customers, analyze the future position of and/or take steps to secure long-term contracts with these customers before proceeding with the construction of the facilities.

NYPA Response

As aptly noted in the OSC's preliminary audit findings, "NYPA does have 'evergreen' contracts with its SENY customers..." An "evergreen" contract is a long term contract as the name implies. NYPA has been serving its governmental customers under such contracts since the mid-1970s and expects to continue to serve these customers because of our ability to provide this service at below-market prices. While the original contract had a much shorter notice period, 180 days, in 1989 we extended the notice period to 3 years. However, based on our nearly 30 years of service to these customers under these arrangements, that is long term by anyone's definition. In a December 2003 report, Fitch Rating, in issuing its AA rating of NYPA, confirmed this view when it stated that "NYPA's potential loss of SENY load (35% of operating revenues) in 2006 is largely mitigated by the Authority's position as the low cost power provider in the State and region."

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3. Maintain a detailed record of the documents that are provided to the Board of Trustees at Board meetings.

NYPA Response

This recommendation is a practice already in place at NYPA.

Copies of the analyses and documentation provided to the Board of Trustees relative to this issue were provided to the OSC during the audit process.

The Secretary's Office maintains a log of the information packages provided to the Trustees. The auditors could have easily matched the information packages provided to the auditors to the log of the Secretary's Office. This would have confirmed that the information packages provided to the auditors were the same as those provided to the Trustees.

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* See State Comptroller's Rejoinder, pages 134, 140

4. Finalize the fuel-supply strategy for the new plant in Queens without further delay.

NYPA Response

NYPA and its consultant are comfortable with the progress to date.

NYPA continues to work closely with its consultant in the development of a strategy for fuel supply for the 500 mw plant. A formal strategy, and gas supply contracts, will be in place at the appropriate time. There are lessons to be learned from industry turmoil. For example, NYPA could have committed to interstate pipeline capacity or supply arrangements with entities that have cancelled their projects or are no longer viable.

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5. Take immediate action to initiate the process of negotiating new long-term power purchase contracts (of at least ten years in length) with the large government customers in New York City.

NYPA Response

As indicated in response to recommendation 2 above, NYPA has evergreen contracts with its SENY customers which are long-term by definition. NYPA believes that appropriate steps are being taken to maintain our long-term relationship and provide continued savings to these customers

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6. Retain documentation of the assumptions used by the Northbridge Model in predicting electricity prices.

NYPA Response

This recommendation is a practice that is already in place at NYPA.

Voluminous documentation of the assumptions used by the Northbridge Model was retained by NYPA and copies were supplied to the auditors. Additional documentation has been retained by the NYPA's consultant in this area. NYPA offered to provide access to this information at the consultant's offices but the OSC auditors declined. To imply that the documentation was not attainable or accessible is incorrect.

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The PowerNow! Project

Responses to Recommendations

7. Prior to committing to public benefit projects, seek a surcharge or other form of compensation to enable NYPA to fully recover its costs.

NYPA Response

We will consider a surcharge in the context of overall cost recovery for future projects, if appropriate. With respect to the PowerNow! units, negotiations that would have been required to effect a surcharge would have delayed construction of this project, which was critically needed in an expedited time frame to help prevent blackouts in 2001 (which it did). Under the emergency circumstances of their construction, such a delay would not have been acceptable.

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8. Formally analyze the various options available to NYPA for the PowerNow! units, select the most financially advantageous option that is consistent with public policy, and publicize NYPA's plan for the units. Include in this plan a clear articulation of NYPA's role in the New York City retail and wholesale power markets.

NYPA Response

NYPA disagrees.

NYPA has told the Auditors that its plan with respect to the PowerNow! units is to run them as efficiently, economically and cleanly as possible. The units are part of an integrated supply plan for NYPA, are the cleanest sources of generation in New York City and contribute to the local reliability of the city's transmission grid by continuing to do throughout the year what they were built for—prevent blackouts related to inadequate supply. They will continue to be available to meet the energy needs of the people of New York City as their capacity is presently utilized by NYPA to meet its in-city and on-island reserve requirements. As previously stated, there were never plans to sell the units, though NYPA would be willing to consider offers for the units. To date, no offers have been received. A clear statement of NYPA's role in New York City is articulated in Article 5, Title 1 of the Public Authorities Law.

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* See State Comptroller's Rejoinder, pages 133, 140

State Comptroller's Rejoinder

1. Over the years, we have observed a disturbing trend in the behavior of NYPA officials, as they have repeatedly attempted to manipulate the audit process, oppose our legitimate audit oversight and slow the progress of our audit work. They contend that we have taken an unprecedented step of turning this audit into an ongoing process. However, the original audit was continued only because of NYPA's delays in responding to our requests for information during the audit. If NYPA had provided the information when we requested it, the original audit would not have been continued.

NYPA officials also state that the audit process has been expensive and labor-intensive for them. However, NYPA made the audit process unnecessarily labor-intensive for itself by instructing up to three highly-paid professional staff to accompany us as observers on every audit interview during the original audit. Since these observers were not expected to answer questions or provide us with information, it is difficult to see what value they added to the audit process. NYPA also unnecessarily added to its costs by routinely instructing more staff than were necessary to be active participants in the interviews (in addition to the observers); as a result, questions that could have been answered by one or two staff were often answered by four or five staff. This approach to the interview process may account for some of the numbers cited by NYPA in its response (e.g., 471 interviews and 21,000 person-hours of staff time). According to our records, a total of only 69 interviews were conducted in both the original audit and the continuation audit.

It should also be noted that NYPA is required by law to pay the full cost of the audit, which by law, is conducted every five years. This cost (\$1 million) was agreed to by NYPA officials at the onset of the audit and was not exceeded, despite the need to suspend and resume the audit in response to NYPA's delays.

2. NYPA officials assert that our report contains "egregious" errors of fact that have led to incorrect conclusions. In addition, officials maintain that the audit does not provide a benefit commensurate with its cost. We acknowledge that NYPA officials do not agree with our conclusions, but they have presented no information, either during the audit or in their formal response, to make us believe the conclusions are incorrect. They have also presented no information to support their claim that the report contains "egregious errors of fact." The few changes we have made to finalize this report were not corrections of "egregious" errors; they were minor revisions that in no way affected our conclusions and recommendations. We further note that a number of significant opportunities for improvement are described in our audit report. In particular, improvements are needed in a construction planning process that underestimates construction costs by \$275 million and a decision-making process that fails to take into

account alternatives commonly considered by utilities contemplating large construction projects. There is also a need for NYPA's role in the wholesale power market to be clearly articulated so that private power producers can fully assess the extent to which the New York City power market is in fact open to private development. In addition, the original audit report noted that NYPA could be incurring more than \$10 million a year in unnecessary expenses for administrative and support staff who were no longer needed because its nuclear operations were sold. If NYPA officials see little or no value in addressing these issues, we question their willingness to participate in a public audit process that is mandated by the Legislature.

3. There is a difference of opinion between NYPA officials and the audit team as to when a commitment was made by NYPA's Board of Trustees to proceed with the construction of the new 500 MW power plant. We believe the key decision point was in October 1999, when the Board authorized the purchase of almost \$200 million in major plant components (the gas turbines, the steam turbine, the cooling system, the condenser system and other components). The Board followed up on this authorization in December 1999 by approving up to \$370 million in tax-exempt bond financing to fund the project, which at that time was expected to cost \$375 million. In our opinion, these actions constituted a serious commitment on the part of NYPA to proceed with the construction of the plant. NYPA officials disagree. They believe the key decision point was in September 2002, when NYPA managers presented several reports to the Board on the economics of the new plant and the Board gave its approval for the actual construction to begin.

According to NYPA officials, the actions taken by the Board of Trustees in October 1999, and followed up on in December 1999, were not critical, because the Board only authorized the expenditure of \$9.25 million to reserve a place in the manufacturing queue for the gas turbines, and NYPA could have sold its place in the queue "if . . . additional studies showed this to be the incorrect path to follow." NYPA officials also acknowledge that the expenditure of additional funds for certain licensing and engineering services was authorized by the Board in October 1999, but they do not specify the amount. We note that the amount not specified by NYPA officials was about \$14 million. Thus, in October 1999, the Board authorized the actual expenditure of about \$23 million, an amount that can hardly be considered insignificant (an additional \$7.5 million had also been authorized by the Board for licensing and engineering services prior to October 1999).

But even more importantly, it cannot be assumed that NYPA would have been able to sell its place in the manufacturing queue without incurring significant additional costs. NYPA's place in the queue was secured by a \$191 million contract with General Electric. NYPA would have had to find another power producer that wanted this specific equipment at the time when NYPA decided to stop the project. Even if NYPA could have found such a power producer, there is

no guarantee that NYPA could have completed the transaction without paying significant penalties. It is for this reason we believe that a serious commitment was made in October 1999, when NYPA was authorized by the Board to obtain its place in the manufacturing queue for the gas turbines. While the commitment was not irrevocable, and NYPA's decision to proceed with the new plant could have been changed up until the point ground was actually broken at the construction site, any such change would have been costly and would have required NYPA to go back to the beginning of its decision process and seek other ways of meeting the in-City capacity requirement. This is why we concluded that the key decision point was October 1999.

We also note that, while NYPA officials state that they could have sold NYPA's place in the manufacturing queue "if . . . additional studies showed this to be the incorrect path to follow," NYPA, in fact, performed no additional studies to determine whether other paths (i.e., the alternatives described in our report) should be followed. Rather, the additional studies that were performed simply re-assessed the economics of the path NYPA had already decided to follow (i.e., building and operating a new plant at the site of the existing Poletti plant).

4. We concluded that NYPA decided to build and operate the new power plant without adequately analyzing the alternatives. NYPA officials disagree with our conclusion because, in their opinion, "the issue was fully and completely assessed by NYPA." To support this statement, the officials cite analyses that were performed between 1998 and May 2002. However, as is discussed in detail in our report, in none of these or any other analyses did NYPA evaluate the feasibility of alternatives commonly considered by utilities contemplating large construction projects (such as entering into a joint venture, working with a developer who would build and operate the plant for NYPA, or obtaining additional long-term contracts to purchase power from other producers in New York City). The analyses cited by NYPA officials considered only one of the available alternatives (NYPA building and operating a new plant), and the analyses of August 2000, December 2001 and May 2002 were performed after NYPA had already made a significant commitment, in October 1999, to proceed with the plans articulated in its 1998 Poletti Repowering Study (to build and operate a new plant at the site of its current Poletti plant).
5. NYPA officials quote a passage from our original audit report, issued in July 2001, in which we stated that NYPA could walk away from its plans to build the new power plant and sell its place in the manufacturing queue for gas turbines, "if it should be determined that the project should not be continued." NYPA officials assert that this statement is contradictory to the conclusions reached in this audit report. NYPA officials are mistaken. The statement quoted from our prior report in no way contradicts any of the conclusions in this report. We suspended our prior audit examination of alternatives to building and operating a plant because of NYPA's delay in providing information related to this issue. It is within this context that our prior audit comments were made. When we resumed the audit,

we reviewed the information that had been delayed, as well as other more recent information that was relevant to the issue, and concluded that NYPA had not adequately evaluated the alternatives before proceeding with the construction of the new plant.

We note that, if an appropriate analysis of alternatives had been performed, it may have been found that one of the alternative courses of action was more economical. Accordingly, the decision to build and to operate a New Plant could have been different if analysis of all alternatives had been performed and if such analysis showed that operating a plant was not cost effective. Again, our audit points out that all alternatives were not analyzed and the data provided to support the decision to build and operate a plant was not always reliable.

6. NYPA officials state that we have not acknowledged the environmental benefits of the eleven gas-fired combustion turbines (the PowerNow! project). The officials state that these generating units are the cleanest sources of generation in New York City. We acknowledge that environmental issues are important, but they were not addressed in this particular audit. Rather, this audit focused on certain management and financial issues. We therefore cannot comment on the environmental merits of the PowerNow! project. NYPA officials also stress that the PowerNow! project has enhanced electric reliability in the New York City area. Our audit report clearly recognizes this and notes that NYPA was commended for its actions. However, as is explained in the report, while NYPA's actions in installing the generating units were laudable, this in no way suggests that the units must continue to be owned and operated by NYPA.
7. In our audit report, we note that, because of the urgent need to begin the PowerNow! project without delay, NYPA did not begin preparing economic analyses of the project until construction was underway. NYPA officials disagree with this statement. They say they began their analyses before construction began. However, according to the information that was provided to us by NYPA during the audit, the analyses were initiated after construction had begun. NYPA officials further state that these analyses concluded there was a "reasonable opportunity" for NYPA to recover its investment over a 20-year period. They note that the Niagara and St. Lawrence hydroelectric plants had long payback periods, and have provided great benefits to New Yorkers. However, we do not believe the PowerNow! project is comparable to the two hydro projects cited by NYPA officials. These projects were undertaken in a different time and a different regulatory environment. Energy development companies in today's power-generating industry use much shorter payback periods than 20 years to recover construction costs. We further note that the PowerNow! units have had repeated operating losses and, as is detailed in the report, NYPA has had to write off a significant portion of the construction costs.
8. NYPA officials state they have long-term "evergreen contracts" with their New York City customers. However, these contracts are actually rolling three-year

contracts. The customers can indicate that they want to terminate the contracts at any time. Once formal notification of such an intent is given to NYPA, the contract is scheduled to expire in three years. Even though the contracts have been in existence for decades, they are not long-term contracts. NYPA's own documents show that, in the opinion of NYPA officials, NYPA needed to negotiate new contracts, which were in fact long-term, with these customers (especially the MTA) before deciding to proceed with the new plant. It should also be noted that long-term contracts with customers are particularly important in the new competitive power markets. However, as is described in our report, NYPA has yet to negotiate such contracts.

9. In our report, we state that, in its presentations to executive management and the Board of Trustees, NYPA examined only the first three or four years of the new plant's operations. We concluded that this timeframe was not sufficient, and recommend that a timeframe of at least ten years be used, as is the industry practice. In their response, NYPA officials state their economic analyses covered 10 to 20 years, and that we were aware of these timeframes. They further state that "if simple facts such as these are misstated or misunderstood, and are used as the basis for the Audit's conclusions, the entire credibility of the Audit must be questioned." What NYPA officials have misstated or misunderstood is this: while the full economic analyses did indeed cover a 10 to 20-year period, the portions of these analyses that were presented to executive management and the Board of Trustees covered only a three to four-year period. It was these three and four-year portions that were presented to NYPA's decision-makers. As a result, the decisions they made were based on data that was not as reliable as ten-year data would have been. If NYPA had presented the full 10 to 20 years of data to its decision-makers, we would recommend no changes in its practices. However, NYPA, for whatever reason, elected not to do this.
10. We revised the audit report.
11. Certain matters contained in the draft audit report have been deleted from the final audit report. These matters related to specific actions that could be taken by NYPA to recover significant losses incurred on projects undertaken for the public benefit. Such specific actions should be decided by NYPA after appropriate analyses are performed.
12. The widespread public perception that NYPA was to be only temporarily involved with the PowerNow! generating units resulted primarily from two factors: the presentation of the generators as "emergency" units and the fact that NYPA's environmental permits were for only three years. NYPA indicates that it has no plans for phasing out its involvement with the units, and NYPA officials now state it was never NYPA's intention to sell the PowerNow! units. Rather, they now say that they would have entertained offers to sell. However, newspaper reports in late 2000 and early 2001 contain quotes from the NYPA Chairman stating that NYPA might decide to sell some of the units to private companies. Regardless of

NYPA's original intentions, as is explained in our report, there is a need for NYPA to formally analyze the various options available for the units and select the most financially advantageous option that is consistent with public policy. However, NYPA has not prepared such an analysis, and has not clearly articulated its role in the New York City wholesale power market that is served by the PowerNow! units.

13. NYPA officials state that they "currently" use a comprehensive planning and evaluation process that evaluates the feasibility of all reasonable alternatives. However, as is described in detail in our report, such a process was not used in the decision-making process for the new plant, and as a result, other reasonable alternatives were not adequately considered. We further note that, during our audit, we were provided with no written documentation indicating that NYPA's current planning and evaluation process does in fact evaluate the feasibility of all reasonable alternatives.
14. NYPA officials state that NYPA "expects" to continue to serve its SENY customers but that it is not a binding obligation or a guarantee, particularly in today's deregulated marketplace. This statement shows that these customers can choose to end their relationship with NYPA, as we state in the report. While NYPA officials are confident of a continued relationship, noting their 30-year history with these customers, we note that the power market has been deregulated for the last five years of this relationship. Later in its formal response to this audit report, NYPA notes that "the existing Power Authority agreement with these customers allows them to seek out lower-priced alternatives, if available." While NYPA's status as a tax-exempt public authority may enable it to offer the lowest prices available, as NYPA officials state, there is no guarantee this will be the case. As is stated in the Fitch Rating cited by NYPA officials, there is a "potential loss of SENY load" for NYPA. Accordingly, long-term contracts with these customers are preferable, as was acknowledged by NYPA officials in internal NYPA documents.
15. In our report, we state that NYPA's New York City government customers could choose to obtain their power from sources other than NYPA, and if this happens, the new plant may become a merchant plant competing with other merchant plants in the risky wholesale electricity market. NYPA officials state they believe such developments are unlikely, but if this does happen, their analyses indicate that the plant would still be expected to earn a positive return. However, as we note in our audit report, these analyses may not be reliable, because they were based on unreliable cost data. Moreover, as is also discussed in the report, NYPA officials have frequently indicated that activities involving such risks are not consistent with NYPA's public mission. We further note that NYPA's participation in the merchant market is contrary to the intent of the actions initiated in 1996 when New York State began to restructure its power industry to promote competition among private power producers.

16. We do not consider NYPA's comments relevant to the point we are making in the audit report. We accordingly have made no change to the audit report.
17. NYPA officials state that documentation supporting NYPA's estimates of future electricity prices was available. This is not true. The available documentation related only to the latest estimates of electricity prices. We asked to see documentation relating to the original estimates used in the computer-generated analyses that were presented to the Board of Trustees. Since these original estimates were relied on by NYPA when it decided to construct the new power plant, they were relevant to our audit. The latest available estimates were not relevant to our audit. We were told that, when new estimates are periodically developed, the documentation relating to the prior set of estimates is overwritten. As a result, at any point in time, only documentation for the most recent set of estimates is available.
18. We were unable to complete all our stated audit objectives in the original audit (Report 2000-S-61, issued July 31, 2001) because NYPA was slow to provide us with all the information we had requested. When the information was finally provided, there was not enough time to assess the information in a thorough manner and still meet the legislatively-mandated date for report issuance. Consequently, we returned to NYPA after the mandated report was issued to complete our audit. When we returned, we not only evaluated the information that NYPA had been slow to provide, but additional information that was relevant to the audit objective we had been unable to fulfill because of NYPA's delays, including analytical studies subsequently prepared by NYPA.
19. Our draft report stated that, in December 1999, NYPA's Board of Trustees authorized the issuance of bonds to finance the construction of the new plant. NYPA officials indicate that, in their opinion, this wording is not accurate, because the bonds were not actually issued at this time. However, our point is that the issuance of bonds, at some time in the future, was authorized by the Board in December 1999. What is important is the date the Board decided bonds would be issued, because this indicates NYPA was, at this point in time, committed to the new plant. The date the bonds were actually issued is not relevant. However, to address the point raised by NYPA officials, we changed the wording in our report to state that "in December 1999, the Board formally resolved to issue \$370 million of bonds to pay for expenditures in connection with the plant."
20. Our report notes that NYPA did not evaluate certain alternatives commonly considered by utilities contemplating large construction projects (i.e., soliciting bids to build and operate a plant, a joint venture, and long-term contracts to purchase power) before making significant commitments to proceed with its decision to build and operate a new plant. NYPA officials state that none of these alternatives make sense for NYPA, because they do not make use of NYPA's major advantages over private parties: NYPA's tax-exempt status and its

ability to be 100 percent debt-funded. We acknowledge that NYPA has these advantages. However, these advantages are not unique to NYPA and they are not the only factors to be considered. For example, another power producer might be able to construct and/or operate a power plant more efficiently than NYPA. As is discussed in our report, the Flynn plant operated by NYPA suffered repeated operating losses because of an unfavorable gas-supply contract, and the PowerNow! units were constructed at a much higher cost than budgeted. In addition, if NYPA had solicited bids to build and operate a plant, a private party may have responded by constructing a much larger plant that would have been capable of providing more in-City power to the New York City area. It is also possible that the action taken by NYPA was the best possible action in the circumstances.

21. Our report states that NYPA did not formally analyze the possible consequences of reducing its presence in New York City. NYPA officials state that they did review these consequences. However, none of the documents provided to us by NYPA during the audit contained analyses of this kind, even though we requested that any such analyses be provided to us.
22. Our report states that NYPA's 2001 long-range financial plan (the most current long-range financial plan made available to us by NYPA) projects net losses on its New York City customers, and these losses are expected to be offset in NYPA's consolidated financial statements by the large margins realized on NYPA's sale of power from its two large hydroelectric plants. NYPA officials challenge this statement, and assert that NYPA "does not rely on other segments of its business to support these [New York City] customers." However, NYPA itself, in the Official Statement prepared in December 2003 for prospective bond buyers, states that "the Authority has experienced a substantial revenue deficiency through September 2003 in providing service to its SENY [southeast New York, which means New York City area] governmental customers This revenue deficiency is primarily attributable to higher than forecasted increases in costs for fuel and purchased power used during 2003 to serve this customer group. To a substantial degree, these increased costs have been counterbalanced by increased revenues from other sales of energy and other services by the Authority in other New York markets The Authority currently projects overall net revenues for 2003 that are in line with the budget forecast . . . assuming continued revenue deficiencies in the SENY market accompanied by offsetting revenue increases in other markets."
23. NYPA officials state that NYPA "did not seriously consider walking away from its governmental customers because we believe that we have an obligation to serve this customer segment." In this statement, NYPA appears to take the position that only NYPA can, and ought to, serve these customers. Such a position contrary to the intent of the actions that were initiated in 1996 when New York State began to restructure its power industry to promote competition among private power producers. Nor are we in any way suggesting that NYPA's New

York City customers should be abandoned. If an appropriate formal analysis of the market indicated that no other power producers were likely to step forward and meet the needs of these customers, it would certainly not be appropriate for NYPA to reduce its presence in the market. However, NYPA performed no such analysis, and therefore, has no basis for stating that these customers would not, in the near future, be better served by another power provider.

24. NYPA officials refer to NYPA's energy conservation and peak load reduction programs. These programs are important, but they were not addressed by this particular audit.
25. Our report states that NYPA had to switch to a dry cooling system because of other regulatory/licensing requirements and because of airport fog concerns. NYPA officials agree that the switch was made because of regulatory/licensing requirements, and provide details about those requirements that were not included in our report. NYPA officials do not agree that the switch was in any way prompted by airport fog concerns, but information provided to us by NYPA during the audit indicates that this is not true, and the switch was in fact prompted, in part, by airport fog concerns.
26. Our report states that we were unable to determine whether NYPA's Board of Trustees was promptly and fully informed about the increases in construction costs, because NYPA did not maintain copies of the informational packages that were provided to the Trustees at each Board meeting. NYPA officials do not agree with this statement, and list several documents that were provided to us. They state that these documents were part of the Trustees' informational packages, and further state that we could have confirmed this fact by referring to a log that is maintained by NYPA. However, during the audit, we did in fact attempt to do what the officials suggest, and found that, because the log was not sufficiently detailed and sufficiently descriptive, we could not confirm that the documents provided to us by NYPA were in fact the same documents that were given to the Trustees. For this reason, we recommend that NYPA make a practice of maintaining copies of the information packages that are given to the Trustees.
27. Our report states that improvements are needed in NYPA's cost estimating process. NYPA officials acknowledge there are always lessons to be learned when attempts must be made to estimate the costs that are likely to be incurred in large construction projects, but they indicate that, in their opinion, the reasons for the large errors in NYPA's cost estimates on this project could not reasonably be foreseen. They also note that they bring in outside cost estimation experts to help with the estimating process. We acknowledge the estimating costs for large construction projects in New York City is demanding. However, as we state in the report, while some increase in estimated costs during the planning phase of a construction project is not unusual, both the magnitude of the increase (\$275 million, or an additional 73 percent) and the nature of some of the costs that were

not anticipated by NYPA raise questions about the effectiveness of NYPA's cost estimating practices. For example, NYPA officials may want to seek the assistance of cost estimation experts earlier in the estimation process.

28. In explaining why NYPA could not reasonably be expected to accurately estimate the cost of constructing its new plant, NYPA officials state that there has been no major power plant construction in New York City in the last 25 years, "other than NYPA's PowerNow! Project." As is noted in our report, we believe it is reasonable to expect that NYPA could have learned some lessons from its experiences with the PowerNow! project. This project, which was undertaken in 2000-01, cost far more than expected (\$640 million, compared to NYPA's initial estimate of \$450 million) and was managed by the same general contractor that was used by NYPA in the construction of the new plant. One of the PowerNow! units was even installed in Queens, very near the site of the construction of the new plant.
29. NYPA officials state that the \$40 million increase in equipment cost due to the need to switch to a dry cooling system was attributable to licensing and environmental requirements that could not have been identified earlier in the process. We do not agree. As we state in the report, according to the information provided to us by NYPA during the audit, the licensing and environmental requirements became known to NYPA in June 2000. We therefore cannot understand why these additional costs were not incorporated into the estimates that were provided to NYPA's executive decision-makers until late in 2001.
30. NYPA officials state that the electrical interconnection was not overlooked in the planning stage; rather, its costs could not be specified until other information was available. However, we note that a cost estimation process is intended to quantify expected costs before those costs are known.
31. NYPA officials state that, in their opinion, the PowerNow! project was unique, and consequently, offered no lessons that could be used in the construction of the new plant. However, as we previously noted, the PowerNow! project was managed by the same general contractor that was used for the new plant and one of the PowerNow! units was installed in the same neighborhood as the new plant. While some of the PowerNow! experience was no doubt unique, it is difficult to believe there was nothing NYPA could have learned from the experience that would have helped in estimating costs for the new plant.
32. Our report states that NYPA's decision to proceed with the construction of the new plant was based on estimates that significantly underestimated the cost of construction. We note that if the current estimate of \$650 million had been used in NYPA's August 2000 analysis, rather than the inaccurate estimate of \$375 million that was used, NYPA's own analysis, at that point in time, would have indicated that the plant would not be cost-effective. NYPA officials raise the

objection that their subsequent analyses showed that the plant would be cost-effective, even at a cost of \$650 million. However, NYPA officials miss the point. We are pointing out the flaws in the process that was used by NYPA in reaching this decision. One of these flaws was a reliance on inaccurate cost estimates. Another even more critical flaw was NYPA's unwillingness to consider other alternatives before making significant commitments to proceed with the new plant. If these alternatives had been properly assessed before NYPA committed itself to the new plant, it may have been determined that an alternative course of action was preferable.

33. NYPA officials defend their cost-estimating practices by referring to two projects that were undertaken several years ago. We believe NYPA's track record in its two most recent projects (PowerNow! and the new plant) is more relevant, and this record clearly indicates that improvements are needed in NYPA's cost estimating practices.
34. It wasn't until later in the decision-making process that NYPA expanded its analytical capabilities by evaluating numerous different possible scenarios. The December 2001 analysis was based on the limited information that is described in our report.
35. We follow Government Auditing Standards promulgated by the U.S. General Accounting Office. Such standards require us to develop appropriate audit tests to accomplish our audit objectives. Accordingly, we determined it was necessary to interview NYPA's largest New York City customers and ask them about their electricity contracts with NYPA. We kept confidential NYPA's pricing strategy as well as all of the specific information we learned from the customers.
36. NYPA officials state that their capacity-factor estimates are conservative and are based on NYPA's Flynn plant. However, the Flynn plant is not comparable to the new plant, because the Flynn plant is much smaller than the new plant (136 MW compared to 500 MW), the Flynn plant was built ten years ago, and the Flynn plant had a single customer under long-term contract to purchase the electricity produced by the plant when it first began operating.
37. NYPA officials note that they performed long-term studies. We are aware of the long-term studies, but in this instance, we are referring to the three and four-year analyses that were provided to the executive decision-makers.
38. NYPA officials state that the PowerNow! units have efficiency comparable to existing baseload steam plants. That is true, and we have edited the report accordingly. NYPA officials also state that we do not recognize the clean-air benefits of the units. However, as was noted previously, environmental issues were not addressed in this audit.

39. NYPA officials state that their current plans are to operate the PowerNow! units as efficiently, economically and cleanly as possible as part of an integrated supply plan. However, at the time our audit, NYPA officials had yet to formalize any operational plans for the PowerNow! units.
40. Our report states that the more volatile type of business risks that might be acceptable for private companies are not acceptable for a State authority such as NYPA. NYPA officials reply that they are in no way violating their statutory powers and mandates. We note that the possible inconsistencies we are addressing are not statutory in nature. Rather, they relate to NYPA's role in the new competitive marketplace. We also note that NYPA officials have frequently indicated that activities involving such risks are not consistent with NYPA's public mission.
41. Our report notes that NYPA's continued participation in the merchant market (through its continued ownership of the PowerNow! units) is contrary to the intent of the actions taken in 1996, when New York State's power industry was restructured by PSC to promote competition among private power producers. NYPA officials reply that they were asked by PSC to install the PowerNow! units. The officials therefore conclude that NYPA's ownership and operation of the units cannot be inconsistent with the intent of PSC. In coming to this conclusion, NYPA officials are failing to distinguish between their installation of the units and their continued ownership of the units. PSC asked NYPA to install the units to prevent blackouts. NYPA fulfilled the request. However, as we note in the report, the units do not have to continue to be operated by NYPA. If NYPA is unwilling to consider the appropriateness of transferring the units to the private sector, and NYPA has prepared no analysis that shows it is willing to do so, NYPA's continued ownership of the PowerNow! units would be contrary to PSC's 1996 order.
42. NYPA officials state that, since no private or independent power producer has stepped forward to express an interest in the PowerNow! units, NYPA has not suppressed competition in the New York City area market. However, we note that NYPA has not issued a clear, public statement that defines its role in the New York City wholesale and retail power markets. In the absence of such a statement, private developers may legitimately wonder how much of the New York City power market is in fact open to private development.
43. NYPA's response suggests that this recommendation has been implemented.
44. NYPA officials disagree and state that this practice is already in place. However, NYPA officials do not maintain an appropriately detailed record of the documents provided to the Board of Trustees. Rather, NYPA only maintains a list that generally describes what was provided to the Trustees. NYPA should maintain copies of the actual documents as provided to the Trustees.

Appendix D

**THE
LIBERTY
CONSULTING GROUP**
65 Main Street P O Box 237 Quentin PA 17083

March 22, 2004

Ms. Carmen Maldonado
Audit Director
Office of the State Comptroller
123 William Street, 21st Floor
New York, New York 10038

Dear Carmen:

You asked for Liberty's comments on the NYPA audit, and the NYPA response to this audit. Liberty regrets very much the need to express observations of the type that follows, but we understand your interest in our candid opinions. We have confined our observations to areas where we consider conduct by NYPA officials to be outside the range of our prior experience,

First, please allow me to note that, in our nearly 17 years of service to the utility industry, we have conducted engagements for two-thirds of the country's state utility regulatory authorities. Many of them have involved major audits or other detailed examinations of management and operations. That work has included electricity, natural gas, and telecommunications utilities, quite a number of them larger than NYPA. Our work extends to every region of the country and it has involved both investor-owned utilities and member-or publicly-owned utilities. We have also conducted work in circumstances where the exposure of the audited utility to direct economic repercussions from our work has been more immediate and obvious. We continue, as we always have, to enjoy the confidence of both regulators and those that they regulate; our client list includes even more utility service providers than it does regulators.

The following facets of the audit were particularly noteworthy in their considerable variance with what Liberty normally experiences in work of this type:

- Lack of respect for the goals and usefulness of such an audit.
- Incomplete provision of documents and restrictions on access to NYPA's personnel.
- Unsubstantiated and confusing responses to the factually based conclusions of the audit.
- Intense, unwarranted, and factually unsupported criticism of audit results, which criticism diverts attention from the issues raised by the report.

Sincerely,



John Antonuk
President