

*State of New York*  
*Office of the State Comptroller*  
*Division of Management Audit*

**NEW YORK CITY  
DEPARTMENT OF CITYWIDE  
ADMINISTRATIVE SERVICES**

**ENERGY CONSERVATION  
PROGRAMS AND CONTROL OF  
ENERGY USAGE AND COST**

**REPORT 96-N-12**



*H. Carl McCall*  
*Comptroller*



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# State of New York Office of the State Comptroller

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## Division of Management Audit

### Report 96-N-12

Mr. William Diamond  
Commissioner  
NYC Department of Citywide Administrative Services  
One Centre Street 17th floor  
New York, New York 10007

Dear Mr. Diamond:

The following is our report on the Department of Citywide Administrative Services' Energy Conservation Programs and Control of Energy Usage and Cost.

This audit was done according to the State Comptroller's authority as set forth in Article 10, Section 5 of the State Constitution and Article 3, Section 33 of the General Municipal Law. We list major contributors to this report in Appendix A.

*Office of the State Comptroller  
Division of Management Audit*

November 3, 1997

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# Executive Summary

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## New York City Department Of Citywide Administrative Services Energy Conservation Programs And Control Of Energy Usage And Cost

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### Scope of Audit

New York City Department of Citywide Administrative Services' Office of Energy Conservation (Office) was established to develop, promote, and implement programs and issue procedures designed to conserve energy; and to improve efficiency in the use of all energy resources in both City agencies and some non-mayoral entities such as the Board of Education (Board), and the Health and Hospitals Corporation. In addition, the Office prepares usage and cost budgets for electricity, gas, and steam. It also monitors fuel oil usage and corresponding costs. The Office had a staff of 13 full-time employees, including 5 assigned to energy conservation and 6 assigned to energy-monitoring systems. Citywide utility costs for electricity, gas, and steam increased approximately 28 percent during fiscal years 1991 to 1994 from \$289 million to \$370 million. Although these costs decreased slightly in fiscal year 1995 to \$353.6 million, they increased for fiscal year 1996 to \$383.3 million. To conserve energy and reduce energy costs, the Office has implemented two major conservation initiatives, the High Efficiency Lighting Program (HELP) and the Cafeteria Lighting Program (CLP).

Our audit covered the fiscal years 1991 through 1995 and addressed the following questions:

- Does the Office administer its energy conservation programs in an efficient, effective, and responsible manner?
- Does the Office effectively monitor Citywide energy usage and costs?
- Does the Office have long range plans for energy conservation?

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### Audit Observations and Conclusions

We identified a number of ways that the Office can improve its administration of its energy conservation programs and its reviews of energy bills.

The Office is required to monitor and prepare agency usage and cost reports. However, we concluded that it has not been as effective as it could be in controlling energy usage and cost budgets of City agencies. This was partly due to the absence of an effective monitoring process and the authority to require agencies to properly review the energy reports prepared by the Office for each agency. Our audit also disclosed that the Office did not always generate quarterly monitoring reports; in some cases we noted delays of as long as one year in questioning agencies about budget overruns and failures to obtain actual meter readings. In addition, there was no evidence that the Office examined or questioned replies from agencies which did not address the deficiencies cited in the quarterly monitoring reports. We made recommendations that could improve both the effectiveness and efficiency of the procedures the Office uses to monitor energy usage and cost. (See pp. 6-9)

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When we visited 12 sites that were part of two of the Office's energy-saving programs, we found the energy-efficiency features were poorly implemented, resulting in defects and user dissatisfaction. We also found that the Office had neither reviewed completed projects properly nor assessed the quality of work performed by contractors, and did not have a final list for each site that indicated the location and type of work performed. Furthermore, our observations at two facilities and a review of the available documentation raised questions about whether all the work paid for was actually done. We therefore made recommendations for improving the supervision and inspection of the projects. (See pp. 11-17)

Mayoral Directive 89-1 requires the Office to develop and coordinate citywide energy conservation policies and to develop long-range strategies for the management of energy consumption by all City agencies. We found that the Office has not developed long-range plans or goals for energy conservation. (See pp. 19-20)

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## **Comments of Department Officials**

Department officials agreed with most of our recommendations and indicated they have taken action or plan to take action to implement them. Department officials believe, however, the report did not present a balanced and correct view of the operations of the Office because it does not reflect several of the activities that are related to energy usage and conservation. For example, each month the Office processes information received from the New York Power Authority (Power Authority), Consolidated Edison, Brooklyn Union, the Long Island Lighting Company and several other providers to generate reports on the amount and dollar value of energy used by each account and by each agency. These comments have been considered in the preparation of this final report.

They disagreed with our recommendations that the Department should ensure that Board schools have an adequate supply of replacement parts for the fixtures installed as part of HELP which was done jointly with the Power Authority. However, to fulfill the role described in Mayoral Directive 89-1 and its mission statement, we believe the Office has to be proactive in working with all agencies in city government. Thus at a minimum, it needs to urge the Board to obtain replacement parts. They also indicate that a net goal of energy reduction was not plausible given the expansion of City Services. In addition, they questioned the methodology used and objected to the conclusions regarding the work done at the HELP and CLP sites visited because it is largely testimonial and reflects the opinions of a limited number of individuals. Contrary to Department officials opinion, field work standard indicate that testimonial evidence is an acceptable method. Therefore, the statements made by custodians and other officials at the sites visited are valid given their responsibility for monitoring the equipment which should be an indication that they possess the technical expertise to know if the equipment is functioning properly.

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# Contents

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<b>Introduction</b>	Background . . . . .	1
	Audit Scope, Objectives and Methodology . . . . .	3
	Comments of Department Officials . . . . .	4
<b>Monitoring of Energy Usage and Cost</b>	. . . . .	6
<b>Energy Conservation Programs</b>	. . . . .	11
<b>Long-range Citywide Energy Conservation Plans</b>	. . . . .	19
<b>Exhibit A</b>	Listing of Sites Visited	
<b>Appendix A</b>	Major Contributors to This Report	
<b>Appendix B</b>	Comments of Department Officials	

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# Introduction

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## Background

The Office of Energy Conservation (Office) was created during the energy crisis in 1976. It is currently part of the New York City Department of Citywide Administrative Services (Department), formerly known as the New York City Department of General Services. The Office was established to develop, promote, and implement programs and issue procedures designed to conserve energy and to improve efficiency in the use of all energy resources in both City agencies and non-mayoral entities such as the Board of Education, and the Health and Hospitals Corporation. In that capacity, the Office prepares usage and cost budgets (subject to approval by the City's Office of Management and Budget) for electricity, gas and steam, and monitors fuel oil usage and corresponding costs. It has a staff of 13 full-time employees, including 5 assigned to energy conservation and 6 assigned to energy-monitoring systems.

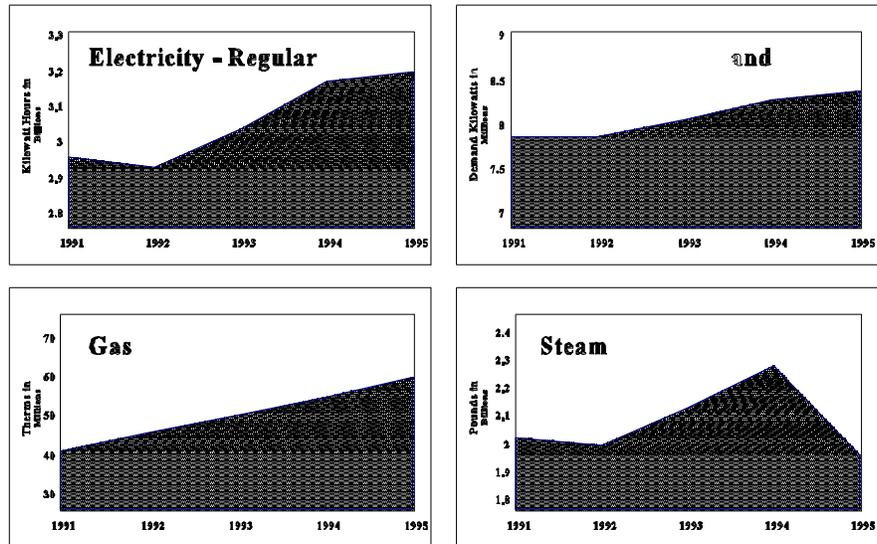
Citywide utility costs for electricity, gas and steam increased approximately 28 percent during fiscal years 1991 through 1994 from \$289 million to \$370 million, they decreased slightly in fiscal year 1995 to \$353.6 million and increased again in 1996 to \$383.3 million. Utility charges included in lease agreements are not contained in the Citywide totals and are not the responsibility of the Office. The City, in conjunction with the Office, was able to achieve the 1995 decrease in utility costs by convincing the New York State Power Authority (Power Authority) to lower and freeze electrical rates for the next ten years. However, the City's energy usage has continued to increase as shown on the next page for gas and electric.

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## Citywide Energy

## Year Trend



Source: Office of Energy Conservation Code 423 Yearly Summary

During fiscal years 1991 to 1995, its regular electrical usage grew from 3 billion to 3.2 billion kilowatt hours. (A kilowatt hour is 1,000 watts of electricity used in an hour's time.) Peak demand—the greatest amount of electricity needed at any given time—also increased from 7.8 million to 8.3 million kilowatts. In addition, the City's gas usage, which is counted in therms—a measurement equivalent to 100,000 British Thermo Units—increased during the same period from 40.3 million to 59 million therms. At the same time, steam usage by the city fluctuated, ending 1995 with a five-year low of 2 billion pounds.

In an effort to conserve energy and reduce energy costs, the Office has implemented two major energy-saving programs, the High Efficiency Lighting Program (HELP) and the Cafeteria Lighting Program (CLP):

- HELP, developed by the Power Authority in 1991, conserves electricity through the installation of high efficiency lighting fixtures (i.e., light bulbs, reflectors, lens covers, and ballasts) in buildings used by City agencies. Approximately 55 percent of HELP's expenses are funded by the Power Authority; 45 percent are supported by the City. During fiscal years 1991 to 1993, the Office monitored HELP projects costing \$22.2 million at 10 agencies and involving 43 facilities. Total estimated energy savings for these projects are about \$5 million annually. For the fiscal years 1994 through 1996, projects at another

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83 facilities were identified and are in various stages of completion. The one-time estimated cost of these projects is \$38.9 million, but they produce estimated annual savings of about \$7.2 million. The Power Authority discontinued HELP in June 1996 and indicated that it was replaced by other energy efficient programs.

- The CLP began in fiscal year 1994 and is funded by the City. It is similar to the HELP program, but is limited to Board of Education facilities. Originally designed to focus on the lighting needs of school cafeterias, it was expanded to include hallways, stairways, and other areas within a school. Sixteen pilot schools were in the program during fiscal year 1994, at an initial cost of \$172,219 and estimated annual savings of \$51,000. As of July 1995, the Office had awarded three contracts and was in the process of finalizing two additional contracts for work to be performed at 81 schools at an estimated cost of \$1 million.

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## **Audit Scope, Objectives and Methodology**

The scope of our audit covered fiscal years 1991 through 1995. The objectives of the audit were to determine whether the City's Energy Conservation programs were being administered in an efficient, effective, and responsible manner; and to determine whether the Office has effectively monitored Citywide energy usage and costs and has established long-range plans for energy conservation.

We reviewed the Office procedures and regulations, and interviewed responsible officials involved in the programs. We selected six agencies whose combined energy costs for heat, light, and power accounted for approximately \$197.4 million or 56 percent of the City's fiscal year 1995 costs. We also met with their Energy Liaison Officers to determine how the Office's energy reports are reviewed and used in their agencies, and to identify any actions the agencies might take to conserve energy. We reviewed the Office's quarterly and annual energy usage reports for fiscal years 1991 through 1995, as well as some of the monthly utility bills for sites visited during our review of HELP and CLP.

We also selected 12 sites (see Exhibit A) that had participated in either HELP or CLP during the City's fiscal years 1992 through 1995. We conducted a walk-through at each site to observe the work performed and to obtain the user's opinion about the quality of the work. However, we did not assess the quality or the type of equipment used, nor did we measure the intensity of the new lighting fixtures. We also reviewed Office and Power Authority files for documentation showing that the projects had been reviewed, managed, and completed according to contract plans.

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Except as discussed in the following paragraph, we did our audit according to generally accepted government auditing standards. Such standards require that we plan and do our audit to adequately assess those operations of the Department which are included within our audit scope. Further, these standards require that we understand the Department's internal control systems and compliance with those laws, rules and regulations that are relevant to 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.

Department management did not provide us with written representations that the Department has complied with applicable laws, rules and regulations; disclosed all known or suspected irregularities involving its employees; and provided all related records requested by the audit team. Except for any effect that Department management's failure to provide representations may have had on the audit, we believe that our audit provides a reasonable basis for our findings, conclusions and recommendations.

We use a risk-based approach to select activities for audit. We therefore focus our audit efforts on those activities we have identified through a preliminary survey as having the greatest probability for needing improvement. Consequently, by design, we use finite audit resources to identify where and how improvements can be made. We devote little audit effort to reviewing operations that may be relatively efficient or effective. As a result, we prepare our audit reports on an "exception basis." This report, therefore, highlights those areas needing improvement and only to a limited extent addresses activities that may be functioning properly.

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## **Comments of Department Officials**

Department officials agreed with most of our recommendations and indicated they have taken action or plan to take action to implement them. Department officials believe, however, the report did not present a balanced and correct view of the operations of the Office of Energy Conservation. They provided some additional information which was considered in the preparation of this final report.

They disagreed with our recommendation that the Office should work with the Board of Education to ensure that the schools have an adequate supply of replacement parts for the fixtures that were installed as part of the High Efficiency Lighting Program done jointly with the New York State Power Authority. They state that this is the direct responsibility of the Board and the Department's purchasing department. However, we believe that the Office has responsibility for this activity because Mayoral Directive 89-1 states that the

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Office will coordinate city-wide energy policies for all agencies in City government.

They also indicate that their monitoring mandate is largely fulfilled by collecting, maintaining and disseminating information on energy usage and helping agencies prepare their energy budgets. We do not believe that developing a data bank fulfills the responsibility and intent required by the Mayor's Directive 89-1 which indicates the Office has to coordinate, develop and implement energy conservation policies. While inputs are important, outcomes which clearly indicate the success of government initiatives provide more accountability to taxpayers. According to Mayor's Directive 89-1 the Office of Energy Conservation is responsible for reviewing consumption data and obtaining an explanation from the agency when consumption significantly exceeds the budget allocation. In those instances where the excessive usage is not justified, the Office of Management and Budget and the Mayor's Office of Operations shall take measures necessary to assure compliance.

The Department also states that the evidence used for conclusions regarding the work done at the HELP and CLP sites visited is largely testimonial and reflects the opinions of a limited number of individuals. We believe that the statements made by custodians and other officials at each of the 12 sites visited are valid because the custodians and their staff are responsible for monitoring the equipment and should have the technical expertise to know if it is functioning properly. The other officials provide information on the users' experience with the equipment installed. Furthermore, we confirmed much of their testimony by our observations. The Department's response is included as Appendix B.

Within 90 days after release of the final audit report, the Commissioner of the New York City Department of Citywide Administrative Services should report to the State Comptroller, advising what steps were taken to implement the recommendations contained herein, and where not implemented, the reasons therefor.

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# Monitoring of Energy Usage and Cost

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The Office monitors energy usage and costs for most City agencies. For our review, we selected six agencies whose combined energy costs for heat, light, and power accounted for approximately \$197.4 million or 56 percent of the City's fiscal year 1995 costs. The agencies selected to represent low usage were the Department of Housing Preservation and Development and the Department of Health. We chose the Human Resources Administration and the Health and Hospitals Corporation as medium users; the Board of Education and Department of Transportation were selected as high users. We met with the agencies' Energy Liaison Officers to determine how the Office's energy reports are reviewed and used in their agencies, and to identify any actions the agencies might take to conserve energy. We reviewed the Office's quarterly and annual energy usage reports for fiscal years 1991 through 1995, as well as some of the monthly utility bills for sites visited during our review of the HELP and CLP projects.

The Office procedures require issuing quarterly reports that identify agencies exceeding their electrical and gas usage budgets by more than 5 percent. These reports also identify agency sites where meter readings have been repeatedly estimated for six or more months, an indication that readings of actual electrical usage are not being taken. These reports are presented to the Energy Liaison Officer (Energy Officer) of the agency, who reviews them for reasonableness and accuracy, and informs the Office of any corrective actions the agency intends to take.

We asked Office officials to provide us with quarterly reports and agency responses for fiscal years 1991 through 1995. However, they were unable to provide us with any of the quarterly reports for fiscal year 1991 or those for the second or third quarters of fiscal year 1994. Office officials informed us that the reports for fiscal year 1991 were discarded when they moved to smaller offices.

Our review of the available 14 quarterly reports found that the Office had not effectively monitored the energy usage and cost budgets of City agencies, and that it had no authority to require agencies to review their energy bills. We also noted that the Office did not always generate quarterly monitoring reports, and that in some cases it had delayed for as long as one year before questioning agencies about budget overruns and failures to obtain actual meter readings. Furthermore, the Office did not question replies from the agencies that did not address the deficiencies cited in the quarterly monitoring reports.

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During all of fiscal year 1995, the Office did not solicit explanations from agencies for deficiencies that had been noted in the quarterly reports. As a result, agencies did not account for their budget overruns or failure to obtain actual meter readings for extended periods of time. Absent a requirement to respond to the quarterly reports, some agency Energy Officers may not have paid enough attention to the reports' content. For example, the Board of Education's Energy Officer thought his agency's energy consumption was favorable, but, in fact, the agency had exceeded its budget by more than 5 percent in three of the four quarters.

Subsequently, the Office issued a 1995 annual usage report which requested that agencies respond to noted deficiencies. However, several agencies still provided no explanations in response to the report. These included three of the six agencies we had visited that had been cited for estimated meter readings of six or more months, and one agency that had exceeded its natural gas usage budget.

We also found that the Office had accepted agency responses that did not address the deficiencies cited in the quarterly reports. For example, it cited the Department of Transportation (Transportation) - Bureau of Traffic for excessive gas usage in the fourth quarter of fiscal year 1993. Transportation officials did not investigate the reasons for the excessive usage and simply responded that usage had gone up because recently-installed additional gas heating units at Pier 76 in Manhattan had not been included in their energy budget. Office officials accepted the explanation, even though they had adjusted Transportation's budget six months earlier to include the heating units, but without notifying Transportation of the adjustment. When Transportation was again cited in fiscal year 1994 for excessive usage, it repeated its earlier explanation for 1993; and when it was cited once more in 1995, DOT officials informed us that they chose not to respond to the report because Office officials failed to consider their earlier responses.

In another example, the Board of Education (Board) was cited on three occasions for excessive use of electricity and for having meters with estimated readings of six months or more. In all three instances, Board management provided general responses, such as "New schools have been opened" or "Numerous construction projects have been undertaken." However, they provided no specifics, such as a list of the schools involved that would allow the Office to reassess its energy needs. The Office accepted the responses, even though they were general and failed to mention the facilities cited. Furthermore, the Board did not provide power-need estimates for the fiscal year 1997 energy budget preparation process, despite the fact that it operates more than 1,100 facilities and has a five-year \$2.9-billion capital construction plan. By not participating in the energy budget process, this agency, whose

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actual energy costs were \$5.5 million over the 1995 budgeted amount, has limited the Office's ability to monitor the Board's energy costs.

### **The Role of Energy Liaison Officer**

Another significant element of the monitoring function is the role of the Energy Liaison Officer. Under the Mayor's Directive No. 89-1, agencies are required to establish and maintain an energy resources control and data information center headed by an Energy Liaison Officer. For example, the Board of Education, a non-mayoral agency, did comply with the spirit of the directive by appointing an Energy Officer to review and monitor energy expenses. However, our review found that the Board, with more than \$81 million in energy costs for electricity, gas, and steam in fiscal year 1995, did not always have an Energy Officer assigned to review its usage. A Board official informed us that even when an Energy Officer was assigned, he did not have sufficient staff resources to adequately review the voluminous reports generated for the more than 1,100 buildings owned or managed by the Board. Thus, there is no review process in place to safeguard the agency from incurring unnecessary charges resulting from inaccurate meter readings or meters that do not belong to them.

The Office's procedures require the Energy Officers to check the monthly electrical, gas, and steam usage reports for items such as reasonableness, double billing, estimated meter readings, and meters that do not belong to them. Our interviews with six Energy Officers disclosed that one of them did not review any energy bills, and four of them had performed only a cursory review of the energy bills summary; just one had conducted a detailed review.

In addition, none of the six Energy Officers had compared the billed meter readings with those maintained at the sites; nor did they distribute copies of the bills to the appropriate sites for their review. Consequently, site staff did not have the opportunity to review their own energy usage and cost reports; nor could they immediately identify meters that did not belong to them, or flag errors in the meter readings. For example, at one Board facility we visited, the utility company had read two of the three electrical meters and had estimated the third meter's usage, resulting in a monthly overpayment of \$2,172. In contrast, the Human Resources Administration sends inspectors to investigate budget overruns and estimated meter readings. As a result, the Human Resources Administration discovered that the utility company was using a different meter factor (multiplier) on its bills than the multiplier indicated on the meter at the site. Correction of the error resulted in a credit of \$281,027.

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## **Recommendations**

1. Issue all quarterly deficiency reports to the agencies on a timely basis. Encourage the agencies to address and resolve the issues cited, or provide reasonable explanations of why the problems occurred and how they can be avoided in the future.
2. Ensure that all agency Energy Liaison Officers are provided procedures on how to interpret the energy reports. Reinforcement training should also be provided to make them aware of their responsibilities to review and follow-up on all reported discrepancies.
3. Remind agencies that they need to reaffirm their commitment to energy conservation and appoint an Energy Liaison Officer to review energy bills and report pertinent data to management, along with recommendations for corrective actions.
4. Require each agency Energy Liaison Officer to sign a monthly declaration that he/she has reviewed the energy bills, and has found them to be correct and acceptable by their agency.
5. Instruct Energy Liaison Officers to distribute copies of the energy reports to each of their site custodians or managers so they can review them for accuracy and report the site's energy usage to site personnel. Copies of the reports, or at least summaries of them, should also be sent to the agencies' financial officers so they can be aware of the agencies' performance.

(Department officials have agreed with the above five recommendations which they intend to implement. However, they disagree with our conclusion regarding their ineffective control of energy usage and their failure to generate reports and obtain feedback. They also stated that the Mayoral order is not binding on nonmayoral agencies such as the Board. Therefore, the Department cannot enforce compliance at nonmayoral agencies, it can only seek compliance through cooperation.)



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# Energy Conservation Programs

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We selected 12 sites (see Exhibit A) that had participated in either HELP or CLP during the City's fiscal years 1992 through 1995. We conducted a walk-through at each site to observe the work performed and to obtain the user's opinion about the quality of the work. We also reviewed Office and Power Authority files for documentation showing that the projects had been reviewed, managed, and completed according to contract plans. We considered the following criteria when we selected the sites:

- Eight of the 43 completed HELP projects were selected because they had a 1993 completion date, enabling us to review the rates of energy usage both before and after the projects were completed. A ninth project, completed in 1995 in the Clock Tower building at 346 Broadway, was selected because it housed several agencies at the same site and would provide feedback from different users.
- Three of 16 completed CLP projects were selected because they had more recent completion dates and different contractors.

The 12 sites we visited included 7 HELP and 3 CLP projects at the Board of Education (Board) and 2 HELP projects at Department of Citywide Administrative Services' facilities. We found the energy-efficiency features of the program to be poorly-implemented, resulting in equipment malfunctions and user dissatisfaction. Many officials at these project sites reported that, in some instances, an electrical ballast – an electrical coil used to produce the high initial voltage necessary to start a fluorescent lamp and regulate the current during the lamp's operation – had failed. They also said replacement parts were in short supply, and that they were not satisfied with the color of the lighting installed.

## **Electronic Ballasts**

Electronic ballasts, which are located within the inside channel of the light fixture, seldom need replacement; they have a life expectancy of about 15 years. Officials at six of the 12 sites we visited -- Boys and Girls High School, Harry S. Truman High School, Herbert Lehman High School, John F. Kennedy High School, Joan of Arc Junior High School, and Bronx Family and Criminal Court – stated that they had excessive ballast failures, which they felt was an indication of poor-quality workmanship, or the use of defective parts. In some instances, the ballast failures began while the installation project was still in process, while other failures occurred within six months after the project was completed.

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We were advised that some Board facilities use a high-voltage ballast to control two- and four-light fixtures and that these ballasts can be changed only by a licensed electrician. The schools' custodian advised us that he waited until a substantial number of ballasts had failed before repairs were initiated. For example, at Boys and Girls High School, 76 ballasts were replaced at one time, but another 14 still needed replacement. We noted five defective ballasts in one of the classrooms we visited while a class was in session. As a result, ten of the light fixtures were inoperative and the classroom, which had no windows to provide natural light, in our opinion, was poorly lit. It was also stated that, because the original contractors had not marked where they had installed the ballasts in the facility, repair workers had to disassemble several fixtures before they found the defective ballasts.

Department officials responded to our observations by saying that 90 ballasts that failed fall within an acceptable range of failure considering that 3,600 ballasts were installed. However, our observation of 90 failures was as a point in time i.e., the date of our visit. It was not meant to represent a cumulative total number of ballasts replaced for this project.

### **New Lighting Fixtures**

The HELP contract specifies that the contractor will develop a customized lighting design to meet the customer's specific lighting needs. At four of the sites we visited, the Office had allowed the installation of high-pressure sodium lighting in gymnasiums. Custodians at each of the four schools reported that there was a high burnout rate in the gyms' lights because of the replacement lights and ballasts used by the contractors. In addition, they said, the newly-installed lighting failed to achieve the color of the older non-energy-efficient lighting. We observed that the newer lights were orange, and school personnel told us they were dissatisfied with the color. At one school, the custodian indicated that the problem became more apparent in the late afternoon and evening, when less natural light was available to illuminate the room. At another school, the New York City School Construction Authority has been authorized by the Board to improve the gymnasium lighting installed by the Power Authority at a cost of \$8,244.

A Power Authority official informed us that the use of high-pressure sodium lighting in gymnasiums was not common practice outside of New York City. We were also told that the Office did not use such installations for City University of New York projects. According to another Power Authority official, the Office, which had other lighting options, had not arranged for a demonstration installation in the gyms to obtain approval of the color. A different option was exercised at one of the schools we visited, where the Office had approved installation of white metal halide lights that produce a

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more natural light. Personnel at the school said they were satisfied with the results.

Office-funded installations that resulted in poor lighting conditions were not limited to gymnasiums. An illumination project in the cafeteria at one of the schools we visited had not improved the lighting environment. The Office's own procedures for this CLP project required the contractor to install a test fixture and secure the facility's approval of it. Office officials were unable to provide us with any evidence that a cafeteria test fixture had been installed and approved. Instead, we were given an Office approval letter concerning a test performed in another section of the school and authorizing the electrical contractor to proceed with the rest of the project. The custodian expressed his dissatisfaction with the poor light distribution; furthermore, he pointed out that the new lights did not turn on instantly, some had electrical shorts, and the lens covers could not be removed easily from the fixtures. The custodian indicated that additional lights would have to be installed, at Board expense, to supplement the new installation. All these complaints may have been avoided had a test installation been conducted in the cafeteria.

The other two cafeteria projects sites we visited also had problems. At one of the sites, the project was stopped and never completed. At the other site, some of the lamps did not have reflectors installed, as called for in the specifications.

At another facility we visited, we observed that the lobby outside the auditorium was dimly lit. The facility custodian told us he was dissatisfied with the type of lighting being used in the area (50-watt high-pressure sodium). In addition, he said, the light socket was located deep within the fixture and required as many as six extensions to bring the new light into proper alignment with the outer edge of the housing. Office officials were unable to provide us with any evidence that a test installation of this device had ever been performed in the lobby.

Because some of the fixture parts were defective, the custodians at several of the facilities we visited had replaced burnt-out energy-efficient lamps with traditional non-energy-efficient ones that were not appropriate for retrofitted fixtures, thus defeating any energy savings that could have been achieved. A Power Authority official informed us that the use of non-energy-efficient lamps would shorten the life of the fixture because the bulb would not be balanced properly with the ballast.

Department officials questioned our methodology and objected to our conclusions because they were based on testimonial evidence from a few individuals. We disagree. Our conclusions are based on interviews with custodians and other officials at each of the 12 sites visited. We believe that

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custodians have the technical expertise to evaluate whether a product is functioning correctly. Furthermore, obtaining testimonial evidence is an acceptable method according to generally accepted government auditing standards for field work. We also confirmed much of their testimony by our own observations. Officials also claim we did not provide them with detailed locations of the problems. At the closing conference for this audit, we provided officials with the information they requested at that time.

### **Replacement Parts**

Citywide purchasing procedures require City agencies to order equipment from their central storerooms. However, we were advised that replacement ballasts and lamps have often been difficult to obtain. After waiting for long periods to obtain parts, the staff at one Board facility circumvented the central store's operations and purchased ballasts and lights directly. Department of Citywide Administrative Services facilities have also encountered delays in obtaining lighting equipment. For example, at two facilities we visited, the Bronx Family and Criminal Court (located in a City-owned building) and the Clock Tower at 346 Broadway, we were informed by the custodians that replacement lamps were difficult to obtain. An official from Department of Citywide Administrative Services Division of Facilities told us he is aware of the delays and the difficulties in obtaining supplies, and he predicted that the problem would continue to worsen because of budget cuts.

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## **Recommendations**

6. Periodically inspect each project site to identify and correct reported lighting or product deficiencies, and ensure that all work performed is fully reviewed and approved by the user.
7. OEC, other units within the Department and the Board of Education should work together to ensure that an adequate supply of replacement parts for the products is available for the Office's energy conservation program.

(Department officials commented that recommendation 6 should be addressed to the New York State Power Authority. We have addressed the recommendation to the Office since HELP guidelines require the Office to "review the elements of the actual installation work.")

### **Significance of Supervision and Inspection of New Installations**

The Office approved payments of \$9.9 million, which represents the City's share of the \$22.2 million cost of completing 43 HELP projects. The HELP contract requires Department of Citywide Administrative Services to inspect the completed work before the final payment is made, to ensure that contract specifications were met.

Our review of nine HELP projects valued at \$4 million revealed that the Office could not document that the project had received a final inspection before the last payment was made. In addition, the Office was unable to provide us with a detailed punch list showing exactly where the work was performed within each facility. These deficiencies in the oversight and review process make it difficult to determine whether all the work paid for was actually performed.<sup>1</sup> For example, on our field visits to two schools, we found several locations listed in the original plans – such as the kitchen, boiler, storage, and girls' restrooms – where the contractors had performed no work at all. However, our review of the final project summary found it did not contain enough information to ascertain whether the City had been billed for work that had not been performed.

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Officials responded that we could determine where the detailed work was done by examining various documents. However, our findings in this section are based on two conditions. First, the Office is required to do a full review of the project prior to its approval. Second, in order to do so, a detailed list of the work done is needed. When we asked for the list of work done, the Office could not provide us with one.

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Before any final payment is made, the final inspection report must be signed by officials representing the Office, Power Authority, and the facility. This report attests that all the equipment has been installed as specified in the contract, and that it is acceptable to the customer and the Power Authority with respect to both quantity and quality. Four of the nine contracts involving \$1.9 million lacked the required approval signatures. Two of the contracts lacked the facility representative's signature, and another two lacked the signatures of representatives of both the Power Authority and the facility. Furthermore, we noted that facility signatures were missing for the two schools where the City may have paid for work not performed.

The HELP contract with the City requires both the Office and Power Authority to review the elements of the actual installation work and compare them to the original scope of work as described in the Customer Installation Commitment. We question whether the Office and Power Authority supervised these construction projects effectively, ensuring that the work had been done properly and met user needs. In some instances, the lack of quality control led to poor workmanship, which caused the sites to incur additional and needless expense. For example, at Boys and Girls High School, the exit signs had to be replaced at the Board's expense. A Power Authority official stated that fixtures are reviewed only for light output but that installations requiring retrofitting are not reviewed to determine whether the parts fit together properly. We learned that because the reflectors installed at one of the schools we visited were the wrong size, they fitted loosely within the light fixture. As a result, whenever the lens covers were moved to open the light fixture, the reflectors shifted in the tracks of the covers, making the covers susceptible to breaking and cracking. The school's custodian requested that either the Board or the Office remedy the problem by having the reflectors cut to the proper size. However, Board officials responded that the work would be too costly, since it would involve resizing almost every reflector in every fixture in the school. Office officials responded that an electrical contractor had been assigned "to correct all defective workmanship or materials identified by the school." However, no mention was made of resizing the reflectors, despite the Office's recognition that the contractor himself had broken some of the lens covers while trying to correct other defects. Our review found that, as of July 5, 1996, the contractor had not fixed the light reflectors.

Installation flaws that could have been uncovered by proper monitoring might have contributed to the occurrence of electrical shorts at some of the sites. At one school we visited, four of the cafeteria lights had frequent burn-outs, resulting in constant bulb replacements at the expense of the facility. The custodian told us there was an electrical short in the system that must be repaired. However, school officials said they had taken no corrective action because they planned to install additional lamps and correct the problem at that time. At another school, we observed that two of the light fixtures in the

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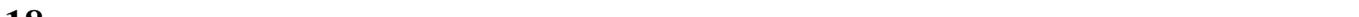
hallway had shorted out, and had damaged both the light fixtures and the surrounding tiles. The damage was repaired at the school's expense.

Poor workmanship was also evidenced by incorrectly-installed exit lights, raising issues of safety and compliance with applicable codes and regulations. At one of the sites we visited, the contractor had used two-sided tape to secure the lights inside the exit fixtures. Over time, the weight and heat of the lights had caused them to fall to the bottom of the fixture, thereby reducing the amount of light available. The site superintendent expressed concern about the safety of the students and staff in the event of a fire, smoke, or a blackout situation. Our follow-up with an Assistant Director of the Office confirmed that this temporary fix is probably a Fire Department violation, and that the lights should have been secured "mechanically." He indicated that an inspector would be sent to the school to investigate the problem and take corrective action where necessary.

### **Recommendations**

8. Identify all exit sign work performed under the HELP projects and inspect it for possible defects.
9. Ensure that the Office conducts a final inspections after the completion of HELP projects and before the final payment.
10. Ensure that the Office takes steps to prevent poor workmanship in the remaining HELP projects.

(The Department agreed with recommendation 8 but regarding recommendations 9 and 10, they maintain that it is not completely responsible for inspection. We believe that the Office has complete responsibility as indicated by the HELP guidelines which require the Office to "review the elements of the actual installation work.")



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## Long-range Citywide Energy Conservation Plans

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Mayoral Directive No. 89-1, issued August 2, 1989, requires the Office “. . . to coordinate citywide energy conservation policies and to develop long-range strategies for the management of energy consumption by all agencies of city government.” However, we found that the Office has not developed a comprehensive long-range plan with goals for energy conservation. In place of a long-range plan to address the issues related to energy conservation, Department officials provided a list of a series of programs that have been implemented (e.g., HELP and CLP) or are planned (e.g., Energy Cost Reduction, Transportation Gas Purchase, and Operations and Maintenance Grant Programs). As a result, Department officials disagree with our conclusion that it does not have a long-range plan.

While we recognize that the Office has taken steps to address selected areas of energy usage, it has not done so as part of a “long-range strategy for the management of energy consumption.” As previously noted in this report, its High-Efficiency and Cafeteria Lighting programs experienced problems that reduced the savings that could have been realized from the projects. Moreover, the Office has not instituted any energy saving programs to address other fuels such as gas, steam, oil, and coal.

For example, New York State has established a Statewide goal. Former Governor Mario Cuomo issued Executive Order No. 132 in January 2, 1990, in an effort to achieve an overall 20-percent reduction of the State’s energy consumption in its buildings and facilities. The order identifies the areas of responsibility, reporting and monitoring. Establishing a similar goal for the City would allow the Office to develop or seek out programs capable of meeting those objectives, and would provide a basis for measurement. It would establish priorities among energy-efficiency improvements and prioritize available funds for energy projects that can achieve the greatest energy and cost savings. Furthermore, energy-usage goals would establish clearly who is responsible for undertaking energy conservation activities.

Agencies need to be made more aware of energy conservation. For example, of the six agencies in our review, only one listed energy-saving projects in its response to Office’s fiscal year 1997 energy budget request letter. The agency included projects such as the installation of high efficiency chillers, occupancy sensors, and equipment timers; and a reconfiguration of the steam distribution system.

We also found that many of the Energy Officers we met with were not aware that energy conservation projects or activities could result in savings for the agency. For example, the City has a Program to Eliminate the Gap (PEG) in

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which agencies can reduce the impact of budget cuts by instituting various savings measures, including energy conservation. First, the agency must identify the energy-saving projects it will undertake, along with the savings it expects to achieve. Such projects must be submitted to the Office for approval. If approved, the savings can then be applied against the budget cuts imposed on the agency by the Office of Management and Budget. However, few agencies have ever used energy conservation to take advantage of PEG.

The Department's reply also indicated utility costs will continue to increase due to usage as a result of high priority programs which are considered essential for the future of the City that involve more automation and the expansion of school, court, police, library and water treatment programs. It also states that "although a net goal of energy reduction is not plausible...OEC [Office] and the Office of Management and Budget together produce a four-year planning document which projects energy usage into the future. This is the 'basis for measurement' which the report states is necessary and alludes is missing from the current process."

We believe that the Department still has to develop a comprehensive written long-term plan that encompasses all energy resources used by City agencies. While we accept that projecting energy use is an important part of the planning process, the Department needs to plan that includes items such as quantified indicators of the actual impact on a condition, activities to achieve goals and objectives, and a method to properly monitor usage for reasonableness even where the City has a need to expand its programs.

### **Recommendations**

11. Apprise agency officials of the need to develop their own energy-conservation plans along with procedures and methods for monitoring compliance.
12. Ensure that the Office complies with Mayoral Directive 89-1 and develops long-range energy-conservation plans for the City, including energy consumption-reduction goals and the plans necessary to meet those goals.

(The Department agreed with recommendation 11. Regarding recommendation 12, the Department indicated that it believes that a goal of a reduction in energy consumption is unrealistic. Our recommendation focuses on energy conservation which takes into account growth but requires specific overall goals to conserve energy usage.)

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**LISTING OF SITES VISITED**

SITE	PROGRAM
Public School 92 (Manhattan)	CLP
Boys and Girls High School (Brooklyn)	HELP
Harry S. Truman High School (Bronx)	HELP
Herbert Lehman High School (Bronx)	HELP
Norman Thomas High School (Manhattan)	HELP
J. F. Kennedy High School (Bronx)	HELP
Public School 42 (Staten Island)	CLP
Junior High School 54 (Manhattan)	CLP
Joan of Arc Junior High School 118 (Manhattan)	HELP
Bronx Family and Criminal Court (Bronx)	HELP
Park West High School (Manhattan)	HELP
Clock Tower at 346 Broadway (Manhattan)	HELP
<i>CLP - Cafeteria Lighting Program</i>	
<i>HELP - High-Efficiency Lighting Program</i>	

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## Major Contributors to This Report

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WILLIAM J. DIAMOND  
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ARTURO SANTIAGO  
*Deputy Commissioner*

April 30, 1997

Mr. David R. Hancox  
Director of State and NYC Audits  
A. F. Smith Office Building  
Albany, New York 12236

Re: Energy Conservation Programs and  
Control of Energy Usage and Costs  
(96-N-12)

Dear Mr. Hancox:

Since the preliminary drafts of this report were released, the OIEC staff met with the auditors on three occasions in an effort to correct both factual errors in the report as well as to provide information that would present a more balanced and correct view of the operations of this Office. Though some of our suggestions and corrections were included in the final draft, many others were not. It is our opinion that this report, as currently written, does not present a fair and objective picture of this operation. Therefore, prior to discussing the recommendations of this audit, we will first revisit some of our major items which were not included. It is my understanding that these comments will be appended to the report and published in their entirety.

**Audit Observations and Conclusions**

The report is misleading in its statement of "Although the Office is required to monitor usage, . . . it has not had effective control of energy usage." The Office's monitoring mandate is largely fulfilled by collecting, maintaining and disseminating information on energy usage, Citywide, and helping to prepare energy budgets. The Office alerts City agencies and the Office of Management and Budget (OMB) if usage significantly exceeds the budgeted amount.

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The observation that the "Office's energy-saving projects . . . energy-efficient features [were] poorly implemented" is not supported. The "evidence" is largely testimonial from a very small number of individuals. In fact, the report states that a technical or engineering evaluation of the design or construction of these projects was not included in this Audit, and also "we did not assess the quality or type of equipment used." (P.3)

Lastly, the report concludes that the "Office has not developed long-range plans or goals for energy conservation . . .". The statement is false. We repeatedly pointed out to the auditors a variety of long-term City programs to control energy costs, including the High Efficiency Lighting Program, the Transportation Gas Program, the "Green Buildings" Program, the ENCORE (Energy Cost Reduction) Program, and the Space Reduction and Consolidation Program (SCRAP). We have again provided details of these programs in our response.

The report depreciates or ignores these programs, and instead compares City actions unfavorably with an announced State goal of 20% reduction of energy usage. Later in our response we will discuss why an arbitrary energy usage reduction is not feasible given program priorities of automation, and the expansion of school, court, police, library and water treatment facilities and programs.

#### **Monitoring of Energy Usage and Costs.**

Each month OEC processes information received from the New York Power Authority, Consolidated Edison, Brooklyn Union, the Long Island Lighting Company and several other providers to generate reports that indicate the amount and dollar value of energy used by each account and by each agency. These reports give OEC and OMB complete management information regarding the amount of energy and cost used by each City agency, and the amount by which it is over or under budget. OEC also maintains a database on 10,000 energy meters in more than 4,000 City buildings. These items are constantly changing, and OEC's data processing programmer strives to maintain the accuracy of this data.

These are very important facets of monitoring and controlling the City's energy budget, and allow this Office to proactively investigate individual variances which are considered especially significant. This data is vital for monitoring, budgeting, and projecting the energy requirements of the City.

We therefore disagree with the blanket statement in the report that "Although the Office is required to monitor and prepare agency usage and cost reports, it has not had effective control of the energy usage and cost budgets of City agencies. . ."

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A facet of monitoring, and the focus of the audit, is to send special quarterly letters to each agency, asking each Agency Head to justify increased use of energy above budget, or to explain why utility meters were not read but were "estimated". During FY95, billing problems associated with the introduction of the transportation gas and temperature controlled gas initiatives resulted in substantial delays in producing quarterly reports and letters. While we do not deny the problem, this is only a single facet of the Energy Cost Control System. Steps have been taken to ensure that quarterly letters are issued to Agency Heads.

The Mayoral order which established OEC is not binding on non-mayoral entities, including the Board of Education. Though current cooperation between the City and the Board of Education is quite good, this was not always the case. Therefore, the statement in the audit that "While the directive is broad enough to include non-mayoral agencies, it does not give either the Office or the City the authority to enforce compliance at non-mayoral agencies." (p.8), is incorrect in that it implies that the order could have established such authority. This can only be done by State law. There is no statutory mayoral authority over non-mayoral agencies to ensure compliance with mayoral directives.

#### Energy Conservation Programs

This section of the report focuses on and criticizes two of OEC's programs: the New York Power Authority (NYPA) High Efficiency Lighting Program (HELIP) and the Cafeteria Lighting Program (CLP). We find this section of the report to be especially egregious in that it is particularly misleading and simply incorrect.

1. Many of the "findings" of this section are based on the testimony of personnel found on-site during the auditors' visits, in most cases the custodial personnel. The Audit Scope, and Methodology clearly states "... we did not assess the quality or type of equipment used, nor did we measure the intensity of the new lighting fixtures ..." (p.3). The body of the report should also make it explicitly clear that there is no other data that validates these "findings" of "poor quality workmanship" and "defective parts" (p.10); "poor lighting conditions" and "not improved the lighting environment" (p.12).

What was done here was neither a detailed review of the work performed under these programs nor a "Customer Satisfaction Survey". Such a survey would have reached out to most of the users of these buildings and reported the results in their entirety. The comments in this section were selectively drawn from a total of 15 individuals in 12 buildings. Note that not all 15 personnel had the same comments, and not all buildings reported the same experience.

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The "evidence" included in the report does not support the "finding" which was reported. According to Generally Accepted Government Auditing Standards (GAGAS, also known as the "yellow book"), §6.53 states that "Evidence must be sufficient, competent, and relevant. Evidence is sufficient if there is enough of it to support the auditor's findings..." Section 6.53 (f) states "Testimonial evidence obtained from an individual who is not biased or who has complete knowledge about an area is more competent than testimonial evidence obtained from an individual who is biased or has only partial knowledge about an area." It is clear that the evidence cited is not sufficient by GAGAS standards.

Neither does the limited data presented support the finding. For example, the report charges that "sites . . . had excessive ballast failures, an indication of poor-quality workmanship, or the use of defective parts."(p.10) The "evidence" is the experience of Boys and Girls High School, where it was reported that 90 ballasts failed. This project was completed in March of 1993 (more than four years ago), with the installation of 3,600 ballasts. This does not support a finding of a "high rate" of failure. It is well documented that electronic equipment routinely has a higher rate of failure during its initial "burn in" period. Even if the appropriate rate of failure were considered in the average, the failure of up to 120 ballasts annually would be within the fifteen-year average life expectancy.

2. OEC coordinates its school facility work through the Bureau of School Facilities per mutual arrangement with the Board of Education. The Bureau of School Facilities, in turn, ensures that coordination of work with the individual schools and the School Construction Authority projects is maintained.

The audit cites coordination problems in which custodians were unaware of the availability of parts and the use of incorrect replacement lamps by custodial personnel in new fixtures. Not only do we believe that such problems should not reflect on OEC, but we also question the full validity of these allegations.

It is curious that some facilities had difficulty obtaining parts, while others did not. Yet they all order from the same stockrooms and utilize the same contracts, to obtain identical parts.

It was our understanding that in prior meetings we had agreed to delete this allegation from the report as it is clearly not OEC's responsibility to ensure that facilities stock the proper inventory. OEC has informed the purchasing departments of DCAS as well as the Board of Education of the quantities of lamps and ballasts that have been installed. Additionally, NYPA has a requirement contract available for T-8 lamps and electronic ballasts, which can be used by all IHELP facilities. We see no reason why proper parts should not be on hand.

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3. The report indiscriminately mixes HELP (High Energy Lighting Program) projects with CLP (Cafeteria Lighting Program) projects. Although the goals of the programs are similar, reduced energy costs and improved lighting, they differ significantly in organization.

HELP is a turnkey program offered by NYPA to all its Southeast New York customers. NYPA provides the following services: survey, design, construction management, inspection, waste disposal, and warranty services. In addition, in HELP projects, NYPA pays the vendors. Though most HELP projects have a simple payback of about five years, the City's payment to NYPA is limited to two years of savings from the program, and NYPA pays the remainder.

The Cafeteria Lighting Project (CLP) is an in-house project of OEC for which OEC has full management responsibilities. It is our understanding from information that we received from the auditors that of the three CLP projects included in this audit, only a single individual expressed any dissatisfaction.

- We do not believe that the auditors recognized the distinctions between organization of the projects, or the responsibilities of the individual parties. With regard to HELP, the audit states that OEC "... did not have a final list for each project of work performed, and did not have a final list for each project that indicated the exact location and type of work performed." OEC personnel had explained to the auditors that the original Customer Installment Commitment (CIC), which is executed prior to the commencement of work, details the work on a room by room basis. During construction, it is not uncommon for individual change orders to add or delete work on a room by room basis. The final CIC, executed after the work is completed, summarizes the work which was completed. Though it is not as specific as the original, the changes to the room by room detail can be determined by examining the change orders.
- Note that when OEC "spot checks" the final CIC, NYPA has already certified that work was done and paid the contractor. If, as the auditors suggest, the contractor has been paid for work not performed, that allegation should be properly addressed to NYPA, who supervised and inspected the work, and paid the contractor. The City's payment to NYPA is for two year's savings on the equipment installed.
- Much of what is written is extremely vague, and cannot be validated. For example:
  - page.11: "...At one school . . . the problem became more apparent . . ."
  - page.13: "...Our field visits to two schools found several locations listed in the original plans . . . not addressed by the contractor."

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There are numerous other similar examples. We have asked the auditors for the detailed location of the problems (meaning room by room within a specific facility, as we were criticized for not providing) and have not received such a listing.

These are not our sole problems with this section of the report, only the major ones. In summary, this section of the report is seriously flawed because it makes allegations based on little supporting facts, and it ignores the respective responsibilities of the parties involved in the process.

### **Long Range Citywide Energy Conservation Plans**

This section of the report states "Although energy usage has continued to increase citywide, the Office has developed no long-range plans or goals for energy conservation." In addition, it states "... they have not established an overall citywide goal to achieve energy reductions and efficiency improvements in City owned buildings." The impression created by this section is that energy usage is increasing uncontrollably and that the energy cost reduction programs coordinated by OEC are ineffectual. OEC is criticized for not promoting a goal of a *reduction* in energy usage citywide.

Although the report states the *utility costs* (excluding coal, fuel oil, and gasoline) have increased by 28 percent from FY91 to FY94, *energy usage* has increased by only 17 percent, the balance of the increase being due to increases in the market price of energy. Usage will continue to increase due to implementation of high priority programs, which have been generally recognized as essential for the future of the City. These programs include:

- an increase in the number of school facilities to accommodate a growing enrollment of students as well as the hours that schools operate for various programs,
- the upgrade of existing school facilities, including the conversion of boilers from coal and oil, fuels not included in this report, to gas, a cleaner burning and domestically produced fuel. Note that this does not actually constitute an increase in energy usage, though the report treats it as such.
- the Court facility expansion program, which is increasing the capacity of Court facilities and support functions to meet the needs of the system,
- the expansion of water treatment facilities to meet water quality mandates, including secondary treatment and sludge dewatering facilities,
- an increase in the number of Police Officers necessitating additional facility and energy costs, and,
- the introduction and upgrade of automation, Citywide, to improve worker productivity, thereby improving service and reducing costs.

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This information was shared with the auditors. We believe that to criticize the City for not promulgating a goal of a *reduction* in energy usage, while refusing to consider the major reasons why energy usage is increasing, as well as the impact of not proceeding with these programs, is simplistic and not credible.

The City's efforts in limiting energy costs have been through a series of programs to mitigate the rate of increase by reducing either usage or cost. A memo with a detailed listing of "Programs Involving OEC to achieve Energy Cost Reduction and Efficiency Improvements in City Buildings/ Establishment of Citywide Savings Goal" was given to the auditors on February 19, 1997. A brief listing of some of the programs is presented below:

- High Efficiency Lighting Program (HEL.P)- a five-year goal to save 10 megawatts and 30,000 megawatt hours of electricity. Energy cost savings over a ten-year period were estimated to be \$25 million. This was a very well publicized goal.
- Transportation Gas Purchase Program - started in FY94 to purchase gas competitively for the City's large facilities, this program saved \$1.2 million in FY94, an additional \$0.3 million in FY95 and an additional \$0.4 million in FY96.
- Operations and Maintenance Grant Program - funds are made available to agencies to effectuate energy efficiency improvements.
- Cafeteria Lighting Program (CLP) - the upgrade of incandescent lighting in schools to fluorescent lighting to reduce energy costs.
- Energy Efficient Environmentally Friendly "Green" Buildings Program - In 1995, OEC, the Department of Design and Construction, the Mayor's Office of Construction and the Office of Management and Budget formed a New York City Environmentally Responsible Buildings Guidelines Task Force. The goal of the Task Force is to develop guidelines to reduce life-cycle costs (including energy, operations and maintenance costs) and build "green" buildings. A consultant has been retained to help in this effort.
- ENCORE (Energy Cost Reduction) Program - This is planned to be a \$150 million Energy Cost Reduction Program. It is anticipated to reduce the City's annual energy costs by \$25 million. Its main objective is to install high efficiency equipment such as lighting, chillers and boilers in City buildings.
- Space Consolidation and Reduction Program (SCRAP) - a program to consolidate facilities thereby saving occupancy costs and reducing energy consumption.

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Finally, although a goal of a net energy reduction is not plausible, we should note that OEC and the Office of Management and Budget together produce a four-year planning document which projects energy usage into the future. This is the "basis for measurement" which the report states is necessary and alludes is missing from the current process. This document was shared with the auditors.

## Recommendations

### Monitoring of Energy Usage and Cost

1. **Recommendation:** Issue all quarterly deficiency reports to the agencies on a timely basis. Encourage the agencies to address and resolve the issues cited, or provide reasonable explanations of why the problems occurred and how they can be avoided in the future.

**Response:** OEC will issue all quarterly deficiency reports to the agencies on a timely basis and will continue to encourage agencies to address and resolve issues cited in our reports.

2. **Recommendation:** Ensure that all agency Energy Officers are provided procedures on how to interpret the energy reports. Reinforcement training should also be provided to make all Energy Officers aware of their responsibilities to review and follow-up on all reported discrepancies.

**Response:** OEC is updating the Energy Cost Control System guidelines and will re-issue them to all Energy Liaison Officers and Agency Fiscal Officers. A reinforcement training session will be offered to all agency personnel in the near future.

3. **Recommendation:** Remind agencies that they need to reaffirm their commitment to energy conservation and appoint an Energy Officer to review energy bills and report pertinent data to management, along with recommendations for corrective actions.

**Response:** We will remind agencies to do this.

4. **Recommendation:** Require all agency Energy Officers to sign a monthly declaration that they have reviewed the energy bills, and have found them to be correct and acceptable by their agency.

**Response:** We agree with the concept. However, we believe that monthly submissions is excessive and suggest that it be done less often, perhaps annually.

5. **Recommendation:** Instruct Energy Officers to distribute copies of the energy reports to each of their site custodians or managers so they can review them for accuracy and report the site's energy usage to site personnel. Copies of the reports, or at least summaries of

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them, should also be sent to the agencies' financial officers so they can be aware of the agencies' performance.

**Response:** We will recommend that Energy Officers distribute copies of the reports to appropriate personnel. We will also continue to send summarized quarterly reports to Agency Heads, Fiscal Officers and Energy Liaison Officers.

#### **Energy Conservation Programs**

6. **Recommendation:** Inspect each project site to identify and correct reported lighting or product deficiencies, and ensure that all work performed is fully reviewed and approved by the user before final payment is made.

**Response:** The Cafeteria Lighting Program is supervised and inspected by OEC staff before approval for final payment. In addition, this work is further spot checked by the Engineering Audit section prior to payment.

The High Efficiency Lighting Program (HELP) is a joint New York Power Authority (NYPA)/City Program. The goal of the program is to install energy efficient lighting systems and thereby reduce energy cost, consumption and demand. It is a turnkey program offered by NYPA to all its Southeast New York customers. NYPA provides the following services: survey, design, construction management, waste disposal, and warranty services.

NYPA administers each project, and serves as the City's agent for construction supervision and inspection. OEC relies on NYPA project managers for the day-to-day supervision and management of construction, interaction with contractors, and verification of the amount of actual work done and invoiced by the contractor. The City relies on their assurance and certification that all work specified has been reviewed and approved by NYPA staff prior to payment being made by DCAS. OEC "spot checks" the final CIC, executed upon the completion of work, prior to full payment for the work.

Therefore, it is inappropriate to address this recommendation regarding HELP to DCAS/OEC. However, we will make this report available to NYPA personnel.

7. **Recommendation:** Ensure that an adequate supply of replacement parts for the products is available for the Office's energy conservation program.

**Response:** It is not OEC's responsibility to ensure that replacement parts are stocked in each school and building storeroom in the City. We have informed the purchasing departments of DCAS and the Board of Education of the quantities of lamps and ballast that have been installed and of NYPA's requirements contract for T-8 lamps and electronic ballasts, which can be used by all HELP facilities.

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8. **Recommendation:** Identify all Exit Sign work performed under the Help projects and inspect it for possible defects.

**Response:** All exit signs have been inspected and defective signs have been replaced.

*To the Department of Citywide Administrative Services*

9. **Recommendation:** Ensure that the Office conducts a final inspection after the completion of HELP projects and before the final payment.

**Response:** See response to recommendation #6 above.

10. **Recommendation:** Ensure that the Office takes steps to prevent poor workmanship in remaining HELP projects.

**Response:** See response to recommendation #6 above.

**Long-range Citywide Energy Conservation Plans**

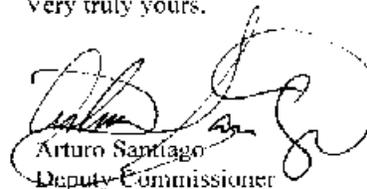
11. **Recommendation:** Apprise agency officials of the need to develop their own energy-conservation plans along with procedures and methods for monitoring compliance.

**Response:** We will continue to encourage agencies to develop energy-conservation plans and advise them that we are willing to work with them to develop procedures and methods for monitoring compliance.

12. **Recommendation:** Ensure that the Office complies with its Mayoral directive and develops long-range energy conservation plans for the City, including energy consumption-reduction goals and the plans necessary to meet those goals.

**Response:** As we stated earlier, we believe that a goal of a reduction in energy consumption is unrealistic given the City's programmatic priorities. We have and will continue to develop energy conservation and cost reduction strategies and programs in compliance with the Mayoral Directive.

Very truly yours,



Arturo Santiago  
Deputy Commissioner