

AUDIT REPORT



CITY OF NEW YORK
OFFICE OF THE COMPTROLLER
BUREAU OF FINANCIAL AUDIT
WILLIAM C. THOMPSON, JR., COMPTROLLER

Audit Report on Citywide Energy Conservation Efforts by the Department of Citywide Administrative Services

FR04-089A

June 30, 2005



THE CITY OF NEW YORK
OFFICE OF THE COMPTROLLER
1 CENTRE STREET
NEW YORK, N.Y. 10007-2341

WILLIAM C. THOMPSON, JR.
COMPTROLLER

To the Citizens of the City of New York

Ladies and Gentlemen:

Pursuant to Chapter 5, Section 93 of the New York City Charter, we have examined whether the Department of Citywide Administrative Services' Office of Energy Conservation has standards and procedures for implementing energy conserving programs, whether those standards are adequate, and whether the agency is adhering to those standards. The results of our audit, which are presented in this report, have been discussed with agency officials, and their comments have been considered in preparing this report.

Audits such as this provide a means of ensuring that the City is taking appropriate measures to conserve energy, and ensure the cost effective, efficient use of available resources.

I trust that this report contains information that is of interest to you. If you have any questions concerning this report, please contact my audit bureau at 212-669-3747 or e-mail us at audit@Comptroller.nyc.gov.

Very truly yours,

A handwritten signature in cursive script that reads "William C. Thompson, Jr.".

William C. Thompson, Jr.

WCT/gr

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The City of New York
Office of the Comptroller
Bureau of Financial Audit

Audit Report on
Citywide Energy Conservation Efforts by the
Department of Citywide Administrative Services

FR04-089A

AUDIT REPORT IN BRIEF

We performed an audit on Citywide energy conservation efforts by the Department of Citywide Administrative Services (Department). The Department's Office of Energy Conservation (Office) is responsible for coordinating Citywide energy conservation policies and for assisting City agencies in energy cost-control strategies. The Office was created in 1976 by Executive Order No. 60, which was superseded by Mayoral Directive 89-1 in 1989. The Directive required that the Office "develop and implement energy cost reduction programs, establish energy conservation guidelines and encourage energy conservation."

The Office participates in the New York State Power Authority's Energy Cost Reduction (ENCORE) program, under which \$162.6 million of energy conservation projects (e.g., lighting and boiler upgrades) were completed from Fiscal Years 1998 through 2004. For each City agency, the Office produces billing reports of energy use for review by each agency's energy liaison officer (ELO). Liaison officers are responsible for reviewing bills, requesting or terminating service, promulgating Office directives, and implementing programs.

Audit Findings and Conclusions

The Office does not have adequate standards and procedures to ensure that the City implements effective energy conservation programs in accordance with Mayoral Directive No. 89-1. While we found that the Office has some standards and procedures, such as its guidelines for summer and winter energy conservation and its participation in the Authority's ENCORE program, these do not go far enough in addressing the Office's responsibilities in overseeing the City's energy conservation needs. The Office has not developed effective overall strategies for managing energy conservation, and has not established energy reduction goals for City agencies.

Moreover, the Office is not effectively adhering to its own standards and procedures as demonstrated by its failure to enforce conservation guidelines and its inadequate attention to the ENCORE program. Independent energy audits found that had four City facilities undertaken

ENCORE programs, the City could have realized nearly \$800,000 in electric energy savings over a ten-year period.

Finally, the Office has not effectively communicated to agency ELOs their responsibilities, including the proper review of utility bills, promulgation of Office directives, and implementation of energy conserving programs using available low-cost financing.

Audit Recommendations

This report makes a total of 14 recommendations. The major recommendations are as follows:

The Department's Office of Energy Conservation should:

- Develop long-range strategies for managing energy conservation.
- Reevaluate its priorities and reallocate staff resources to adequately fulfill the requirements of Mayoral Directive 89-1.
- Actively promote and encourage City agencies to undertake energy saving improvements under the ENCORE program. In that regard, the Department should ensure that all available ENCORE financing is used by City agencies.
- Arrange with the respective agencies to undertake the energy saving improvements identified in this report.
- Establish and promulgate energy reduction goals for City agencies.
- Establish methods by which to measure whether its energy conservation guidelines are effective in reducing energy consumption.
- Ensure that its written procedures for ELOs properly emphasize their role and responsibilities in promoting energy conservation. In addition, formal training programs for ELOs should be organized.

INTRODUCTION

Background

The Department of Citywide Administrative Services (Department) purchases, inspects, and distributes supplies and equipment to all City agencies; provides facility management, including security, maintenance, and construction services, for City-owned buildings; finds space for City agencies; and purchases, sells, and leases non-residential real property for City use. It also recruits and hires City employees; administers civil service and licensing exams; conducts employee training programs; and helps to promote economic development throughout the City.

The Department's Office of Energy Conservation (Office) is responsible for coordinating Citywide energy conservation policies and for assisting City agencies in energy cost-control strategies. In addition, the Office purchases electricity and other energy sources for New York City, prepares an annual energy budget for City agencies, and establishes, audits, and pays utility accounts for agencies. The City's energy budget for electricity, gas, and steam purchases for Fiscal Year 2005 is \$521.8 million.

The Office was created in 1976 by Executive Order No. 60. It was originally part of the Bureau of Gas and Electricity, in what was then the Municipal Services Administration. A 1989 executive order (Mayoral Directive 89-1, which superseded Executive Order No. 60) stated that "OEC [Office] shall have overall responsibility for the development and coordination of energy conservation policy for all agencies." The directive required that the Office "develop and implement energy cost reduction programs, establish energy conservation guidelines and encourage energy conservation."

The Office participates in two New York State Power Authority (Authority) programs. Under the first, the Energy Cost Reduction (ENCORE) program, \$162.6 million of energy conservation projects (e.g., lighting and boiler upgrades) were completed from Fiscal Years 1998 through 2004. ENCORE projects are designed and carried out by the Authority; the Office acts to oversee projects and to provide technical support when necessary. The Peak Load Management is the second program, whose goal is to prevent failure of the regional electrical grid. Under Peak Load Management, the Authority requires that participating agency facilities be able to reduce electricity use by 100 kilowatts on days it declares as peak load days.

Each February, the Office develops the City's annual energy budget for the upcoming fiscal year, based on the previous calendar year's use. The Office's "energy cost control system" is used to monitor each agency's actual energy use and costs. The Office manages accounts and purchases electricity and gas for City agencies from regulated utilities (i.e., Con Edison, Key Span) and state agencies (i.e., Long Island Power Authority and the Authority). For each City agency, the Office produces billing reports of energy use for review by each agency's energy liaison officer (ELO). Liaison officers are responsible for reviewing bills, requesting or terminating service, promulgating Office directives, and implementing programs. Department procedures require that agencies justify any quarterly energy budget overruns that exceed five percent.

The Office is part of the Department's Division of Fiscal Management and Operations. Office staff consists of 11 members who have technical and administrative backgrounds. An additional technical position is vacant. Developing, tracking, and managing conservation projects and disseminating conservation information to agencies is carried out by the Office's Executive Director, a director, an electrical engineer, and two analysts. Energy budget development and monitoring, and bill paying are performed by the Executive Director, a second director, two analysts, and three support staff.

Objectives

The objectives of this audit were to determine whether DCAS's Office of Energy Conservation has standards and procedures for implementing energy conserving programs, whether those standards are adequate, and whether it is adhering to those standards.

Scope and Methodology

The audit was temporarily suspended at the request of Department officials in September 2003 because of the Department's involvement in negotiations with the Authority. Audit field work recommenced in September 2004.

The scope period of this audit report covered Fiscal Years 2003 and 2004. We reviewed Department policies and procedures and interviewed Department officials to obtain an understanding of the processes for developing and implementing energy conservation projects, formulating energy budgets, and paying utility bills. We documented our understanding of these processes in written narratives.

To determine whether the Office has standards and procedures for implementing energy conserving programs and whether the Office adheres to these standards, we interviewed the Office's Executive Director and directors. In addition, we reviewed Office policies, procedures, and the following documents:

- Mayor's Office Executive Order No. 60 dated May 28, 1976, entitled "Conservation of Energy Resources."
- Mayor's Office Directive No. 89-01 dated August 2, 1989, entitled "Office of Energy Conservation Policy Statement."

To determine whether the Office's standards are adequate, we contacted 10 other large municipalities that have proposed or implemented energy conservation programs. In addition, we conducted an Internet search to obtain information about energy conservation strategies. We also contacted the New York State Energy Research and Development Authority, a public benefit corporation that funds research into energy supply and efficiency.

To determine whether energy conservation improvements could be implemented at City facilities, we obtained a list from the Office of the City's 198 largest electrical utility accounts

from which we could select sites to conduct energy audits. Of the 198 accounts, we identified 40 accounts associated with City facilities at which ENCORE improvements had been undertaken. We then identified 16 additional accounts associated with facilities that had restricted access (e.g., correctional facilities). These 56 accounts were excluded from the population for the above noted reasons. Of the remaining population of 142 accounts, we randomly selected five accounts and conducted an energy audit at the facility associated with each account. At our request, the audits were conducted by representatives of the Authority, whom we accompanied on inspections of the facilities. Authority engineers conducted walk-throughs of each facility's mechanical and electrical spaces and observed the building's overall lighting. The engineers performed calculations of energy use, cost, potential energy savings, and the costs of improvements; they then prepared written analyses of their findings. We reviewed these reports and identified feasible energy conservation options and projects based on the estimated cost of the improvements, the estimated annual savings, and the "payback" periods.

We also obtained and analyzed ENCORE program statistics to determine whether available low-cost funding was being sufficiently utilized and whether City agencies were undertaking ENCORE program improvements.

To determine whether the Office was effectively communicating with the ELOs, we randomly selected 10 liaison officers from an overall population of 86 and interviewed them to ascertain how they perceived their roles and responsibilities and how they interacted with internal Office staff.

This audit was conducted in accordance with generally accepted government auditing standards (GAGAS) and included tests of the records and other auditing procedures considered necessary. This audit was performed in accordance with the audit responsibilities of the City Comptroller as set forth in Chapter 5, §93, of the New York City Charter.

Discussion of Audit Results

The matters covered in this report were discussed with Department officials during and at the conclusion of this audit. A preliminary draft report was sent to Department officials and discussed at an exit conference held on May 19, 2005. On May 23, 2005, we submitted a draft report to Department officials with a request for comments. We received written comments from the Department on June 8, 2005.

In their response, Department officials stated, "The theme of this Audit is that OEC should do more in various ways. . . . In general, we do not disagree with this theme, and have recently secured modest additional resources for OEC. We will therefore continue to strengthen OEC operations to ensure that program goals are clearly understood and achieved. However, no matter how much work OEC does, the argument can always be made that it should do more. In making such an argument, the Audit unfairly minimizes the efforts and accomplishments of OEC, and overstates the extent to which other municipalities might serve as a standard for comparison. **In addition, and more importantly, the report does not reflect sufficiently that OEC fully achieved its program goals of \$150 million in energy conservation projects in the 1997 to 2005 period. . . .**"

The Department disagreed with the report's recommendations to: establish goals for reducing annual energy consumption; reevaluate its priorities and reallocate staff resources; establish methods by which to measure whether its energy conservation guidelines are effective in reducing energy consumption; and develop a tracking system to document energy savings from improvement projects. It agreed or partially agreed with ten other recommendations. In addition, the Department stated that it has already implemented one part of our recommendation to develop long-range energy conservation strategies.

We commend the Department for its general agreement with the thrust of our audit and its commitment to "continue to strengthen OEC operations to ensure that program goals are clearly understood and achieved." Nevertheless, we are disappointed that the Department's overall response reveals a lack of understanding of the important role it must play as the City's agent for promulgating and carrying out energy conservation strategies. Contrary to the Department's contention, our audit clearly calls attention to the Office's accomplishments. However, as noted in the audit, these accomplishments do not go far enough in addressing the Office's responsibilities in relation to the City's energy conservation needs.

The full text of the Department's response is included as an addendum to this report.

FINDINGS AND RECOMMENDATIONS

The Office does not have adequate standards and procedures to ensure that the City implements effective energy conservation programs in accordance with Mayoral Directive No. 89-1. While we found that the Office has some standards and procedures, such as its guidelines for summer and winter energy conservation and its participation in the Authority's ENCORE program, these do not go far enough in addressing the Office's responsibilities in overseeing the City's energy conservation needs. Moreover, the Office is not effectively adhering to its own standards and procedures as demonstrated by its failure to enforce conservation guidelines and its inadequate attention to the ENCORE program. Independent energy audits found that had four City facilities undertaken ENCORE programs, the City could have realized nearly \$800,000 in electric energy savings over a ten-year period.

Specifically, the Office has not:

- developed effective overall strategies for managing energy conservation.
- effectively used and promoted the Authority's ENCORE program for undertaking building improvements that could help to lower the City's energy costs.
- established or attempted to promulgate energy reduction goals for City agencies.
- effectively communicated to agency energy liaison officers their responsibilities, including the proper review of utility bills, promulgation of Office directives, and implementation of energy conserving programs using available low-cost financing.

- conducted inspections to monitor compliance with its energy conservation guidelines.

In contrast, our survey of other municipalities revealed that many have developed overall energy conservation strategies, including conducting surveys and energy audits of government buildings, undertaking energy-conserving building improvements, and establishing energy reduction goals.

These matters are discussed in greater detail below.

Energy Management Strategies Not Developed

The Office does not have adequate standards and procedures for implementing energy conserving programs. Mayoral Directive 89-1 requires the Office “to coordinate city-wide energy conservation policies and to develop long-range strategies for the management of energy consumption by all agencies of city government.” While the Office has taken certain steps to fulfill these requirements by its distribution of summer and winter energy conservation guidelines and its participation in the Authority’s ENCORE program, the Office has not developed long-range strategies for managing energy conservation. Our review of current industry-wide energy conservation practices and interviews with officials from other municipalities indicated that these strategies should include:

- creating a database of building systems and equipment to prioritize building improvements that could result in energy savings.
- conducting energy audits and building surveys to identify opportunities for energy-conserving improvements.
- establishing goals for reducing annual energy consumption.
- developing an energy management system to monitor, track, and report on energy use.
- drafting and adopting operational and maintenance guidelines for energy-using systems.

Interviews with Department officials and a review of documentation indicate that the Office has barely begun to take steps towards developing long-range strategies for energy conservation.

Department Response: “Given the contract negotiations alone that were underway during the audit period, it is an unfair characterization for the auditors to have concluded that the Office has ‘barely begun to take steps towards developing long-range strategies.’ The Audit was for the period FY03 and FY04. Certain measures were set in motion during that period that will pave the way for long-range achievements. We are close to finalizing terms for an ENCORE program going forward that will allow for establishing a

higher rate of projects with increased annual energy savings. Some additional funding has been secured, the Office has concluded an initial survey of the 198 largest energy accounts, and we have surveyed agency energy representatives (ELOs) to provide a basis for targeting outreach improvements. In addition, since providing information about energy cost and use is a basic building block for conservation awareness, the Office's transition from paper to electronically-distributed monthly reports, completed at the end of FY04, was a key element of a long-range strategy."

Auditor Comment: The Department's response reinforces our contention that its efforts do not go far enough in addressing its responsibilities in relation to the City's energy conservation needs. The Department alludes to "certain measures . . . that will pave the way for long-range achievements." However, conducting contract negotiations to extend an existing program (i.e., ENCORE) and transitioning from paper to electronically-based reports do not qualify as long-term strategic measures—in contrast to the measures enumerated in the audit. As previously stated, some of those measures are: creating a database of building systems and equipment to prioritize building improvements; establishing goals for reducing annual energy consumption; and drafting and adopting operational and maintenance guidelines for energy-using systems. Moreover, while surveys of the largest energy accounts and of ELOs are certainly important measures that should be part of a long-term energy plan, the Department provided no documentation to substantiate that it had completed the surveys of the energy accounts or that it had even initiated a survey of ELOs.

Our survey of large municipalities indicated that many of them have developed energy conservation strategies and have or are in the process of implementing them. Officials of Boston and Houston stated that they will be conducting surveys of city buildings to determine energy use and to prioritize buildings for improvements based on energy consumption. Chicago and Philadelphia authorities are developing a database of city energy costs to establish a baseline of energy use. Chicago is implementing a "global buildings management system" for monitoring city-managed buildings that will permit lighting, heating, and cooling systems at the facilities to be controlled from a central location.

A 1997 New York State audit of the Office also found problems pertaining to the Department's failure to develop long-range strategies for the management of energy consumption by City agencies.¹ Although Department officials agreed with that audit's recommendation to "ensure that the Office complies with its Mayoral directive and develops long-range energy conservation plans for the City," these efforts have not taken place in the nearly eight years since the state audit was issued.

In fact, the Office's failure to develop long-range energy conservation measures became apparent when some of these measures were advocated by the New York City Energy Policy Task Force, which was established in July 2003 under the leadership of the New York City

¹The audit, conducted by the Office of the State Comptroller, was entitled "Energy Conservation Programs and Control of Energy Usage and Cost" (Report 96-N-12).

Economic Development Corporation.² Specifically, the task force—whose primary concern was to ensure adequate and dependable energy resources for the City’s future—recommended that the City “conduct an energy efficiency potential assessment of the City’s portfolio of facilities, . . . consider incentives to encourage agencies and City employees to reduce energy and operating costs,” and “develop a pilot web-based energy information management system to track and report on energy usage and the cost to operate select City facilities.”

However, despite its participation in the task force, the Office has barely begun to undertake measures to ensure that City agencies adopt the Task Force’s recommendations. Although the Task Force produced a final report in January 2004, the Office’s only action since then was to distribute a survey questionnaire to agencies in September 2004 to “develop a baseline” for identifying conservation opportunities by acquiring information about building systems for 198 facilities.³

The failure to develop long-range strategies can be partly attributed to the Office’s disproportionate emphasis on its role in paying utility bills and producing billing reports of energy use. A monthly “deviation” report, prepared by Office staff for each utility account managed by an agency is not even required by the Directive. The ostensible purpose of this report is to identify any variations in energy use that exceed 25 percent in comparison to that of the prior year. However, its actual usefulness is questionable since the Office does not request, and infrequently obtains, explanations, from agencies when deviations are identified.

Departmental procedures require that the Office prepare a quarterly deviation report for all accounts managed by an agency, whose purpose is to identify overall variations in energy use that exceed five percent on an annual basis. But once again, the Office does not request, and infrequently obtains, explanations from agencies when such variations are identified.

Department Response: “The Audit maintains that OEC staff can be more effectively used by redeploying them from bill review and payment to energy conservation activities. It is not prudent to pay more than \$500 million in energy billings without adequately scrutinizing these bills. Last year, OEC was able to identify almost \$450,000 in annual costs for improper charges for non-City facilities. In addition, significant adjustments were made to individual bills for delayed and missing payment postings. And since FY04, OEC has supported individual agencies in recouping millions of dollars in particular utility billing disputes. While these activities may not conserve energy, they do protect the public treasury, and the value of these activities should not be capriciously discounted.”

Auditor Comment: While the Department should certainly ensure that energy billings are adequately scrutinized, this function, according to Department procedures, is the responsibility of agency ELOs. “Your Job as ELO,” which was provided to us by the

²The task force was led by the New York City Economic Development Corporation and consisted of representatives from private, public, and non-profit energy, development, and watchdog organizations, including DCAS’s Office of Energy Conservation.

³ The Office serves approximately 4,000 buildings in 80 City agencies.

Office, instructs an ELO as follows: “Check AMOUNTS AND ACCOUNTS (Review monthly and quarterly reports.) Check the reports you get each month from OEC, and report to OEC any unusual billings or possible errors you notice.” Therefore, if—instead of Office staff—the agency ELOs reviewed energy billings, as required by Department procedures, the Office could assign its own staff to perform critical energy conservation activities.

In any event, we concluded from our discussions with officials from other municipalities that tracking deviations and paying bills do not represent areas in which significant energy conservation can be achieved. Consequently, Office staff and resources could be more effectively used in developing the types of energy-conservation strategies outlined in this report.

Department Response: “The Audit Report incorrectly suggests that other cities are doing what OEC is not. Under Findings and Recommendations, the Audit Report says, ‘Our survey of large municipalities indicated that many of these energy conservation strategies are being implemented elsewhere.’

“Closer examination of the supporting data indicates that virtually all of these cities have only barely begun their energy conservation efforts. . . . OEC has already prioritized buildings for potential improvements based on amount of energy use, and then conducted energy audits of facilities as part of their energy conservation program. . . .

“The Audit states ‘Chicago and Philadelphia authorities *are developing* a database of city energy costs to establish a baseline of energy use.’ OEC already collects such information, and has for more than 25 years. OEC compiles detailed reports and provides this information to agencies monthly. . . .

“In contrast to the plans of these other municipalities, OEC has a record of energy conservation accomplishments. Through the ENCORE program alone OEC *has completed* more than \$162 million in energy conservation projects, and avoided approximately \$57 million to date in *cumulative* charges for energy. Prior to the ENCORE program, the Office successfully managed the High Efficiency Lighting Program (HELP) and the Cafeteria Lighting Program, which continue to save energy and money each year.”

Auditor Comment: Our purpose in conducting a survey of large municipalities was to establish standards for generally accepted energy conservation strategies that have already been implemented or are being adopted. Thus, contrary to the Department’s interpretation of our report, we clearly acknowledge that these municipalities “have developed energy conservation strategies and *have or are in the process* of implementing them.” [Emphasis added.]

Regarding prioritizing buildings for potential improvements, the Department is presumably referring to a limited prioritization that occurred at the start of the ENCORE program in 1997. According to Office officials, at that time the Office sorted all City buildings by kilowatt energy demand as a basis for selecting energy improvement

projects. However, there was no documentation in Department files to indicate that the Office has carried out any systematic prioritization of City buildings in the past eight years or that it had a plan to do so. As stated above, the Office's only action to date in response to the Energy Policy Task Force was to distribute a survey questionnaire to agencies in 2004 to assist in developing a baseline for identifying conservation opportunities.

Finally, the Department provided no documentation to substantiate its claim that it avoided approximately \$57 million in cumulative energy charges. Therefore, it is not possible to determine whether the amount of cumulative avoided energy cost cited in the response represents actual savings attributable to the Department's energy conservation activities.

Recommendations

The Office should:

1. Develop long-range strategies for managing energy conservation. These strategies should include:
 - creating a database of building systems and equipment to prioritize building improvements that could result in energy savings.
 - conducting energy audits and building surveys to identify opportunities for energy-conserving improvements.
 - establishing goals for reducing annual energy consumption.
 - developing an energy management system to monitor, track, and report on energy use.
 - drafting and adopting operational and maintenance guidelines for energy-using systems.

Department Response (1a): "The Department agrees that relevant information should be included in database form. The large-account survey. . . that OEC conducted in FY05 does this. . ."

Department Response (1b): "Agree. We will continue to conduct energy audits and building surveys as part of our energy-conservation efforts."

Department Response (1c): "Disagree, if goals are interpreted to mean a numerical reduction in energy consumption that is unrelated to agency program needs and conditions of facilities. OEC established a program-activity goal of carrying out \$150 million of energy conservation projects under ENCORE (1997-2004 period). It reduced

baseline energy consumption by meeting that goal, completing 219 projects through 2004 with a value of \$162 million . . .”

Department Response (1d): “Already implemented in that OEC currently provides detailed monthly agency reports generated by its existing energy management system which it manages and maintains. The reports track and monitor energy cost and use at the account level, with agency-level totals for each source of energy (electricity, gas, and steam).”

Department Response (1e): “Partially agree. Where OEC knows of reliable operational and maintenance guidelines for energy using systems, it will make such information available. OEC is not charged with direct facility maintenance and is not the appropriate entity to draft or ‘adopt’ such guidelines, particularly given that it provides energy cost and usage information covering systems in an enormous and varied number of facilities.”

Auditor Comment: While we are pleased that the Department agrees with our recommendation to create a building database, we must note that the effort to do so is only now underway. The Department’s Fiscal Year 2005 large-account survey was started after our audit scope period; therefore, there was no documentation to indicate completion of the survey or its use. In any case, we would expect that the Department will follow up this initial survey with a more comprehensive survey of the City’s 4,000 facilities, which will enable the Department to formulate a long-term strategic energy plan.

We do not dispute the Department’s contention that energy consumption reduction goals should be related to agency program needs and facility conditions. Establishing such goals is an important step in developing long-range strategies for managing energy conservation, and we again emphasize that the Office should set such goals. However, we dispute the Department’s contention that it established a goal of carrying out \$150 million of ENCORE energy conservation projects. Documentation provided by the Office and interviews with Office staff indicated that this amount represented the overall financing that the Authority made available to the Department; it included no evidence showing that the Department had established a programmatic goal for completing energy-conserving improvements.

Notwithstanding the Department’s response that it already implemented an energy management system, our review indicated that this system is dysfunctional. Many of the ELOs we interviewed stated that they performed only cursory reviews of the Department’s billing reports generated by the system and either took no action in response to the system’s deviation reports or investigated deviations only when requested. This would explain why the Office is using its own staff to review energy billings. Finally, the system does not provide information to agencies about their daily energy use. Agencies could use this information to identify and react more promptly to any unexpected variations in a facility’s budgeted energy use.

2. Ensure that appropriate energy conservation measures recommended by the New York City Energy Policy Task Force be implemented expeditiously.

Department Response: “Partially agree. The New York City Energy Policy Task Force was a public-private report with four Working Groups, each of which made recommendations that might be characterized as energy conservation recommendations OEC has carried out expeditiously what it could with the resources it has—in particular, carrying out a survey of the 198 largest energy-using facilities, which account for approximately half of the City’s electricity usage. Based on that survey, it has targeted approximately 39 City facilities as sites for more detailed energy audits, which are preliminary steps to possible energy conservation lighting and other upgrades. This includes the four facilities that the Auditors identified.”

Auditor Comment: We are pleased that the Department has finally undertaken a survey of the 198 largest energy-using facilities; however, that survey is only one of many measures recommended by the New York City Energy Policy Task Force. Other important steps recommended by the Task Force include increasing the use of energy performance contracting (such as ENCORE), organizing formal energy efficiency training programs for agency ELOs, conducting an assessment of the energy-efficiency potential of the City’s facilities over the next six to twelve months, and setting energy-efficiency targets with practical and flexible measurement and verification protocols. As the City’s agent for carrying out energy conserving policies, the Department should act on these recommendations.

3. Reevaluate its priorities and reallocate staff resources to adequately fulfill the requirements of Mayoral Directive 89-1.

Department Response: “Disagree. The premise of this Recommendation is that OEC is not adequately fulfilling the requirements of Mayoral Directive 89-1. We believe we are fulfilling those requirements, developing and implementing energy conservation programs, identifying sites for future projects, and developing strategies for outreach and education to agencies.

“The Audit suggests that there might be an opportunity to reallocate staff from billing review to energy conservation activities. The Department believes that it neither can nor should reduce staff from the billing review function of more than \$500 million in annual billings. As stated in the General Comments, it is not prudent to pay more than \$500 million in energy billings without adequate billing review. Last year, OEC was able to identify almost \$450,000 in annual costs for improper charges for non-City facilities, significant adjustments were made to individual bills for delayed and missing payment postings, and more recently OEC has supported individual agencies in recouping millions of dollars in utility billing disputes.”

Auditor Comment: Based on the documentation provided, we question the Department’s insistence that it is indeed adequately fulfilling the Mayoral Directive’s requirements. Specifically, there was no documentation to indicate that the Office had its own energy

conservation programs (exclusive from ENCORE, which is the Authority's program) and was promoting them, as required by the Mayoral Directive.

As mentioned earlier, the billing review function is the responsibility of agency ELOs. If the Office were using the ELOs in accordance with its procedures, it could have used its own staff to perform other energy conservation activities, as recommended in this report.

Ineffective Use of the ENCORE Program

The Office is not effectively promoting the Authority's ENCORE program and the low-cost funding available to undertake improvements that could lead to lowering the City's energy costs. While our review identified \$792,393 in energy savings over a ten-year period at just four City facilities if improvements were made, only a limited number of City agencies have used ENCORE financing to undertake energy-saving improvements. The City is spending more than it should for energy costs because the Office is not adequately carrying out requirements of Directive §4 to "directly or through the use of consultants, design, implement and monitor energy projects."

Department Response: "The Audit incorrectly alleges that OEC is not effectively utilizing the ENCORE program. The Audit's basis for stating this claim is that OEC used additional sources of funding for energy conservation projects—*not that it failed to implement and complete projects*. . . . OEC set goals in terms of the total value of projects, not the method financed. Due diligence means that projects require management oversight. This assures both that the facility upgrades proposed to generate savings are reasonable and that projects are carried out according to scope. OEC established a program goal in 1997 that was appropriate to its staffing level and it met that goal.

Auditor Comment: We have no problem with the Office using other available funding for carrying out energy conservation projects as long as the funding terms are favorable to the City. However, as indicated by our review, the Office should have promoted the use of more ENCORE funding, a major source of low-cost financing for energy-conserving improvements. If it had done so, City agencies—some of which have used no ENCORE funding—would have been able to carry out more energy-conserving projects, thereby achieving greater energy-saving benefits.

Inadequate Use of Low Cost Financing

In Fiscal Year 1997, the Authority allocated to the City \$150 million in low-cost financing for ENCORE improvements to be used over a ten-year period.⁴ Through the end of Fiscal Year 2004, the City has used \$108.3 million (72%) of this funding to carry out energy-savings improvements. (See Table I on page 15.) In fact, the City actually completed \$162.6

⁴ENCORE loans funded by the Authority typically have a loan period of 10 years and require monthly payments. The 2005 interest rate is 1.43%. Cost savings equal the reduction in the energy bill minus the loan payment.

million in improvements under the program, with \$54.3 million (\$162.6 less \$108.3 million) funded from other sources. In January 2003 the Authority made an additional \$50 million in funding available to all government customers in southeast New York State on a first-come first-served basis over a five-year period. However, although it is now midway through the five-year period, the Office has not used any of the additional funding. Moreover, although Office documentation indicated that there are projects currently in the design and planning phases, the Office did not provide sufficient evidence that agencies will be able to take full advantage of the additional funding within the prescribed time period. Therefore, we are concerned that the Office will forgo an opportunity to take advantage of this low-cost financing—instead of other limited funding sources (i.e., capital budget) with less favorable financing terms—to achieve energy-saving benefits. As previously discussed, we attribute the Office’s inability to adequately capture this funding to its lack of a long-term energy conservation plan. Five of the 11 agencies that have undertaken ENCORE improvements did so using lump sum payments for some or all of the work, instead of using the low-cost financing available from the Authority, as shown on Table I following:

Table I
Agency Use and Funding Allocations for ENCORE Programs

Agency	Original Funding Allocation (\$ millions) ¹	ENCORE Project Cost (\$ thousands)	Authority Funding Utilized (\$ thousands)	Agency Lump Sum Payment (\$ thousands)	Percent Financed
Dept. of Education ²	35.0	51,826	45,285	0	100.00%
Health and Hospitals Corp.	13.7	29,149	13,870	15,279	47.58%
City University of NY (senior colleges)	10.7	18,463	10,906	7,557	59.07%
Dept. of Transportation	25.7	2,837	2,837	0	100.00%
Dept. of Environmental Protection	14.9	941	941	0	100.00%
Human Resources Admin.	7.3	106	106	0	100.00%
Culturals	5.5	433	344	89	79.45%
Dept. of Citywide Administrative Services	6.7	32,071	11,468	20,603	35.76%
Dept. of Sanitation	3.5	0	0	0	NA
City University of NY (community colleges)	4.1	4,727	4,727	0	100.00%
Dept. of Corrections	3.8	15,281	15,281	0	100.00%
NY Police Dept.	2.9	6,797	2,535	4,263	37.30%
Libraries	3.0	0	0	0	NA
Dept. of Parks	2.3	0	0	0	NA
Dept. of Health	0.9	0	0	0	NA
NY Fire Dept.	1.5	0	0	0	NA
Housing Preservation and Development	0.5	0	0	0	NA
Other	8.0	0	0	0	NA
Totals	150.0	162,631	108,300	47,791	69.38%

Notes:

1. The "Original Funding Allocation" amounts do not represent caps on Authority funds available to each agency. Agencies were able to use any unexpended Authority funding.
2. The Authority provided a separate incentive of \$6,540,000 to the Dept. of Education, which reduced the project cost to \$45,285,000.

As an example, the Health and Hospitals Corporation (HHC) completed nearly \$8.5 million in ENCORE projects in Fiscal Year 2001; however, none of this work was financed. Overall, as shown in Table I, HHC financed less than half of its ENCORE improvements completed during Fiscal Years 1998 through 2004. In fact, the Office’s own agency, DCAS, financed only 36 percent of the \$32.1 million in ENCORE improvements that it completed.

Recommendation

4. The Office should ensure that all available ENCORE financing is used by City agencies.

Department Response: “Partially agree. OEC set a program goal for ENCORE in terms of the total value of projects, not the method financed. The Audit does not question that it met that goal. OEC will continue to advance energy conservation projects at a rate determined by a number of factors, including net project costs *before financing*, financing costs offered by the program partner (in this case, the New York Power Authority), and alternative financing that might be available for any particular project.”

Auditor Comment: Once again, we emphasize that ENCORE was an Authority-sponsored program for financing energy-saving improvements. Obviously, the Department should take full advantage of this low-cost financing, which is of limited duration.

\$792,393 in Potential Energy Cost Savings

We found significant opportunities for undertaking energy conserving improvements in City facilities even if the facilities did not achieve energy cost savings through use of the Authority’s low-cost financing. Energy bills could be reduced annually by approximately \$191,666 by implementing improvements with “payback periods” of less than ten years at four of the five City facilities at which the Authority conducted energy audits.⁵ These relatively low-cost improvements include replacing lighting, installing occupancy sensors, upgrading motors and pumps, and installing new air-conditioning equipment. Annual cost savings at the four facilities would total \$79,239 for the ten-year period during which the cost of improvements would be financed, and \$191,666 after improvement costs were fully paid off. The total energy savings over the ten-year loan period for the four facilities would be \$792,393, as shown in Table II on page 17.

The audit inspections found that lighting upgrades were a consistently cost-effective improvement at each of the four City facilities at which we identified energy-saving improvements. In fact, the Office considers lighting upgrades as a primary way to decrease electrical use, the largest component of the City’s energy budget. We found that energy costs at the four facilities could be reduced by up to \$125,690 annually simply by replacing existing lighting with high-energy T-8 lighting and electronic ballasts. During the initial ten-year period during which the cost of improvements would be financed, the annual cost saving would be \$56,323.

⁵The four facilities at which consumption could be reduced are: the Department of Sanitation’s Queens North Boro Repair Shop; the Financial Information Services Agency office at 470 West 33rd Street, the Department of Parks and Recreation’s Lasker Rink in Central Park, and the Health and Hospital Corporation’s Morrisania Neighborhood Family Center in the Bronx.

Table II
Energy Cost Savings at the Four Audited Facilities

	Queens North Boro Repair Shop	FISA	Lasker Pool/Rink	Morrisania NFC	Totals
Loan Amount (dollars)	\$367,000	\$358,000	\$97,000	\$225,000	\$1,047,000
Annual Interest Rate	1.43%	1.43%	1.43%	1.43%	1.43%
Loan Period (years)	10	10	10	10	10
Number of payments per year	12	12	12	12	12
Payment (dollars)	\$3,284	\$3,203	\$868	\$2,013	\$9,369
Total payments per year (dollars)	\$39,408	\$38,442	\$10,416	\$24,160	\$112,427
Total payments over loan period (dollars)	\$394,084	\$384,420	\$104,158	\$241,605	\$1,124,267
Energy Savings per year (dollars)	\$52,870	\$60,500	\$38,296	\$40,000	\$191,666
Net Energy Savings per year while in loan period (dollars)	\$13,462	\$22,058	\$27,880	\$15,840	\$79,239
Net Energy Savings over loan period (dollars)	\$134,616	\$220,580	\$278,802	\$158,395	\$792,393

Note: Discrepancies in above table are due to rounding.

The Office previously recognized the merit in sponsoring lighting replacement improvements when it participated in the Authority’s High Efficiency Lighting Program between 1993 and 1999. However, as the results of our audit indicate, the Office no longer has a dedicated program that seeks to identify inefficient lighting in City facilities and replace it. Therefore, in conjunction with the energy surveys that were previously discussed in this report, the Office needs to identify those facilities that would benefit from lighting upgrades and actively promote agency use of ENCORE funding for this purpose.

Recommendations

The Office should:

5. Arrange with the respective agencies to undertake the energy saving improvements identified in this report.

Department Response: “Generally agree. The project audits for sites identified in the Report need to be further developed before we grant full approval. It is not uncommon for the anticipated energy savings to change by the completion of the final design. We will reevaluate these projects before final sign-off. The FISA project, however, is located in a leased facility, and would require negotiations with the landlord for this work. There is a probability that the remaining lease term after the completion of the work will be less than ten years, and this project may therefore not be feasible.”

Auditor Comment: Contrary to the Department’s assertion that “it is not uncommon for the anticipated energy savings to change by the completion of the final design,” officials of the Authority maintain that final costs and savings are relatively unchanged from anticipated amounts. Regarding the Department’s concern about the practicality of undertaking energy improvements at FISA, at the time of our inspection FISA was in the sixth year of a 20-year lease, with renewal options for two five-year periods. Therefore,

the Department's concern about the project's feasibility is unfounded as the FISA lease term will exceed the required ten years.

6. Identify City facilities that could benefit from lighting upgrades and assist the respective City agencies in undertaking these improvements.

Department Response: "Agree. This is ongoing. Upon completion of any energy audit in a facility, subject to facility and agency cooperation, lighting upgrades (and other work) are advanced that meet the criteria for our energy efficiency program (generally, anticipated payback within 10 years) . . ."

Auditor Comment: As our review indicated, implementing a separate program to undertake facility lighting upgrades would enable the Department to achieve cost-effective energy savings more expeditiously.

ENCORE Improvements Not Carried Out

At the inception of the ENCORE program, the Office (in conjunction with the Office of Management and Budget) allocated \$142 of the \$150 million funding to 17 City agencies and the remaining \$8 million to all other City agencies.⁶ (See Table I on page 10.) However, only 11 agencies have completed projects under the ENCORE program, despite the fact that inspections indicated that widespread cost-effective improvements can be made. In fact, three of the four City agencies (Departments of Sanitation, Parks and Recreation, and the Financial Information Services Agency) at whose facilities we identified opportunities for cost saving energy upgrades during field inspections have not undertaken any ENCORE projects. Other agencies have made only limited use of ENCORE to make energy saving improvements at their facilities. For example, since the inception of the program in 1997, the Departments of Transportation and Environmental Protection completed ENCORE improvements only in Fiscal Year 2000.

It is clear that the Office is not sufficiently promoting the ENCORE program to City agencies, nor is it supporting the use of the Authority's low-cost financing as an alternative to using lump-sum payments to fund energy saving improvements. This is particularly troubling since the Office was more actively involved in promoting the program at its inception in 1997 than at present. According to Office officials, at the program's inception, the Office's plan was to undertake improvements at those City facilities with the largest kilowatt energy demand. However, as previously noted, the Office does not have a strategic long-term energy plan, inhibiting its ability to effectively oversee and maximize agency participation in the ENCORE program.

⁶City University of New York senior and community colleges are each counted as an agency.

Recommendation

The Office should:

7. Actively promote and encourage City agencies to undertake energy saving improvements under the ENCORE program.

Department Response: “Agree. We have begun preparing a number of initiatives to be implemented upon finalization of the new ENCORE agreement with NYPA. As previously discussed, we have identified approximately 39 sites for energy audits, selected from a listing of the City’s largest 200 energy usage locations. We will also be reaching out to agencies to increase their energy conservation awareness and encourage their participation in the ENCORE program.

Energy Reduction Goals Not Established

The Office has neither established nor attempted to define energy reduction goals for City agencies, despite the Directive’s requirement to “develop long-range strategies for the management of energy consumption.” A mere reduction of one percent in energy consumption by City agencies would result in an annual cost savings of \$5.2 million. Moreover, the Office does not track energy savings, nor has it established methods by which to measure whether the implementation of its energy conservation guidelines are effective in reducing energy consumption and achieving cost savings.

The lack of reduction goals is evident from the absence of any such information in the Mayor’s Management Report (MMR) in Fiscal Years 2002 through 2004. The City established an energy reduction goal in its 1976 Executive Order, which required that energy consumption for Fiscal Year 1977 (relative to Fiscal Year 1976) be reduced by five percent for electricity and 25 percent for steam. Although the MMRs for Fiscal Years 1999 through 2001 stated that a Department objective was to reduce annual energy costs by approximately \$1 million (representing less than 1/5 of one percent of the City’s energy budget) by undertaking ENCORE improvements and stated Department savings for each year, there is no documentation in Office files to substantiate any actual savings.⁷ In fact, Office officials stated that they do not track such savings.

Other government entities have established energy reduction goals or have developed standards for measuring cost savings resulting from energy conservation measures adopted. For example, New York State Executive Order No.111 dated December 2001 requires that state agencies “shall seek to achieve a reduction in energy consumption by all buildings they own, lease or operate of 35 percent by 2010 relative to 1990 levels.” The city of Chicago’s Department of Environment is establishing a baseline of energy costs for its facilities and will expect city agencies to initially reduce their annual energy consumption by one percent. Finally,

⁷According to the MMRs, the Department achieved \$1.5 million in savings in the first four months of Fiscal Year 1999; \$500,000 in the first four months of Fiscal Year 2000; and \$1.09 million in Fiscal Year 2001.

the city of Philadelphia's Municipal Energy Office has directed that city agencies reduce energy costs by 6.7 percent in 2004.

Significantly, the City University of New York (CUNY) is implementing its own program to establish energy conservation targets and track energy consumption for its senior colleges. Under this program, CUNY will analyze its historical three-year energy use to establish energy reduction targets.

It should be noted that the previously mentioned 1997 audit by New York State recommended that the Office establish energy reduction goals. However, the Office disagreed with this recommendation because it believed that the City's "programmatic priorities" rendered such a reduction unrealistic. However, as noted above, other government entities with similar programmatic challenges have been able to set energy reduction goals. Therefore, establishing energy reduction goals is a feasible and realistic objective, which would assist the Office in fulfilling its responsibilities under the Directive.

Department Response: "The Audit makes a recommendation for energy reduction goals for agencies that is well intentioned but undefined. The Office's experience has shown that energy reductions are achieved by maintaining energy-using systems as well as possible and replacing inefficient equipment with efficient equipment on a rational replacement cycle. . . .

"I am concerned that establishing a numeric reduction goal across the board for all agencies that is unrelated to agency function, agency building conditions, and technology will simply result in a labor-intensive report system in which variances in weather, building utilization, program changes, etc. become the focus rather than the implementation of energy conservation projects. Keep in mind that there is no 'energy savings meter.' That is, there is energy used before any kind of energy-efficiency project or program, and energy used after. The two can be compared, but usage is affected by all factors, not just the energy conservation program alone. Investigating and adjusting for these factors in approximately 4,000 facilities in order to 'document' a difference as savings would be unreasonable and would dramatically reduce the personnel dedicated to other activities, including energy conservation."

Auditor Comment: Obviously, as discussed in the audit, disparate entities ranging from the State of New York to the City's own university system have recognized the merit of establishing energy reduction goals. If the Department believes that an "across the board" reduction goal fails to account for specific conditions (i.e., agency function, buildings conditions, technology), then the Department should consult the respective agencies to develop reasonable reduction targets that account for these factors.

Recommendations

The Office should:

8. Establish and promulgate energy reduction goals for City agencies.

Department Response: “Disagree. As stated explicitly in the General Comments section and implicitly in comments for Recommendation 1c, OEC is concerned about establishing energy-reduction goals for agencies in a move that may be well-intentioned but does not take into account City government program needs or facility conditions. Furthermore, given the vast differences in agencies’ facilities, across-the-board energy reduction goals are not likely to be the most efficient, least-cost way to achieve any reduction targets. OEC will continue to maintain current program activity goals and to reassess those as appropriate. In this way it helps agencies achieve energy efficiencies on a project-by-project basis by maintaining energy-using systems as well as possible and by replacing inefficient equipment where appropriate.”

Auditor Comment: As previously stated, the Department should consult the respective agencies to develop reasonable reduction targets that account for specific factors such as program needs or facility conditions.

9. Establish methods by which to measure whether its energy conservation guidelines are effective in reducing energy consumption.

Department Response: “Disagree with focus of measurement. OEC tracks modeled energy and cost savings from each ENCORE project, and provides the project management oversight to assure that projects meet the scopes of work. Mayoral Directive 89-1 requires OEC to ‘develop, promote and implement programs and issue procedures designed to conserve energy. . .’ It also requires OEC to ‘establish space temperature guidelines for summer air-conditioning and winter heating. . .’ OEC does these things. It does not believe it is required to devote resources to what we believe would be no more than an academic measurement exercise, with no conservation payback. We will continue the following: to provide education and outreach to ELOs; to maintain and use data and descriptive information about potential needs and projects savings; and to develop periodic or other measures as appropriate (see, for examples, responses to 1a, 1c, 2, 11, and 13.)

Auditor Comment: To its credit, the Office has indeed established summer and winter guidelines for conserving energy. However, as previously stated, the Department has not conducted inspections to monitor compliance with its standards. Moreover, the Department lacks standards by which inspectors could measure whether its energy conservation guidelines are effective in reducing energy consumption. Obviously, methods for monitoring compliance with Department guidelines and measuring the effectiveness of the Department’s energy conservation efforts are critical tools for evaluating the program.

10. Develop a tracking system to document energy savings from improvement projects.

Department Response: “As stated in the response to Recommendation #9, OEC already tracks modeled energy and cost savings from each ENCORE project. That is, when an improvement project is completed and entered into a tracking database, the anticipated savings in dollars, in kilowatts and kilowatt hours, and, where relevant, additional net energy savings in other fuel units, are also entered into the database. Project scopes are reviewed before implementation, and installation is overseen through completion. Within a year after installation, each facility manager is questioned to ascertain satisfaction level with installed equipment and, when necessary, problems are addressed. Finally, on an *ad hoc* basis, OEC has reviewed year-over-year usages before and after energy conservation projects at particular facilities to observe usage reductions.

“Once again, it must be kept in mind that there is no ‘energy savings meter.’ That is, there is energy used before an energy-efficient project upgrade and energy used after. The two can be compared, but in order to ‘document’ a difference as savings, information also has to be gathered and evaluated covering differences in the weather, staffing levels, building usage, hours of operation, and other external and internal variances. As with evaluating usage reduction goals, this would be very labor intensive, and would require a great deal of resources. This does not appear to be justified merely to confirm the savings realized from such projects.”

Auditor Comment: We find it difficult to fathom how the Department can “track” modeled or anticipated energy and cost savings in the absence of a system to measure whether anticipated savings have actually occurred. Questioning facility managers to ascertain satisfaction levels and reviewing year-over-year usages on an ad hoc basis may provide necessary information to the Department. However, these activities do not constitute a serious effort to document energy savings as part of an overall energy conservation plan.

11. Provide complete and reliable information about energy conservation measures taken, energy reduction goals established, and savings achieved to the Mayor’s Office of Operations for inclusion in the MMR.

Department Response: “Partially agree. In 2002 the Mayor’s Management Report was revised to include only those indicators that directly affected the public. At that time, many DCAS indicators were eliminated from this Report. Despite that, DCAS worked with the Mayor’s Office of Operations and, beginning in the FY2004 MMR, added total energy consumption and electricity consumption—the first energy indicators to be reported. DCAS will work with the Mayor’s Office of Operations to include more information explaining energy use.”

Auditor Comment: Indicators that provide information about total energy and electricity consumption may be interesting statistics. However, they do not offer useful information with which the public can ascertain whether the Department has established, is adhering to, and has achieved specific energy conservation goals and cost savings. This

information has a direct impact on the City's finances and therefore should be included in the MMR.

Energy Liaison Officers Not Actively Involved In Energy Conservation Matters

The Office does not have effective procedures to ensure that ELOs are actively involved in assisting the Office to fulfill its mission of promoting energy conservation measures. Although the Office has written procedures that state how ELOs should review utility bills and provide information about new or terminated utility accounts, the procedures do not call sufficient attention to the ELOs role in implementing energy conserving programs and ensuring that Office guidelines (e.g., for winter heating and summer cooling) are being followed. Consequently, the Office needs the active participation of the ELOs for energy conservation measures and programs to be truly effective.

Directive §3 requires that City agencies cooperate with the Office and implement its procedures and instructions. The Directive also requires that each agency designate an ELO with responsibility for communications with the Office. While interviews with ELOs indicated that they are partially fulfilling the Directive's requirement to provide information about their agencies' use of energy by notifying the Office about new or terminated facility accounts, most performed only cursory reviews of billing and variation reports obtained from the Office.⁸ Of even greater importance, ELOs, as their agencies' representatives, are not fulfilling the Directive's requirement to implement provisions regarding energy conservation and improving energy efficiency. Most ELOs were not actively involved in ensuring that Office guidelines for winter heating and summer cooling are being implemented and enforced at their respective agencies. In addition, many ELOs—while having some familiarity with the ENCORE program—are not actively involved in promoting or overseeing its use for their respective agencies. Specifically, our interviews with eight ELOs found that:

- 7 (87%) viewed their primary function as notifying the Office about new or deleted utility accounts at their respective agencies. Only one ELO additionally considered the role to involve investigating energy conserving methods.
- 4 (50%) performed only cursory reviews of monthly and quarterly billing reports.
- 6 (75%) either did not take any action in response to deviation reports or investigated deviations only when specifically requested.
- 6 (75%) did not take any action to ensure compliance with Office energy conservation guidelines. While all the ELOs received the guidelines and forwarded

⁸We initially selected 10 agency ELOs for interviews. However, one ELO (for the Brooklyn Public Library) had recently resigned from his agency and a replacement had not yet been designated. In addition, one of the listed ELOs (for the New York Public Library) was unaware that he was listed as the agency ELO. Therefore, our analysis included the remaining eight ELOs selected.

them to their respective agency's operating units, there was no attempt to enforce or monitor compliance.

- 5 (62%) were uncertain about their agencies' participation in the ENCORE program. Although most ELOs were either familiar or somewhat familiar with the program, they did not actively promote its use.

We attribute these problems to the fact that the Office has infrequent contact with ELOs. In fact, the only formal involvement that the Office has with ELOs occurs at its once-a-year meeting, whose purpose is to review with the ELOs their responsibilities. However, documentation indicates that the ELOs role in energy conservation (e.g., participation in the ENCORE program) is barely addressed; the primary focus of the meeting concerns bill paying and budgeting. Consequently, ELOs do not perceive their primary role to be promoting energy conservation and ensuring that conservation guidelines are followed. In fact, many ELOs spent less than 15 percent of their time on ELO duties.

The 1997 New York State audit of the Office found similar problems with the cursory manner in which ELOs reviewed utility bills. That audit recommended that the Office "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." Although Department officials agreed with this recommendation, the activities of most ELOs indicate that the Department's efforts to emphasize the ELOs role in energy conservation have been inadequate. More recently, the New York City Energy Policy Task Force recommended that the City should "organize formal energy efficiency training programs for agency representatives, including facility managers and building engineers."

Recommendations

The Office should:

12. Ensure that its written procedures for ELOs properly emphasize their role and responsibilities in promoting energy conservation.
13. Organize formal training programs for ELOs. As part of that training, the Office should provide greater and more frequent instruction on how to properly review utility bills, promulgate Office directives, and implement energy conserving programs, such as the ENCORE program.

Department Response (Recommendations 12 and 13): "We agree that the ELO role and, more broadly, agency- and facility-level attention to energy costs and conservation need strengthening. For this reason, DCAS engaged a graduate student team this year to survey ELOs; their results were presented in May 2005. Consistent with available resources, we will be developing and targeting training that will address the above recommendations."

Auditor Comment: The Department provided no documentation to substantiate its claim about engaging a graduate student team to survey ELOs. In any case, we urge the Department to use the results of our survey to develop an appropriate training curriculum.

Lack of Facility Inspections

Although the Office established guidelines for heating and air-conditioning, it has not conducted inspections to monitor compliance with its guidelines. Directive §4 states that the Office shall “have the right . . . to recommend measures to conserve energy.” In addition, the Directive requires that the Office “establish space temperature guidelines for summer air-conditioning and winter heating.” Random inspections are important because they can uncover energy-wasting conditions such as improperly set thermostats or overheated rooms and excessive air-conditioning. In fact, Office procedures indicate that if air-conditioning is turned on too early in the season, thereby adding 100 kilowatts of demand, the additional charge for one account would be \$1,800. Given that the City has more than 10,000 metered accounts, this could have a significant impact on the City’s energy costs.

A previous audit of the Office undertaken by the Comptroller (No. MB 86-101) in 1987 found similar problems.⁹ The audit stated that the Office was “abandoning its monitoring function and conducting field visits only upon an agency’s requests.” Although the Office agreed with the 1987 Comptroller’s recommendation to perform periodic facility inspections, it has not carried out the inspections. The Office’s failure to monitor the effectiveness of, or compliance with, its guidelines is even more problematic, since ELOs are not doing so either.

Recommendations

14. The Office should undertake random inspections of City facilities to ensure compliance with its energy conservation guidelines.

Department Response: “Partially agree. The Department will consider whether this responsibility should be assigned to OEC personnel or the agency ELOs, but point out that random inspections ascertain information rather than insure compliance.”

Auditor Comment: While information gathering is an important step in the inspection process, its practical effect is questionable if it is not used as a basis for ensuring compliance with Department guidelines. Thus, as mentioned previously, the Department must ensure that its energy guidelines are being followed.

⁹The audit was entitled “Operating Practices and Procedures of the Office of Energy Conservation.”

DEPARTMENT OF CITYWIDE ADMINISTRATIVE SERVICES
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Martha K. Hirst
Commissioner

June 8, 2005

Greg Brooks, Deputy Comptroller
Policy, Audits, Accountancy & Contracts
New York City Office of the Comptroller
1 Centre Street, Room 530
New York, New York 10007-2341

Re: Audit Report on Citywide
Energy Conservation efforts by
the Department of Citywide
Administrative Services
(FR04-089A)

Greg
Dear Mr. Brooks:

Before I respond to the substance of the recommendations in the above-captioned Audit, I want to acknowledge that this Audit was begun in July 2003 and later put on hold for one year at my request. I appreciate the consideration extended to this Agency, and the recognition of the extreme and unique demands on the Office of Energy Conservation (OEC) at this time.

This is a very exciting yet demanding time for those involved in energy conservation. Deregulation of energy markets in New York State and the way that the New York Power Authority (NYPA), the City's electricity provider, is adapting, combined with significant cost increases for virtually all energy sources, have created new challenges and opportunities. This is a different situation from even a few years ago. As you may know, the City of New York had a 10-year contract with NYPA beginning in 1995. Under that agreement, electricity rates did not change through March 2004, a period when local consumer prices rose 22%.

In the current environment with costs rising, over the past two years the Office of Energy Conservation has:



Citywide Personnel
Services

Facilities
Management &
Construction

Municipal Supply
Services

Real Estate Services

Citywide Equal
Employment
Opportunity

Citywide
Occupational Safety
& Health

Transportation
Services

The City Record

CityStore

- Co-chaired the Inter-Agency Working Group as part of the Mayor's Energy Task Force, developed energy conservation recommendations for all City agencies, and conducted a survey of the City's largest energy-using facilities;
- Defended the City before the Public Service Commission in a rate case brought by Con Edison seeking to increase charges for steam and for gas delivery. For City of New York accounts, the settlement effective 10/1/04 saves an expected \$13 million over three years compared to the increase sought.
- Defended the City before the Public Service Commission in a rate case brought by Con Edison seeking to increase charges for the delivery of electricity to all customers, including City facilities. The increase sought for City facilities was more than twice the increase sought from other customers. The City participated in extensive negotiations that led to a settlement. For City of New York accounts, the settlement effective 4/1/05 (through 3/31/08) is expected to save over \$170 million compared to the increase sought.
- Successfully engaged, over 16 months, in protracted and complex negotiations with NYPA to ensure the purchase of reasonably priced electrical power for the City for the foreseeable future. This process resulted in an agreement that was registered by the Comptroller in April 2005; and, finally,
- Successfully engaged in additional challenging negotiations with NYPA to replace an expiring 1997 agreement governing terms for carrying out the energy conservation projects that this Audit advocates more of.

The theme of this Audit is that OEC should do more in various ways:

- Though OEC has standards for implementing energy conservation programs, those standards should go further,
- Though OEC has procedures and trains agency Energy Liaison Officers (ELO), there should be more training, and
- Though OEC has implemented energy conservation projects, more should be implemented.

In general, we do not disagree with this theme, and have recently secured modest additional resources for OEC. We will therefore continue to strengthen OEC operations to ensure that program goals are clearly understood and achieved. However, no matter how much work OEC does, the argument can always be made that it should do more. In making such an argument, the Audit unfairly minimizes the efforts and accomplishments of OEC, and overstates the extent to which other municipalities might serve as a standard for comparison. **In addition, and more importantly, the report does not reflect sufficiently that OEC fully achieved its program goals of \$150 million in energy conservation projects in the 1997 to 2005 period.** That goal was set when the 1997 agreement, called "ENCORE," was signed. While not all those projects were *financed* through NYPA borrowing, the projects were successfully completed. The rest of this response clarifies these points and summarizes the ways in which we have augmented and will continue to augment energy conservation activities. This will include review of the four sites proposed in the Audit for conservation projects, with implementation expected if the projected savings for the measures suggested prove robust.

I begin with general comments and then respond to recommendations.

GENERAL COMMENTS

Other Municipalities: OEC's actions meet or exceed other municipalities' intentions

The Audit Report incorrectly suggests that other cities are doing what OEC is not. Under Findings and Recommendations, the Audit Report says, "Our survey of large municipalities indicated that many of these energy conservation strategies are being implemented elsewhere."

Closer examination of the supporting data indicates that virtually all of these cities have only barely begun their energy conservation efforts. Note that the Audit states "Officials of Boston and Houston stated that they *will* [emphasis added] be conducting surveys of city buildings to determine energy use and to prioritize buildings for improvements. . . ." OEC has already prioritized buildings for potential improvements based on amount of energy use, and then conducted energy audits of facilities as part of their energy conservation program. Facility upgrades to lighting, motors, HVAC systems, etc. are only implemented after facility audits are conducted, to assess the potential for savings. Under ENCORE, approximately 240 energy surveys have been performed.

The Audit states "Chicago and Philadelphia authorities *are developing* a database of city energy costs to establish a baseline of energy use." OEC already collects such information, and has for more than 25 years. OEC compiles detailed reports and provides this information to agencies monthly. The reports display energy use *and* cost for current periods, compared to budget, and to prior years. These reports provide agencies with the opportunity to review and control energy for the spaces that the agencies manage. An example of one of these reports was provided to the auditors.

In contrast to the plans of these other municipalities, OEC has a record of energy conservation accomplishments. Through the ENCORE program alone OEC *has completed* more than \$162 million in energy conservation projects, and avoided approximately \$57 million to date in *cumulative* charges for energy. Prior to the ENCORE program, the Office successfully managed the High Efficiency Lighting Program (HELP) and the Cafeteria Lighting Program, which continue to save energy and money each year.

Use of the ENCORE Program: OEC has met its planned rate of program implementation

The Audit incorrectly alleges that OEC is not effectively utilizing the ENCORE program. The Audit's basis for stating this claim is that OEC used additional sources of funding for energy conservation projects – *not that it failed to implement and complete projects*. [FR04-089A Draft Audit Report pg. 8: "In fact, the City actually completed \$162.6 million in improvements under the program, with \$54.3 million funded from other sources."] OEC set goals in terms of the total value of projects, not the method financed. Due diligence means that projects require management oversight. This assures both that the facility upgrades proposed to generate savings

are reasonable and that projects are carried out according to scope. OEC established a program goal in 1997 that was appropriate to its staffing level and it met that goal.

Strategies for the Future: A basis is being set

Given the contract negotiations alone that were underway during the audit period, it is an unfair characterization for the auditors to have concluded that the Office has "barely begun to take steps towards developing long-range strategies." The Audit was for the period FY03 and FY04. Certain measures were set in motion during that period that will pave the way for long-range achievements. We are close to finalizing terms for an ENCORE program going forward that will allow for establishing a higher rate of projects with increased annual energy savings. Some additional funding has been secured, the Office has concluded an initial survey of the 198 largest energy accounts, and we have surveyed agency energy representatives (ELOs) to provide a basis for targeting outreach improvements. In addition, since providing information about energy cost and use is a basic building block for conservation awareness, the Office's transition from paper to electronically-distributed monthly reports, completed at the end of FY04, was a key element of a long-range strategy.

OEC Review of Energy Bills: A critical function that cannot be minimized

The Audit maintains that OEC staff can be more effectively used by redeploying them from bill review and payment to energy conservation activities. It is not prudent to pay more than \$500 million in energy billings without adequately scrutinizing these bills. Last year, OEC was able to identify almost \$450,000 in annual costs for improper charges for non-City facilities. In addition, significant adjustments were made to individual bills for delayed and missing payment postings. And since FY04, OEC has supported individual agencies in recouping millions of dollars in particular utility billing disputes. While these activities may not conserve energy, they do protect the public treasury, and the value of these activities should not be capriciously discounted.

Energy Reduction Targets: Need for definition

The Audit makes a recommendation for energy reduction goals for agencies that is well intentioned but undefined. The Office's experience has shown that energy reductions are achieved by maintaining energy-using systems as well as possible and replacing inefficient equipment with efficient equipment on a rational replacement cycle. Under the ENCORE program, for example, the 184 lighting projects completed from 1997 through 2004 now save 78 million kilowatt hours a year. Education and outreach efforts, as indicated above, are additional tools that add to the awareness of the importance of energy conservation.

I am concerned that establishing a numeric reduction goal across the board for all agencies that is unrelated to agency function, agency building conditions, and technology will simply result in a labor-intensive report system in which variances in weather, building utilization, program changes, etc. become the focus rather than the implementation of energy conservation projects. Keep in mind that there is no "energy savings meter." That is, there is energy used before any kind of energy-efficiency project or program, and energy used after. The two can be compared,

but usage is affected by all factors, not just the energy conservation program alone. Investigating and adjusting for these factors in approximately 4,000 facilities in order to “document” a difference as savings would be unreasonable and would dramatically reduce the personnel dedicated to other activities, including energy conservation.

RECOMMENDATIONS WITH RESPONSES

The Office (OEC – Office of Energy Conservation) should:

1. Develop long-range strategies for managing energy conservation. These strategies should include:
 - a) Recommendation: Creating a database of building systems and equipment to prioritize building improvements that could result in energy savings.
Response: The Department agrees that relevant information should be included in database form. The large-account survey mentioned above (pages 2 and 4) that OEC conducted in FY05 does this, and has drawn in part from the OMB-maintained AIMS database of system information for City facilities with a replacement value larger than \$10 million.
 - b) Recommendation: Conducting energy audits and building surveys to identify opportunities for energy-conserving improvements.
Response: Agree. We will continue to conduct energy audits and building surveys as part of our energy-conservation efforts.
 - c) Recommendation: Establishing goals for reducing annual energy consumption.
Response: Disagree, if goals are interpreted to mean a numerical reduction in energy consumption that is unrelated to agency program needs and conditions of facilities. OEC established a program-activity goal of carrying out \$150 million of energy conservation projects under ENCORE (1997-2004 period). It reduced baseline energy consumption by meeting that goal, completing 219 projects through 2004 with a value of \$162 million. Of these, over 180 focused on lighting efficiency and have now reduced electricity needs by 78 million kwh annually. Additional projects have included boiler upgrades and conversions to cleaner-burning fuels, chiller conversions that eliminated ozone-depleting refrigerants, innovative “green” technologies, such as fuel cells run on anaerobic digester gas, and building-integrated photovoltaic systems.

Going forward, we will re-assess program goals in light of staff levels and costs.
 - d) Recommendation: Developing an energy management system to monitor, track, and report on energy use.
Response: Already implemented in that OEC currently provides detailed monthly agency reports generated by its existing energy management system which it manages and maintains. The reports track and monitor energy cost and use at the account level, with agency-level totals for each source of energy (electricity, gas, and steam).
 - e) Recommendation: Drafting and adopting operational and maintenance guidelines for energy using systems.
Response: Partially agree. Where OEC knows of reliable operational and maintenance guidelines for energy using systems, it will make such information available. OEC is not

charged with direct facility maintenance and is not the appropriate entity to draft or "adopt" such guidelines, particularly given that it provides energy cost and usage information covering systems in an enormous and varied number of facilities.

2. Recommendation: Ensure that appropriate energy conservation measures recommended by the New York City Energy Policy Task Force be implemented expeditiously.

Response: Partially agree. The New York City Energy Policy Task Force was a public-private report with four Working Groups, each of which made recommendations that might be characterized as energy conservation recommendations. OEC participated in and co-chaired only the Inter-Agency Working Group; energy-efficiency goals incorporated into a report that the Task Force issued were submitted by a number of agencies. It was understood among all participants, and stated by EDC which convened the Task Force, that establishing goals was a first step to identifying resources that might be needed. OEC has carried out expeditiously what it could with the resources it has -- in particular, carrying out a survey of the 198 largest energy-using facilities, which account for approximately half of the City's electricity usage. Based on that survey, it has targeted approximately 39 City facilities as sites for more detailed energy audits, which are preliminary steps to possible energy conservation lighting and other upgrades. This includes the four facilities that the Auditors identified.

3. Recommendation: Reevaluate its priorities and reallocate staff resources to adequately fulfill the requirements of Mayoral Directive 89-1.

Response: Disagree. The premise of this Recommendation is that OEC is not adequately fulfilling the requirements of Mayoral Directive 89-1. We believe we are fulfilling those requirements, developing and implementing energy conservation programs, identifying sites for future projects, and developing strategies for outreach and education to agencies.

The Audit suggests that there might be an opportunity to reallocate staff from billing review to energy conservation activities. The Department believes that it neither can nor should reduce staff from the billing review function of more than \$500 million in annual billings. As stated in the General Comments, it is not prudent to pay more than \$500 million in energy billings without adequate billing review. Last year, OEC was able to identify almost \$450,000 in annual costs for improper charges for non-City facilities, significant adjustments were made to individual bills for delayed and missing payment postings, and more recently OEC has supported individual agencies in recouping millions of dollars in utility billing disputes.

4. Recommendation: The Office should ensure that all available ENCORE financing is used by City agencies.
Response: Partially agree. OEC set a program goal for ENCORE in terms of the total value of projects, not the method financed. The Audit does not question that it met that goal. OEC will continue to advance energy conservation projects at a rate determined by a number of factors, including net project costs *before financing*, financing costs offered by the program partner (in this case, the New York Power Authority), and alternative financing that might be available for any particular project.

5. Recommendation: Arrange with the respective agencies to undertake the energy saving improvements identified in this report.
Response: Generally agree. The project audits for sites identified in the Report need to be further developed before we grant full approval. It is not uncommon for the anticipated energy savings to change by the completion of the final design. We will reevaluate these projects before final sign-off. The FISA project, however, is located in a leased facility, and would require negotiations with the landlord for this work. There is a probability that the remaining lease term after the completion of the work will be less than ten years, and this project may therefore not be feasible.

6. Recommendation: Identify City facilities that could benefit from lighting upgrades and assist the respective City agencies in undertaking these improvements.
Response: Agree. This is ongoing. Upon completion of any energy audit in a facility, subject to facility and agency cooperation, lighting upgrades (and other work) are advanced that meet the criteria for our energy efficiency program (generally, anticipated payback within 10 years). See, for example, responses to Recommendations #2 and #5 for locations that might be served; these are in addition to facilities identified by agency representatives through ongoing OEC outreach.

7. Recommendation: Actively promote and encourage City agencies to undertake energy saving improvements under the ENCORE program.
Response: Agree. We have begun preparing a number of initiatives to be implemented upon finalization of the new ENCORE agreement with NYPA. As previously discussed, we have identified approximately 39 sites for energy audits, selected from a listing of the City's largest 200 energy usage locations. We will also be reaching out to agencies to increase their energy conservation awareness and encourage their participation the ENCORE program.

8. Recommendation: Establish and promulgate energy reduction goals for City agencies.
Response: Disagree. As stated explicitly in the General Comments section and implicitly in comments for Recommendation 1c, OEC is concerned about establishing energy-reduction goals for agencies in a move that may be well-intentioned but does not take into account City government program needs or facility conditions. Furthermore, given the vast differences in agencies' facilities, across-the-board energy reduction goals are not likely to be the most efficient, least-cost way to achieve any reduction targets. OEC will continue to maintain current program activity goals and to reassess those as appropriate. In this way it helps agencies achieve energy efficiencies on a project-by-project basis by maintaining energy-using systems as well as possible and by replacing inefficient equipment where appropriate.

9. Recommendation: Establish methods by which to measure whether its energy conservation guidelines are effective in reducing energy consumption.
Response: Disagree with focus of measurement. OEC tracks modeled energy and cost savings from each ENCORE project, and provides the project management oversight to assure that projects meet the scopes of work. Mayoral Directive 89-1 requires OEC to

“develop, promote and implement programs and issue procedures designed to conserve energy. . . .” It also requires OEC to “establish space temperature guidelines for summer air-conditioning and winter heating. . . .” OEC does these things. It does not believe it is required to devote resources to what we believe would be no more than an academic measurement exercise, with no conservation payback. We will continue the following: to provide education and outreach to ELOs; to maintain and use data and descriptive information about potential needs and projects savings; and to develop periodic or other measures as appropriate (see, for examples, responses to 1a, 1c, 2, 11, and 13).

10. Recommendation: Develop a tracking system to document energy savings from improvement projects.
Response: As stated in the response to Recommendation #9, OEC already tracks modeled energy and cost savings from each ENCORE project. That is, when an improvement project is completed and entered into a tracking database, the anticipated savings in dollars, in kilowatts and kilowatt hours, and, where relevant, additional net energy savings in other fuel units, are also entered into the database. Project scopes are reviewed before implementation, and installation is overseen through completion. Within a year after installation, each facility manager is questioned to ascertain satisfaction level with installed equipment and, when necessary, problems are addressed. Finally, on an *ad hoc* basis, OEC has reviewed year-over-year usages before and after energy conservation projects at particular facilities to observe usage reductions.

Once again, it must be kept in mind that there is no “energy savings meter.” That is, there is energy used before an energy-efficient project upgrade and energy used after. The two can be compared, but in order to “document” a difference as savings, information also has to be gathered and evaluated covering differences in the weather, staffing levels, building usage, hours of operation, and other external and internal variances. As with evaluating usage reduction goals, this would be very labor intensive, and would require a great deal of resources. This does not appear to be justified merely to confirm the savings realized from such projects.

11. Recommendation: Provide complete and reliable information about energy conservation measures taken, energy reduction goals established, and savings achieved to the Mayor’s Office of Operations for inclusion in the Mayor’s Management Report.
Response: Partially agree. In 2002 the Mayor’s Management Report was revised to include only those indicators that directly affected the public. At that time, many DCAS indicators were eliminated from this Report. Despite that, DCAS worked with the Mayor’s Office of Operations and, beginning in the FY2004 MMR, added total energy consumption and electricity consumption – the first energy indicators to be reported. DCAS will work with the Mayor’s Office of Operations to include more information explaining energy use.
12. Recommendation: Ensure that its written procedures for ELOs properly emphasize their role and responsibilities in promoting energy conservation.

13. Recommendation: Organize formal training programs for ELOs. As part of that training, the Office should provide greater and more frequent instruction on how to properly review utility bills, promulgate Office directives, and implement energy conserving programs, such as the ENCORE program.

Response 12 & 13:

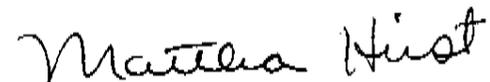
We agree that the ELO role and, more broadly, agency- and facility-level attention to energy costs and conservation need strengthening. For this reason, DCAS engaged a graduate student team this year to survey ELOs; their results were presented in May 2005. Consistent with available resources, we will be developing and targeting training that will address the above recommendations.

14. Recommendation: The Office should undertake random inspections of City facilities to ensure compliance with its energy conservation guidelines.

Response: Partially agree. The Department will consider whether this responsibility should be assigned to OEC personnel or the agency ELOs, but points out that random inspections ascertain information rather than insure compliance.

In conclusion, we appreciate that this Audit will once again help focus the spotlight on the need for more energy conservation. Though some of our methods differ, we share a desire to save both money and energy, which is both environmentally smart and in the best interests of the people of the City of New York.

Yours truly,



Martha K. Hirst