School Districts’ Energy Performance Contracts

2015-MR-1

Thomas P. DiNapoli
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Division of Local Government
and School Accountability

August 2015

Dear School District Officials:

A top priority of the Office of the State Comptroller is to help school district officials manage their district resources efficiently and effectively and, by so doing, provide accountability for tax dollars spent to support district operations. The Comptroller oversees the fiscal affairs of districts statewide, as well as districts’ compliance with relevant statutes and observance of good business practices. This fiscal oversight is accomplished, in part, through our audits, which identify opportunities for improving district operations and Board of Education governance. Audits also can identify strategies to reduce costs and to strengthen controls intended to safeguard district assets.

Following is a report of our audit entitled School Districts’ Energy Performance Contracts. This audit was conducted pursuant to Article V, Section 1 of the State Constitution and the State Comptroller’s authority as set forth in Article 3 of the New York State General Municipal Law.

This audit’s results and recommendations are resources for district officials to use in effectively managing operations and in meeting the expectations of their constituents. If you have questions about this report, please feel free to contact the local regional office for your county, as listed at the end of this report.

Respectfully submitted,

Office of the State Comptroller
Division of Local Government
and School Accountability
An energy performance contract (EPC) is an agreement with an energy service company (ESCO) for energy services in which energy systems are installed, maintained or managed to improve the energy efficiency of, or produce energy for, a facility in exchange for a portion of the energy savings or revenues. An EPC can provide a school district (district) with an alternative to financing energy projects without requiring the issuance of bonds or notes. Additionally, EPCs are not subject to voter approval or competitive bidding requirements.

The ESCO guarantees energy consumption savings and/or cost savings over the life of the EPC. The ESCO may agree to guarantee that the improvements will generate cost savings sufficient to pay for the project over the term of the EPC; however, cost savings are not a requirement for a successful contract. Once an EPC project is completed, the district should ensure monitoring of the energy savings is occurring. Typically, the ESCO will perform measurements and verify the actual energy and/or cost savings and prepare a report for the district. After the EPC ends, the district may continue to realize additional cost savings as a result of the improvements.

The five districts included in this audit (Half Hollow Hills Central School District, Island Trees Union Free School District, Manhasset Union Free School District, Middle Country Central School District and Sachem Central School District) each had an EPC that the New York State Education Department approved between February 2009 and June 2011 with total capital project costs of approximately $52.5 million.¹

Scope and Objective

The objective of our audit was to review the projected cost and/or energy savings achieved by the EPCs entered into by five school districts for the period of June 1, 2005 through November 10, 2014. Our audit addressed the following related question:

- Did the EPCs entered into by the districts achieve the cost and/or energy savings projected by the ESCO who executed the contract?

¹ Including lease interest
Audit Results

All five districts are projected to achieve the guaranteed energy cost savings totaling almost $9.1 million. All five districts realized electricity consumption savings ranging from 8 to 33 percent, even though the number of cooling degree days at three of the five districts increased by 11 to 15 percent in the first year. The improvements to the districts’ light fixtures alone accounted for approximately 28 to 48 percent of the districts’ first-year cost savings. Further, Half Hollow Hills realized a 40 percent decrease in natural gas consumption in the first year, even though the number of heating degree days increased by 2 percent. Island Trees realized a 27 percent decrease in heating oil consumption in the first year, even though there was just an approximate 4 percent decrease in heating degree days. Natural gas consumption increased by 5 to 19 percent at the other three districts. However, this was attributable to increased usage of the school buildings for extracurricular and community activities, along with a 7 to 8 percent increase in heating degree days.

While the districts are projecting energy cost savings, only three of the districts are verifying the accuracy of the ESCO’s annual verification reports or ensuring that the guaranteed energy savings are being achieved. District officials at the other two districts are relying on the ESCO’s annual verification reports that state whether they have been achieving the guaranteed savings. One of these districts had yet to receive its first verification report as of April 14, 2015, even though it was due in January 2015.

Comments of District Officials

The results of our audit and recommendations have been discussed with district officials and their comments, which appear in Appendix B, have been considered in preparing this report.

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2 Based on an analysis of no less than three, but no more than 20 percent, of each district’s buildings.

3 Heating and cooling degree days are a way to relate each day’s temperatures to the demand for energy to heat or cool buildings. To calculate the heating degree days for a particular day, find the day’s average temperature by adding the day’s high and low temperatures and dividing by two. If the number is above 65, there are no heating degree days that day. If the number is less than 65, subtract it from 65 to find the number of heating degree days. Cooling degree days are also based on the day’s average minus 65.
Introduction

Background

An energy performance contract (EPC) is an agreement with an energy service company (ESCO) for energy services in which energy systems are installed, maintained or managed to improve the energy efficiency of, or produce energy for, a facility in exchange for a portion of the energy savings or revenues. New York State Energy Law establishes procedures to be used by school districts (districts) and Boards of Cooperative Educational Services (BOCES) in initiating and administering EPCs. An EPC can provide districts with an alternative to financing energy projects without requiring the issuance of bonds or notes. Additionally, EPCs are not subject to voter approval or competitive bidding requirements.

In conjunction with an ESCO, a district is required to obtain a comprehensive energy audit to identify improvements that will save energy at the district’s facilities. Using the results of the energy audit, a district determines which improvements to make and applies for the EPC. The ESCO guarantees energy consumption savings and/or cost savings over the life of the EPC. An EPC must not exceed the useful life of the building which the New York State Education Department (SED) has established at 18 years. The ESCO may guarantee that the improvements will generate cost savings sufficient to pay for the project over the term of the EPC; however, cost savings are not a requirement for a successful contract. Additionally, EPCs should have a clause that obligates the ESCO to pay the difference if at any time the savings fall short of the guarantee. The EPC may have annual maintenance and performance verification costs stipulated in the contract; however, the district may cancel these. The EPC may also specify strict operating protocols for the facility as well. The ESCO typically performs the capital improvements to the buildings.

New York State Education Law (Education Law) requires that the ESCO guarantee that the improvements will generate cost savings sufficient to pay for the project over the term of the EPC. This payback period is calculated using the simple payback method, which divides the total project cost by the projected first year energy costs savings.\(^4\) The simple payback method does not take into account the time value of money, which discounts the value of future dollars relative to today’s dollars in order to properly compare the economic benefits of competing long-range upgrade projects. Furthermore, the simple

\(^4\) Education Law specifies that any State building aid attributable to the project cannot be included in the determination of cost savings.
payback method does not take into account additional cost savings that the districts may continue to realize after the EPC ends as a result of the energy improvements.

According to SED data, from December 1995 through January 2013, there were over 1,200 EPC-related capital projects approved for over 200 districts and BOCES, totaling almost $734 million. The average project cost during this time was over $600,000. We audited five school districts\(^5\) in Nassau and Suffolk Counties with the highest cost EPCs approved by SED between February 2009 and January 2013. The five districts audited used the same ESCO and each had a single EPC that SED approved between February 2009 and June 2011 with total capital project costs of approximately $52.5 million.\(^6\) These five EPCs guaranteed a total energy cost\(^7\) savings of approximately $74.4 million;\(^8\) none of the EPCs guaranteed the associated energy consumption savings.\(^9\)

**Objective**

The objective of our audit was to review the projected cost and/or energy savings achieved by the EPCs entered into by five school districts. Our audit addressed the following related question:

- Did the EPCs entered into by the districts achieve the cost and/or energy savings projected by the ESCO who executed the contract?

**Scope and Methodology**

For the period of June 1, 2005 through November 10, 2014, we interviewed district officials, energy managers and representatives from the ESCOs. We also reviewed the EPCs for information, including the guaranteed energy and operational savings and the base-year utility data (e.g., consumption, cost and rates), and reviewed any supporting documentation related to the EPCs. We used this information to verify the reasonableness of the ESCOs’ figures and to project the net savings over the lives of the EPCs.

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\(^5\) We audited Island Trees Union Free School District and Manhasset Union Free School District within Nassau County and Half Hollow Hills Central School District, Middle Country Central School District and Sachem Central School District within Suffolk County.

\(^6\) Including lease interest

\(^7\) Energy cost is the amount a district pays for energy (i.e., electricity, heating oil and natural gas).

\(^8\) The ESCO also guaranteed an additional $415,048 of savings from rebates.

\(^9\) Energy consumption savings would be a reduction in the quantity of energy (i.e., kilowatts of electricity, gallons of heating oil or therms of natural gas) that a district uses. While the goal of the EPC is to reduce consumption, the ESCO did not guarantee that consumption would decrease by a specific number of kilowatts or therms.
We conducted our audit in accordance with generally accepted government auditing standards (GAGAS). More information on such standards and the methodology used in performing this audit are included in Appendix C of this report.

The results of our audit and recommendations have been discussed with district officials and their comments, which appear in Appendix B, have been considered in preparing this report.

Comments of District Officials

The results of our audit and recommendations have been discussed with district officials and their comments, which appear in Appendix B, have been considered in preparing this report.
Energy Performance Contracts

EPCs should generate cost savings over the life of the EPC that cover or exceed the cost of the energy upgrades without the benefit of grants or State aid. District officials should perform a cost-benefit analysis to make this determination prior to initiating an EPC. After the related project work is completed, district officials should monitor the energy consumption and costs and use that data to ensure that the district is realizing the energy and/or cost savings guaranteed by the ESCO. The ESCO should prepare an annual maintenance and verification report for the district, providing information concerning whether the guaranteed savings were met. District officials should use their own data to determine whether the ESCO’s reconciliation report is accurate. District officials should also ensure that the EPC identifies the recourse available to the district if the guaranteed energy or cost savings are not realized.

We reviewed five EPCs that SED approved between February 2009 and June 2011 with total capital project costs of approximately $52.5 million.\(^{10}\) The EPCs involved a variety of facility improvement measures\(^{11}\) at the districts’ 63 buildings, including several upgrades to the boilers, lighting, heating, ventilation and air controls. All five districts are projected to achieve the guaranteed energy cost savings (see Figure 1). The ESCO did not guarantee the associated energy consumption savings at any of the districts.

![Figure 1: Performance of EPCs](image)

Before any grants or rebates, the districts can expect to realize savings of approximately $5.2 million. With the receipt of grants and rebates, the total savings will amount to approximately $9.1 million. This amount does not include any State aid that the districts might have received because Education Law specifically excludes State building aid attributable to the project from the calculation of cost savings under the EPC. To further illustrate the energy cost savings achieved

\(^{10}\) Including lease interest

\(^{11}\) See Appendix A for a list of all facility improvement measures at each district.
through the EPCs, Figure 2 compares a projection of what utility costs would be for four of the districts over the 18-year contract period had the EPC not been undertaken to a projection of post-EPC utility costs for the 18-year term of the EPC. Due to the fact that our projections relied on annual district energy costs recorded prior to and immediately following the EPC, our projections were subject to fluctuations in the oil market over a five-year period and, as a result, savings based on projected utility costs are not apparent at Island Trees.

![Figure 2: Comparison of Projected Utility Costs](image)

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<td>$20,255,971</td>
<td>$10,524,135</td>
<td>$50,956,572</td>
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<td>$10,761,141</td>
<td>$8,237,812</td>
<td>$8,237,812</td>
<td>$5,268,528</td>
<td>$18,998,953</td>
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<td>$20,655,657</td>
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<td>$21,898,914</td>
<td>$21,898,914</td>
<td>$12,970,526</td>
<td>$73,256,874</td>
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Cost Savings from EPC:

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<th>District</th>
<th>Cost Savings from EPC (2013-2031)</th>
<th>Cost Savings from EPC (2013-2031)</th>
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<td>$10,638,987</td>
</tr>
<tr>
<td>Manhasset</td>
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<td>$2,328,563</td>
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<tr>
<td>Middle Country</td>
<td>$12,909,765</td>
<td>$12,909,765</td>
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<tr>
<td>Sachem</td>
<td>$13,068,438</td>
<td>$13,068,438</td>
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</table>

Related to the projected energy cost savings, all five districts realized electricity consumption savings ranging from 8 to 33 percent, even though the number of cooling degree days at three of the five districts increased by 11 to 15 percent in the first year. The improvements to the districts’ light fixtures alone accounted for approximately 28 to 48 percent of the districts’ first-year cost savings. Further, Half Hollow Hills realized a 40 percent decrease in natural gas consumption in the first year, even though the number of heating

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12 Between 2008-09 and 2013-14, average Island Trees heating oil costs increased from $1.63/gallon to $3.44/gallon.
13 Based on an analysis of no less than three, but no more than 20 percent, of each district’s buildings.
14 Heating and cooling degree days are a way to relate each day’s temperatures to the demand for energy to heat or cool buildings. To calculate the heating degree days for a particular day, find the day’s average temperature by adding the day’s high and low temperatures and dividing by two. If the number is above 65, there are no heating degree days that day. If the number is less than 65, subtract it from 65 to find the number of heating degree days. Cooling degree days are also based on the day’s average minus 65.
degree days increased by 2 percent. Island Trees realized a 27 percent decrease in heating oil consumption in the first year, even though there was just an approximate 4 percent decrease in heating degree days. Natural gas consumption increased by 5 to 19 percent at the other three districts. However, this was attributable to increased usage of the school buildings for extracurricular and community activities, along with a 7 to 8 percent increase in heating degree days.

Although the districts are guaranteed to realize a certain amount of energy cost savings, and they are projected to achieve energy consumption savings, only three of the districts we reviewed had effective monitoring procedures in place to ensure that those savings are achieved. At Manhasset, the Building and Facilities Director, who is an engineer, and the Treasurer, who is a Certified Public Accountant with experience in the construction field, reviewed the ESCO’s annual verification report to ensure that the reported energy costs and consumption are accurate and that the guaranteed energy savings are being achieved. Upon identifying an error in the report, Manhasset officials were able to ensure that the ESCO performed additional work, in accordance with the cost savings guarantee. At Sachem, although an account clerk monitors energy consumption through the monthly utility bills, she does not monitor the energy costs. Further, while Sachem has an agreement in place with its engineering firm to verify the accuracy of the annual verification reports that the ESCO must provide for the first three years of the EPC, Sachem officials have not implemented procedures to monitor cost savings after that three-year maintenance and verification period. Island Trees has a similar arrangement with its engineering firm.

No one at the other two districts is verifying the accuracy of the ESCO’s annual verification reports or ensuring that the guaranteed energy savings are being achieved. Instead, district officials are relying on the ESCO’s annual verification reports that state whether they have been achieving the guaranteed savings. In addition, Middle Country has yet to receive an annual verification report showing whether they have been achieving the guaranteed savings; therefore, no one at this District has been able to implement procedures to verify the accuracy of the ESCO’s annual verification reports or ensure that the guaranteed energy savings are being achieved. Consequently, officials at these two districts have limited assurance

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15 The ESCO was required to provide its first year measuring and verification report to the Middle Country Central School District by January 10, 2015, within 60 days of the end of the EPC’s first year after substantial completion. As of April 14, 2015, the District had not received this report. Therefore, all savings and the portion attributed to light fixture improvements are projections based on the original ESCO estimates made in the base year.
that the guaranteed savings are being achieved and that they do not, therefore, need to seek recourse for any difference.

**Recommendations**

District officials should:

1. Ensure that the ESCO provides annual verification reports within 60 days of the reporting year-end, as required by the EPC.

2. Implement monitoring procedures to ensure the actual cost savings presented by the ESCO are verified and supporting calculations are reviewed. If the guaranteed cost savings are not achieved, district officials should seek recourse, in accordance with the terms of their EPC.
## APPENDIX A

### FACILITY IMPROVEMENT MEASURES BY DISTRICT

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APPENDIX B

RESPONSES FROM DISTRICT OFFICIALS

We provided a draft copy of this global report to the five districts we audited and requested responses. We received responses from four districts. We also provided a draft version of the respective individual letter reports to each of the five districts and received responses from all five districts. The districts generally agreed with our audit report.

The following comments were excerpted from the responses:

Overall Comments

Middle Country Central School District officials said: “We are in agreement with both of the audit findings listed in the report. As to finding number 1…between the culmination of the audit and the draft report being issued, the District did receive the draft report from the ESCO confirming the savings projected for the project. As to finding number 2, the District is in agreement that an independent third party be utilized…to ensure the actual savings presented by the ESCO are verified. This third party could be a District employee or an outside contractor. The District would like to point out that it utilized [its engineering firm] to serve in that capacity from the inception of the project.”

Sachem Central School District officials said: “Sachem CSD agrees with the OSC that ongoing monitoring procedures should be implemented to ensure the actual cost savings presented by the ESCO are independently verified and supporting calculations are reviewed, given the highly technical nature of these reports…as part of the overall services to Sachem CSD, [the engineering firm] has been providing the independent 3rd party verification of [the ESCO’s] M&V reports on behalf of the District…Thus, as recommended by OSC, Sachem CSD has taken the necessary steps to ensure that the claimed projects savings are being monitored and verified.”

Half Hollow Hills Central School District officials said: The District “already has a process in place to warrant that the savings presented by the ESCO are verified and supporting calculations are reviewed. More specifically, the District’s Assistant Superintendent for Finance and Facilities, in concert with the District’s Facilities Administrator, routinely reviews energy expenses for each of the District’s buildings and annually reviews the energy analysis provided by the energy services company. In addition, the District has at its disposal a team of engineers, available through its architect of record, to conduct a deeper analysis should one be warranted at a future date.”

Island Trees Union Free School District officials “respectfully disagree with the findings…stating the district is not verifying the guaranteed energy savings. Annually, [the engineering firm] verifies that the savings are being achieved… [The engineering firm] has been charged with reviewing the savings guarantee through the life of the project.”
OSC Comment

We have amended our final report and Island Trees Union Free School District’s individual report to indicate that the Island Trees Union Free School District is verifying the guaranteed energy cost savings for the first three years of the EPC. However, the documents presented by District officials did not support that they have implemented procedures to ensure that energy consumption savings or the guaranteed energy cost savings are achieved beyond the three-year maintenance and verification period.
APPENDIX C

AUDIT METHODOLOGY AND STANDARDS

Our overall goal was to evaluate whether the districts were meeting the cost or consumption savings guaranteed by the EPCs and whether districts were netting a cost savings over the life of the EPCs after considering the cost of the project. To accomplish our audit objective and obtain valid audit evidence, our procedures included the following:

• We interviewed officials and employees at all five districts, as well as representatives from the ESCO.

• We reviewed the various EPCs to obtain the scope of the work, the cost of the project, the length of the contract, the contracted ongoing maintenance and verification costs and the guaranteed energy, operational cost or consumption savings over the life of the various EPCs.

• We obtained utility data including the consumption and rates for the five base years and verified the reasonableness of the ESCO’s base-year calculations.

• We obtained utility data for the first year after substantial completion of each district’s EPC and compared the consumption and costs for this year to that of the base years to determine the first-year consumption and cost savings for all EPCs. We then compared our calculations to the ESCO’s first-year measuring and verification reports to ensure what the ESCO had reported as actual savings at each district was reasonable.

• Using the U.S. Department of Commerce’s prescribed formula for projecting present value cost savings, we applied the U.S. Department of Energy’s utility price indices to the base year and first-year energy costs for each district to project the districts’ potential cost savings over the life of their respective EPCs. We compared our projections to those the ESCO had made using engineering industry standards to determine if the ESCO’s projections appeared reasonable. We used our professional judgment to determine the reasonableness of the differences between our projections and the ESCO’s, considering the differing calculation methods used.

• We obtained the lease payment schedules or payments made to the ESCOs for all EPCs to document the lease payments or total capital payments to be made over the life of the contracts.

• We subtracted all the expenditures related to the five EPCs, including monitoring and verification, maintenance and lease or capital payments, from the total energy and operational cost savings calculated to identify any potential cost savings without considering grants or State aid.

We conducted this performance audit in accordance with GAGAS. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objective. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objective.
APPENDIX D

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