



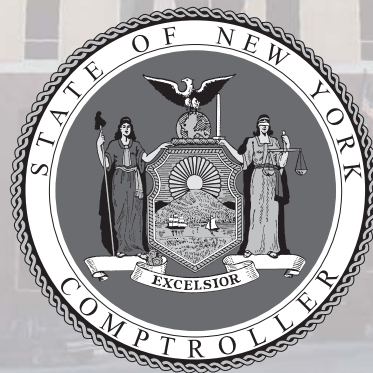
Owego-Apalachin Central School District Energy Conservation Efforts

Report of Examination

Period Covered:

May 1, 2004 — March 31, 2010

2010M-136



Thomas P. DiNapoli

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State of New York Office of the State Comptroller

Division of Local Government and School Accountability

November 2010

Dear School District Officials:

A top priority of the Office of the State Comptroller is to help school district officials manage their districts 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 district costs and to strengthen controls intended to safeguard district assets.

Following is a report of our audit of the Owego-Apalachin Central School District, entitled Energy Conservation Efforts. 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 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*

Introduction

Background

The Owego-Apalachin Central School District (District) is located in the Towns of Owego, Tioga, Newark Valley, Candor, and Nichols in Tioga County. The District is governed by the Board of Education (Board) which comprises seven elected members. The Board is responsible for the general management and control of the District's financial and educational affairs. The Superintendent of Schools (Superintendent) is the chief executive officer of the District and is responsible, along with other administrative staff, for the day-to-day management of the District under the direction of the Board.

There are four schools in operation within the District, with approximately 2,300 students and 400 employees. The District's budgeted appropriations for the 2010-11 fiscal year were approximately \$41.7 million, funded primarily with State aid, real property taxes and grants.

In 2004, District officials established energy conservation procedures in an effort to reduce energy costs. Additionally, they hired a part-time energy specialist whose duties included reviewing the District's compliance with these energy conservation procedures, calculating energy savings achieved, and researching and recommending new energy conservation procedures.

Objective

The objective of our audit was to determine if the District has achieved cost savings by answering the following question:

- Have District officials evaluated energy consumption and implemented energy conservation procedures to help them reduce costs?

Scope and Methodology

We examined the District's energy conservation procedures for the period May 1, 2004 to March 31, 2010 to determine the cost savings that the District has achieved since implementing the procedures in 2004.

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 B of this report.

Comments of District Officials

The results of our audit have been discussed with school district officials and their comments, which appear in Appendix A, have been considered in preparing this report. District officials generally agreed with our positive audit finding.

Energy Conservation Procedures

Facing a severe economic crisis, New York State (State) school districts are experiencing a period of declining revenues as State aid to school districts has stagnated at the same time that the cost of delivering educational services continues to increase. One of these increasing costs is the cost of energy (electricity and natural gas). The State has the second highest energy costs in the nation and had the third highest average electric rate in March of 2010.¹ The volatile energy market has forced many school districts to explore options to reduce energy consumption and thereby reduce costs. One way to reduce and/or control energy costs is for school districts to develop energy conservation procedures. An energy management system can aid districts in implementing those procedures and monitoring energy reductions.

The District purchased an energy management system (System) in 1999 as part of a large energy capital project. In 2002, the contractor that provides maintenance on the System contacted District officials and advised them that they could save money on energy costs if they utilized more of their System's capabilities. District officials then took steps to more fully utilize their System. The District's program involved specialists from the vendor working with District officials and staff to determine how their System was being used and how it could be used to save energy.

At the conclusion of this program, in March 2004, District officials established and implemented energy conservation procedures over building lighting, heating, and cooling, along with staff procedures over non-District-owned electronic equipment usage. The new procedures required that, during the normal instructional year (September through June), all inside lighting operates in security mode² from 30 minutes after the last buses leave the buildings to 30 minutes before students arrive. Outside lighting is controlled by timers that turn these lights on 30 minutes prior to student arrival and off 30 minutes after student departure. Timers are updated monthly to prevent lights remaining on while there is adequate sunlight. During the summer months, internal building lighting operates in security mode and external lighting is off except when special events are planned or summer school is

¹ According to the U.S. Department of Energy, Energy Information Administration, the State's average electricity rate is 15.52 cents per kilowatt-hour (kWh) vs. the national average of 9.8 cents.

www.eia.doe.gov/cneaf/electricity/st_profiles/new_york.html

² Security mode means that light switches are turned off except for lighting that is hardwired for building security purposes.

conducted in a building; in these instances District officials follow normal instructional year procedures.

Additionally, these new procedures provided that non-District electronic equipment, such as personal electronic coffee pots, fans or radios, would be allowed only with the District's energy specialist's approval. All non-District electronic equipment is tagged once it is approved for use; this way, spot checks can easily be conducted to ensure compliance with these procedures.

The District's newly implemented heating and cooling procedures required setting heating and cooling zones for occupied and non-occupied areas. Heating set points for occupied zones are 70 degrees; heating set points for non-occupied zones are 60 degrees. Cooling set points are 74 degrees for occupied zones; cooling set points for non-occupied zones are 85 degrees except for zones that contain equipment that requires certain temperatures (i.e., computer equipment). Set point temperatures are programmed into the energy system, which controls the heating throughout the buildings. In other words, there are no thermostats in individual rooms.

District officials used the capabilities of their System to ensure that their energy conservation procedures were followed. The District's energy specialist pre-programmed the System with security mode times, external lighting timers, and occupied and non-occupied times and set points. Prior to establishing energy conservation procedures and programming the System, District officials reported that all of their buildings were being heated or cooled, and that lights were turned on, for a total of 453 hours per day. After establishing these procedures and fully utilizing their System, they were able to reduce these hours of energy consumption by 38 percent to 283 hours per day. District officials also told us that they reduced the number of therms used to heat District buildings, but they were unable to calculate the amount of the reduction. The District saved approximately \$1.4 million in electric and natural gas costs for the period of May 2004 through March 2010.³ Furthermore, we estimate that the District will continue to save approximately \$252,000 annually.

³ Savings are based on reports the District's energy specialist generated from a third-party, web-based utility-tracking software that compares the District's current-year energy consumption (kilowatts and therms) to its base-year consumption.

APPENDIX A

RESPONSE FROM DISTRICT OFFICIALS

The District officials' response to this audit can be found on the following pages.

Owego Apalachin Central School District

36 Talcott Street – Owego, New York 13827

Dr. William C. Russell
Superintendent of Schools

Phone: (607) 687-6224
Fax: (607) 687-6313

November 9, 2010

[REDACTED]
Division of Local Government & School Accountability
Office of the State Comptroller
110 State Street
Albany, New York 12236

Dear [REDACTED]:

We have received the draft findings of your recently completed audit of the Owego Apalachin Central School District (OACSD), and met with your examiners to discuss their findings. We are gratified to see their very positive report on our energy conservation efforts. I am writing this "District Response" to add some context to their findings.

The audit's findings reflect the OACSD's longstanding, active, aggressive energy conservation efforts. While the examiners were only able to audit part of our program, I believe it will be helpful to put their findings in the context of our overall approach to energy conservation and management. That context includes:

- Co-generation facilities that produce 375 kW of electricity (1/3 of electrical demand for 3 schools and the bus garage), plus substantial heat, which is then utilized to heat the high school and the District's swimming pool.
- An extensive geothermal system uses groundwater to enhance heating and air conditioning for the middle school and part of the high school.
- The co-generation plant's excess heat is also captured to raise the temperature of the geothermal system's groundwater loop, making it more energy-efficient and using all the heat produced by co-generation.
- All of the District's buildings now use digital, computer-based controls to maintain comfort levels in every room and to ensure the most efficient operation of HVAC systems
- Our recently completed EXCEL capital project included many energy conservation features, including:
 - New, more energy-efficient rooftop HVAC units
 - New unit ventilators with CO2 sensors to monitor air quality, maintain appropriate oxygen levels, and enhance operational efficiency


- Modernized building envelopes on three buildings, including:
 - New windows
 - New roof and skylights on high school
 - Insulated exterior wall panels
- Energy-efficient lights for athletic fields and parking lots, minimizing electrical consumption and creating minimal night-sky light pollution. Exterior lighting is now all computer-controlled, turning lights on and off only when needed.
- A new dedicated domestic hot water heater was installed at one elementary school, so we no longer have to fire the big boiler to get domestic hot water.
- All new facilities (bathrooms and locker rooms) were modernized to minimize water consumption
- A recent District-wide light bulb replacement project eliminated 1,937 lightbulbs (reducing 62 kW of electrical consumption for lighting).
- We are participating in the Electrical Demand Response program (part of Operation Save New York), reducing electrical demand in periods of excessively high demand on the electrical grid statewide.
- We are actively researching solar power applications for future installation.

In short, the Owego Apalachin Central School District has taken on many cost conscious, “green technology” initiatives over the years. The Comptroller’s audit appropriately highlights those initiatives, and we are pleased with the result of your examiner’s work. Thank you for helping us verify and quantify these positive results.

Very truly yours,



William C. Russell, Ph.D.
Superintendent of Schools

xc: 
D. Barton, OA Board President
R. Pryor
E. Kochis

APPENDIX B

AUDIT METHODOLOGY AND STANDARDS

We conducted interviews with various staff members to assess the District's operations with the goal of identifying any cost saving opportunities and concluded that the District's use of an energy management system as part of their energy conservation program helped them achieve cost savings. Therefore, we audited the District's energy management system to determine the cost savings that the District achieved since implementing the system. We examined the cost savings that the District achieved for the period May 1, 2004 through March 31, 2010. Our overall goal was to assess the cost savings that were achieved by establishing energy conservation procedures and using the capabilities of the District's System to ensure that procedures were followed. To accomplish the objective of this audit and obtain valid audit evidence, our audit procedures included the following:

- We conducted interviews with various staff members to gain an understanding of the steps that District officials took to establish their energy conservation procedures and how the District's System helped ensure that procedures were followed.
- We obtained a copy of the District's energy conservation procedures and reviewed them to gain an understanding of them.
- We obtained savings reports generated from the District's energy management software and used them, along with payment history reports, to calculate the District's savings to date and anticipated annual savings.
- We traced total kWh and therms⁴ from vendor bills for several meters and daily temperatures for 214 days as reported by the National Weather Service, to the third-party, web-based utility-tracking software to ensure that data used in calculating savings by the software was correctly recorded.

We conducted our performance audit in accordance with generally accepted government auditing standards (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.

⁴ One therm is a unit of heat energy equal to approximately 100 cubic feet of natural gas.

APPENDIX C

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