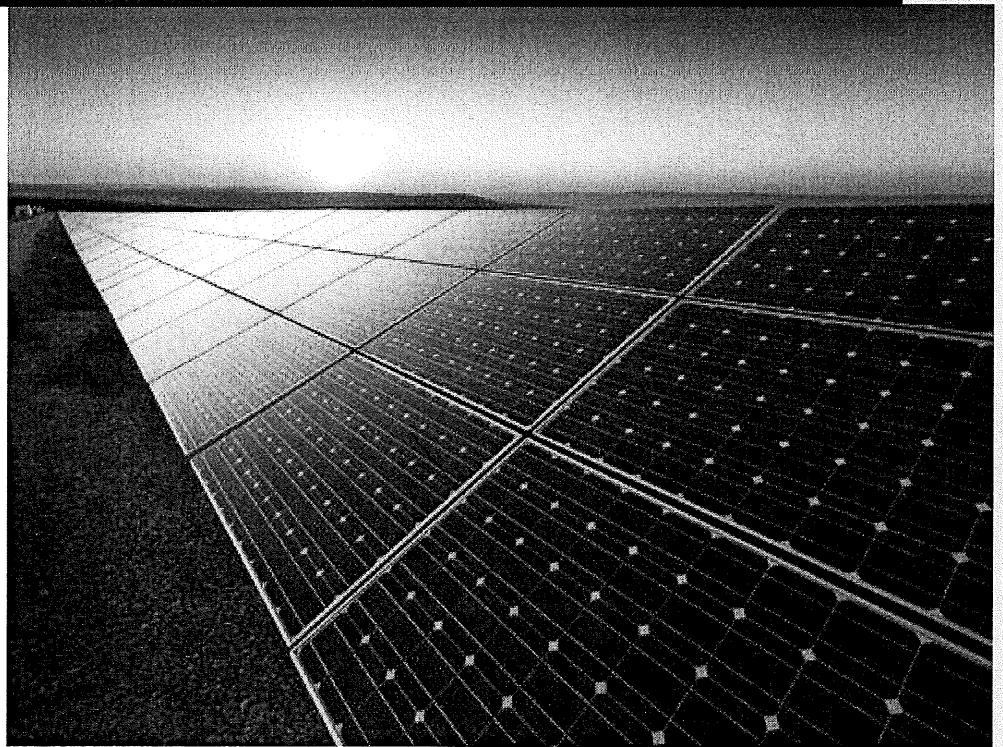


Jackson
School
District

Energy Management Plan



Updated

8/30/2009

JACKSON TOWNSHIP SCHOOL DISTRICT

Energy Management Plan

I. Purpose

The Jackson School District is committed to creating, developing, and executing a plan to conserve energy within our district. We will take a leadership role in developing a realistic energy plan and generate awareness of energy needs and costs. Energy efficient operation of facilities can create an improved learning environment that increases the comfort and productivity of all employees and students. In recognition of this responsibility, the district will institute an energy management plan in order to reduce the use of energy and eliminate waste through efficient practices and behaviors.

II. Goal

The Jackson School District believes that all employees and students should learn and practice ways to reduce energy consumption on a daily basis by instilling lifelong habits for energy conservation.

III. Objectives

The Jackson School District employs the following methods to achieve our goal to reduce energy consumption.

- The district has assigned an Energy Education Specialist to monitor energy consumption and energy conservation at the District Level. This person not only oversees the implementation of the program with a “hands on” approach, but also monitors the bills received from utility companies in order to avoid overbilling, estimated bills, spikes in usage, and any other errors that may occur. The Energy Education Specialist also conducts frequent energy “audits” in all facilities during unoccupied hours to identify areas where energy savings can be maximized and communicates these findings when necessary to the Business Administrator, Director of Buildings and Grounds, Principal, and any other person to whom this information pertains. It is this “visibility” that is essential to the success of the program. In addition, this individual is responsible for all things energy and/or environmentally related.
- Monitoring the goals and progress of the energy program and reporting the data to the Board and community. The district has also created an energy benchmark based on the use of utilities over a one to two-year span. Since the Energy Conservation Program focuses on the use and not the cost of utilities, the measurement and verification of energy reduction is necessary in terms of determining the success of the program.

- Implementation of operational and maintenance procedures to ensure more efficient equipment operation. This includes creating energy efficient time of day lighting and HVAC schedules that maximizes cost savings and cost avoidance. In addition, optimal starting times are implemented where possible in order to lower demand charges on the monthly bill.
- The Energy Education Specialist has also taken on the role of Recycling Coordinator. While the district already recycles a significant amount of materials, the increased awareness of a strong recycling program will assist in the creation of an environmentally focused mindset among the students and staff; thus contributing to the environmentally friendly behavior that is essential for the success of the Energy Conservation Program.
- All employees and students are expected to contribute to the conservation of energy in our district. Some examples of this are the shutting down of electronic devices, ensuring that classroom windows are closed and locked, and half lighting in the hallways during off hours where possible on a daily basis. All of this will minimize the use of energy while maintaining an environment conducive to the comfort, health, safety, and well-being of all employees and students.
- In addition to lowering costs through energy conservation practices by the staff, the Jackson School District has investigated lowering utility costs by conducting a reverse energy auction for procurement of both natural gas and electricity. Furthermore, we will continue to look into other opportunities for lowering our costs, such as reducing our monthly demand charges and yearly peak demand charges from our suppliers.
- Participation in the Sustainable Jersey for Schools Program. All of our schools are participating in a state sponsored program that assists schools in finding ways to be more environmentally friendly. So far, 3 of our schools (Switlik, Elms, and Liberty) have achieved Silver Level Certification and 2 (McAuliffe and Liberty) have been awarded the state level Sustainability Champion Award. At a minimum, earning Bronze Level certification in this program has enabled our schools to apply for many eco-friendly/sustainable grants. Again, this environmentally friendly behavior will help contribute to the energy consciousness needed for the success of the program. Since joining this program, the district has been given the opportunity to apply and receive numerous grants that have so far totaled over \$1,000,000. The Energy Education Specialist will continue to spearhead this program and also look for more grant opportunities.
- Participation in the United States Department of Education's Green Ribbon Schools program. Last year, Switlik Elementary School was one of only 40 schools nationwide to receive this honor. This year, Elms Elementary School was one of only 35 schools nationwide. We will continue to apply for this prestigious award until all of our schools are recognized.

- The district has participated in a Local Government Energy Audit (LGEA) for all of our buildings. This is currently provided at no charge to the district by the State of New Jersey and is available every 3 years. The information gained from this audit will be extremely useful in creating a plan for future energy related projects and/or programs. This data will also be used in creating an Energy Star profile for each of our buildings.
- Subject to the resources available, the Jackson School District will consider energy efficiency in terms of future maintenance, operations, and updates of all facilities and equipment. This past year, the district finished our participation in the Board of Public Utilities sponsored Energy Savings Improvement Program (ESIP). This program has enabled the district to implement energy efficient capital improvements on all of its buildings. The reduction of energy usage from these improvements has created enough savings to generate a positive cash flow to the district over the next 20 years.
- In addition to the solar arrays at Liberty High School and Elms Elementary School, as part of the aforementioned ESIP project, the district has installed solar arrays at all of our buildings. This will provide a substantial amount of clean energy that will significantly lower our carbon footprint.
- We have also increased our clean energy production by installing 2 Combined Heat and Power units (CHP) at both McAuliffe Middle School and Crawford Rodriguez Elementary School.
- The district will continue to participate in a Demand Response program. In addition to the immediate financial benefit of reduction of usage, a third party company will reward the district monetarily if it can reduce electricity consumption during peak demand hours during an event. These opportunities usually occur in the summer when the grid is expected to be overloaded. However, if an opportunity occurs during school hours, not all of our schools will be able to fully participate due to occupancy. The district will also participate in other related programs or practices that can reduce energy costs.
- Recently, the district has been awarded a \$1.1 million grant for 2 electric powered (EV) refuse trucks. This grant also covers the cost of installing 2 EV charging stations. These stations are going to be installed at the Transportation Hub at Liberty HS. The charging costs compared to the diesel fuel costs will save over \$10,000 per year.
- This year we were the recipient of a \$595,000 SBBA Plumbing Upgrade grant through the NJBPU. These plumbing upgrades will significantly decrease our water consumption along with lowering our water expenditures by almost 50%.
- Require building administrators to contribute by reinforcing that the staff are actively involved in the energy conservation program. School based Green Teams

are in each building in order to facilitate this process. In addition, the Energy Education Specialist will give updates at least twice a year to the faculty in each building in order to keep the program in the minds of the staff.

- The Jackson School District will issue timely energy usage reports to the administrator of each facility.

IV. Recommended Energy Management Guidelines

General HVAC Guidelines

Approximately 70% of energy expenditures in schools are devoted to heating and air conditioning. This makes heating, ventilation, and air conditioning (HVAC) systems a primary target for improved efficiency and regularly scheduled preventive maintenance, as the opportunity for savings is substantial.

Since most of the buildings in the district were constructed at different times, there is much diversity among them. Each building's heating and cooling systems shall be utilized as efficiently as possible while also considering the comfort of all of its occupants.

Air Conditioning Practices

Generally, cooling set points for occupied hours should be between 72 and 76 degrees. Cooling set points will be set back to a minimum of 80 degrees during unoccupied times. Ideally, the occupied temperature setting will be reached approximately one hour before the school day begins. Again, each building is different and some may take longer to reach the occupied set point than others. As with all recommendations, some adjustments may be necessary depending on special circumstances, such as under extreme temperature conditions.

Heat Setting Practices

Generally, heating set points for occupied times should be between 68 and 72 degrees. Heating will be set back to a minimum of 60 degrees during unoccupied times. Ideally, the occupied temperature setting will be reached approximately one hour before school begins. As with all recommendations, some adjustments may be necessary depending on special circumstances, such as under extreme temperature conditions.

Preventative Maintenance

Studies have found that preventive maintenance and tune-ups of commercial heating and air conditioning systems can result in significant energy savings. The area in which the greatest potential for energy savings in schools exists is the maintenance of HVAC equipment and filters. Properly running HVAC systems will maximize comfort, improve efficiency and reduce energy.

All filters in the district shall be properly and routinely changed and/or cleaned on a seasonal basis. The components of the HVAC system will be kept in working condition so that maximum performance of the system can be maintained. Yearly tune-ups and routine maintenance will restore capacity, cut energy use, increase energy efficiency, and add to the life of existing equipment.

Building Envelope

Air leaks greatly influence comfort levels as they make a constant temperature harder to maintain. A tremendous potential exists for problems with air leaks. Many things, from poor weather stripping on windows and doors to exhaust fan louvers stuck in the open position, can allow unwanted outside air to enter the building, thus forcing the HVAC system to start running unnecessarily. All efforts will be made to ensure that comfort levels are maintained while this area of concern is being addressed. This year, we installed door sweeps and improved our insulation through the ESIP program.

General Lighting Guidelines

Lighting in schools typically accounts for approximately 24% of the energy consumed. Although this is a small portion compared to the energy consumption by heating and cooling systems, there is much room for improvement in the typical school setting.

Through the aforementioned ESIP program, this year we replaced every light bulb in the district with energy efficient LED lights.

Lights are often left on in unoccupied classrooms, storage closets, and other seldom used rooms in every facility. Outdoors, very inefficient incandescent lights are often burning in the middle of the day. These situations can be easily corrected by making a conscious effort to conserve energy. Active participation in conserving energy is expected by everyone occupying a building. Teachers, students, and other staff members will turn off lights and shut down all electronic devices before leaving the room at the end of the day. In addition, as part of our ESIP project, we installed motion sensors that will automatically shut off the lights in the room after 15 minutes in case someone forgets.

During unoccupied hours, custodians will lower the hallway lights to half lighting in the areas of the school where they are not working.

General Water Use Guidelines

All staff should use water wisely and report water leaks immediately for repair.

In all cases of water use, water leaks pose the potential for a substantial amount of energy waste. For example, one toilet that leaks can waste over 22,000 gallons per year.

Water use will be tracked on a regular basis. Any fluctuations or spikes in usage will be addressed immediately to avoid excessive waste and potential water damage to the premises.

Keeping water at a proper temperature can save valuable energy dollars. For sanitation and dishwashing purposes, the temperature will be set at 140°F. In addition, during extended vacation periods, the water temperature may be lowered to 105° to 107° F; these temperatures are suitable for general use.

General Energy Conservation Practices

Maximize the use of natural lighting if solar gain is not a problem. Use staged lighting when it is available. For example, turn off the row of lights next to a wall of windows when sunlight is sufficient.

Turn off lights in unoccupied rooms, closets, and storage areas.

Teachers and students will be instructed to keep windows closed during times when the building is being heated and/or cooled, thereby preventing the system to run unnecessarily.

Teachers will report any burned out, malfunctioning, or dirty fixtures and bulbs to the Facilities Department, according to school procedure.

Carefully place furniture to avoid blocking supply and return air grills.

All computers and monitors will be turned off at the end of the day.

Unnecessary electronic devices will be removed from classrooms (i.e. refrigerators, coffee pots, microwaves, etc.)

After school activities will be coordinated to minimize extended use of lighting and HVAC systems.


Keep doors to refrigerated boxes, reach-in and walk-in coolers/freezers, and ice machines closed as much as possible.

During the summer months, remove all food from the coolers and freezers at each school and consolidate into a central freezer and cooler. Depending on the age and durability of the equipment, either shut the unit down or operate it at a more economical setting.

Review Notes

Updated plan includes Energy Conservation Policy 7460.

Plan Approval



(Signature of Owner/Manager/Representative)

Energy Education Specialist
Title

August 29, 2022
Date

Annual Review



(Signature of Owner/Manager/Representative)

Dir of Building
Title

9/6/22
Date

Addendum: (1) Policy 7460

W/Energy Plan/Review/Final/9-10-2019/Doc.