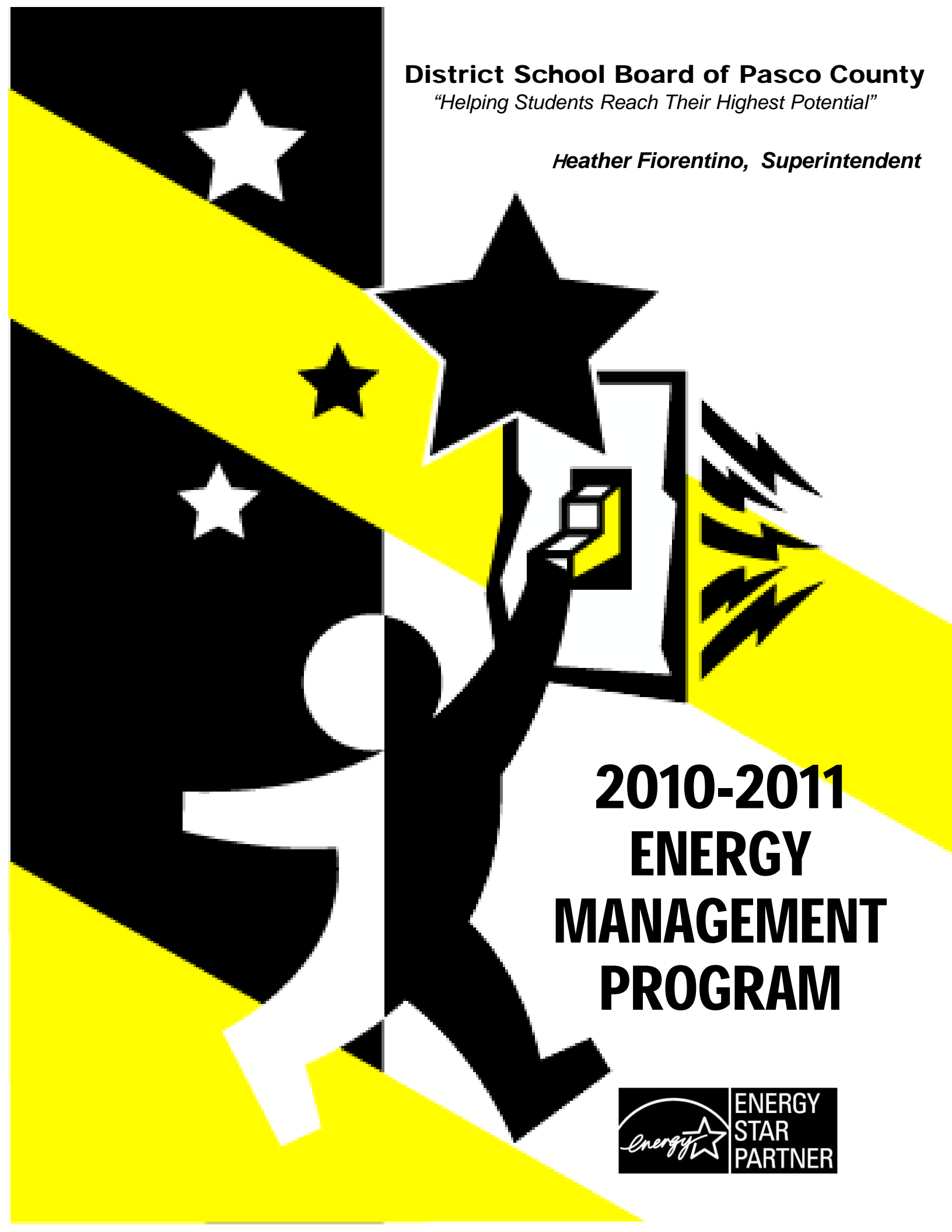


District School Board of Pasco County  
*"Helping Students Reach Their Highest Potential"*

*Heather Fiorentino, Superintendent*



2010-2011  
ENERGY  
MANAGEMENT  
PROGRAM





**DISTRICT SCHOOL BOARD  
of  
PASCO COUNTY**

**ENERGY MANAGEMENT PROGRAM  
Handbook**

***Conserving Energy ~ Reducing Costs ~ Protecting Resources***

**Prepared by:  
Energy Management Committee  
July 2010**



*This document is printed on recycled paper.*

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From our Superintendent...



The Energy Management Program (EMP) is designed to coordinate energy consumption techniques in order to save resources and lower the District's utility costs. Since its inception, this program has been remarkably successful, enabling Pasco's cost of energy per square foot (\$/SF) to consistently fall below the statewide average.

The conscious efforts and continued commitment of our employees have greatly contributed to the success of this conservation initiative. Your willingness to turn off lights and appliances; to work within reasonable temperature guidelines; and to take necessary steps to eliminate waste in electric, water and natural gas consumption continue to yield positive results for our District. In addition to these conservation strategies, the Energy Management Committee has supported retrofit projects throughout the District that have led to even greater savings. All of these utility savings have enabled the District to fund other priorities within the District.

As you are aware, our District continues to experience economic hardship. While we are not able to offer a financial incentive for your participation in the Energy Management Program, your continued success in conservation is vital to the ability of our District to realize the projected savings in this area of our budget.

*Saving energy is saving jobs!*

With electricity and water prices continuing to increase, the District is committed to giving conservation practices the priority attention it deserves to ensure that we continue to make progress in saving energy, reducing operating costs, and protecting our environmental resources.

Please continue your ongoing efforts and adopt the energy management and conservation goals of our District.

*Use energy wisely and keep up the good work!*

A handwritten signature in cursive script that reads "Heather Fiorentino".

Heather Fiorentino, Superintendent  
District School Board of Pasco County

**From a Board Member...**

*As a Board Member and a member of the Energy Management Committee, I am kept informed of the performance of the Energy Management Program of the District, and I am often encouraged by our collective actions. We keep adding square footage, but we are still able to maintain our energy cost, measured in \$/SF, at a level below the state District average.*

*Our accomplishment is a result of the commitment and coordinated efforts of our people: teachers, administrators, plant managers, food and nutrition workers, custodians, maintenance crews, and virtually everyone else that works in our educational facilities.*

*As your Board Member, I want each of you to know that I appreciate your cooperation in making energy and water conservation a very successful endeavor. Please continue your active participation and support of the Energy Management Program of the District School Board of Pasco County.*

*On behalf of myself and The Board, I'd like to say, "THANK YOU!"*

**Mr. Frank Parker**  
**Board Member ~ District 5**  
**Energy Management Committee Member**

**...Lighten Up!!**



*One lightning bolt has enough electricity to provide power for 200,000 U.S. homes.*

*The Statue of Liberty was the first Lighthouse to use electricity (1886).*

*Every year, American homes waste more than \$13B in energy; that's an average of \$150 per family.*

## ENERGY MANAGEMENT

Recognizing that energy efficiency and conservation is in the best interest of the Board, its personnel and students, as well as the taxpaying public, the Board will annually adopt an Energy Management Program (EMP) to control and optimize the cost and consumption of energy and energy-related products.

The EMP will be developed by a District Energy Committee comprised of nineteen (19) voting members, seventeen (17) of which shall be appointed by the Superintendent and one (1) appointed by the Board from its number and one (1) appointed by USEP. . No later than May 30 annually, each of the respective principals' groups shall forward one (1) name from their membership to the Superintendent for consideration of service for the next fiscal period. The chairman shall be named by the Superintendent from his seventeen (17) appointees. One (1) committee member shall be appointed from each of the following groups:

- A. *Energy Management Office*
- B. *Elementary School Principals*
- C. *Middle School Principals*
- D. *High School Principals*
- E. *Teachers*
- F. *School-Related Personnel (SRP)*
- G. *United School Employees of Pasco (USEP)*
- H. *Student Population*
- I. *Construction Services and Code Compliance Department*
- J. *Food and Nutrition Services Department*
- K. *Maintenance Services Department*
- L. *Purchasing Department*
- M. *Transportation Department*
- N. *Board*
- O. *Supervisor of Athletics*
- P. *Facility Custodial Office*
- Q. *Energy and Marine Center*
- R. *Safety Office*
- S. *PLACE Program*



Implementation of the EMP shall be the responsibility of the Superintendent or his designee.

Authority: F.S. 1001.41(2)

## *School District - Utility Overview*

The actual dollars spent for electricity during the 1999 -2000 school year was less than the School Board spent in 1992 -1993. During this same period of time over one million square feet of building area was added to the District. These phenomenal results in operating costs are the product of the Energy Management Program (EMP) adopted by the District School Board of Pasco County, and the dedication and efforts of the students and staff of the District. But that was then, this is now. In recent years, consumption has increased and utility rates are on the rise, affecting School District performance and operating budgets.

Using years of archived data as a foundation for future success, the 2010-2011 Energy Management Program is setting a goal of reducing electrical consumption by 5% (percent), when data is normalized and measured against the previous year.

During the school year, the structure of the EMP will remain the same; that is, the concepts of Education, Retrofit, Reporting, and Waste Reduction will be encouraged, emphasized and implemented.



***...did you know?***

***Electric costs exceeded \$10M  
in the 2008-2009 school year.***

The near and distant future offers diverse opportunities, as well as challenges. Opportunities in our schools to teach the value of energy and resource conservation can be initiated. Activities in the marketplace, as in the way electricity

is bought and sold, remain budgetary challenges. Electric rates are expected to increase, and the escalating price that energy providers pay for fuel will cause the cost of generation to increase. This fuel cost adjustment is passed on to the consumer, drastically increasing our utility costs.

With the addition of three (3) new schools during the current school year, the challenge of controlling all utilities (water, electric, solid waste, natural gas, and liquid propane) requires daily monitoring, attention and consideration.

Let us all work together to achieve better energy management practices; in doing so, we can create a comfortable environment for our students and teachers, making it conducive to teach, learn, perform and achieve.

## Energy Management Committee (EMC)

### Membership Roster

#### Elementary School Principal

Kara McComeskey  
Lake Myrtle ES

#### Teacher

TBA

#### Middle School Principal

Jason Joens, RRMS  
Chair, Education Sub-Committee

#### Construction Services / CC

Mike Woodall

#### High School Principal

Jim Michaels, JWMitchell HS

#### School-Related Personnel (SRP)

TBA

#### United School Employees of Pasco (USEP)

Robert Moore

#### Student Population

TBA

#### Food and Nutrition Service (FNS)

Rick Kurtz  
Chair, Retrofit Sub-Committee

#### Transportation

Tad Kledzik

Karen Bryant  
Co-Chair, Waste Reduction Sub-Comm.

#### Purchasing

Kendra Goodman

#### School Board

Frank Parker

#### Maintenance Services

Gerry Brown

#### Supervisor of Athletics

TBA

#### PLACE

Karla Turcotte

#### Energy and Marine Center

Donna Hoague-Koljeski  
Environmental Education

#### Energy Management Office

John Soler, CEM  
EMC Committee Chair

#### Facility Custodial Office

Eddie Flicker  
Chair, Waste Reduction Sub-Committee

## District Energy Management Committee

### *Duties and Responsibilities*

- Develop and communicate program procedures related to energy management and energy conservation.



- Inform the school community of the economic significance and importance of an effective energy management program.
- Provide an open forum to mutually discuss and resolve new and/or ongoing energy-related concerns.
- Distribute school-based consumption reports focusing on the success of energy efforts and the incentive program.
- Assist in prioritizing capital-funded, conservation programs.
- Meet on a quarterly basis, or as requested by the Chair.
- Solicit committee suggestions and facilitate implementation for better efficiency.
- Support interdepartmental partnerships considered critical for program success.
- Focus on creating cost savings efforts and mitigating future operating cost risks.
- Assist individuals /schools / ancillary facilities in improving skills and techniques in energy management through education, research, and the exchange of ideas and technical knowledge.
- Produce and present an annual Energy Management Program for Board adoption for upcoming school year.



*...did you know?*

***Recycling 1 aluminum can saves enough energy to run the TV for 3 hours.***

# Waste Reduction

**Goal:** To minimize waste and reduce the school district's energy consumption by 5% during the 2010-2011 school year.

**NOTE:** *It is the expectation of the Superintendent and the School Board that all cost center personnel will observe the following operational guidelines that support a waste reduction program applicable to electric, water, solid waste, liquid propane, and natural gas utilities:*

## Guidelines for Reduction of Waste:

- Initiate turning-off office equipment at night and when not in use. If the equipment has a power-saver mode, be sure it is enabled.
- Demonstrate effective conservation practices by turning-off lights (interior and exterior) when area is left unoccupied.
- Establish behavioral modification practices which impact end-user consumption.
- Adjust lighting controls so that lights (inside and outside), are turned off each day after the buildings are locked for the night.
- Set controls at water heaters for usage time only (preheat should be 15-30 minutes). If hot water is needed for general use, like hand washing only, reduce setting to 120 degrees Fahrenheit.
- Evaluate load patterns that can create optimal rate prices.
- Install lighting controls so that the amount of lighting used is appropriate for the activity and used only when necessary.
- Use proper partial lighting (i.e. partial banks of lights for overhead projectors, planning times, group meetings, etc).



**...did you know?**

**One kilowatt-hr (kWh) is the amount of electricity needed to burn a 100W bulb for 10 hrs.**

- Review the activities scheduled, so as to meet the needs of the group (i.e. small group can be housed in a small room).
- Review use of facilities by outside agencies. Investigate potential for meeting outside the school setting.
- Plan after-school activities accordingly (housed with HVAC efficiency taken into account).
- Adhere to state and local regulations when irrigating grounds.
- Follow energy management standard operating procedures (SOPs).
- Program water cooler thermostats at highest setting (set screw).
- Inspect the use of personal appliances, such as countertop microwaves, coffee pots, unit heaters, etc. which are not permitted in student instructional/counseling areas; appliances in teacher planning area may be considered appropriate.
- Examine preventative maintenance programs for improvements in filter changing routines, coil cleaning schedules, etc.
- Store scheduled holiday hours, non-work hours, and special school events into the energy management system to ensure HVAC system is not operating when school is not in use.
- Recommend turning-off school trophy/display cases at night.
- Examine and monitor utility meters for off-peak usage.
- Calibrate all temperature sensors for compliance with original design intent and control.



- Use lower wattage usage fixtures. Use fluorescent lamps when replacing incandescent lamps.
- Provide rain sensors to irrigation systems. Use landscaping mulch to reduce water quantities.
- Report/repair water leaks immediately.

- Consider installing energy control devices on vending machines.
- Inspect boilers for safety and efficiency.
- Inspect and replace equipment filters on a regular basis.
- Inspect and clean evaporator and condenser coils.
- Reduce ventilation as far as possible, but maintain levels consistent with code and health standards.
- Emphasize that schools must be responsible and accountable for all energy-related activities which contribute to both energy savings and/or costs.



***Florida Department of Education  
Energy Cost Information, School Year 2008~2009***

DISTRICT	ENERGY COST	AREA (GSF)	COFTE	\$\$ / SF	\$\$/COFTE
Lee	\$ 22,908,741.00	13,395,911	69,623.35	\$1.71	\$ 329.04
Brevard	\$ 15,014,644.65	12,812,205	64,266.98	\$1.17	\$ 233.63
<b>Pasco</b>	<b>\$ 11,250,803.00</b>	<b>11,235,551</b>	<b>63,551.32</b>	<b>\$1.00</b>	<b>\$ 177.03</b>
Volusia	\$ 12,085,137.00	10,357,972	61,094.02	\$1.17	\$ 197.81
Seminole	\$ 14,932,320.00	10,514,261	63,200.94	\$1.42	\$ 236.27
Collier	\$ 14,157,877.00	8,746,248	42,401.05	\$1.62	\$ 333.90
Osceola	\$ 12,073,721.29	8,322,494	45,559.92	\$1.45	\$ 265.01
Sarasota	\$ 10,391,266.00	8,304,363	39,862.81	\$1.25	\$ 260.68
				<b>\$1.35</b>	<b>\$254.17</b>
AVERAGE VALUES FOR DISTRICTS WITH SIMILAR SQUARE FOOTAGE					

The table above illustrates the annual energy costs of Pasco schools, as compared to seven (7) school districts with similar SF (+/- 20%). The dollars per square foot (\$\$/SF) average value is \$1.35; the Pasco value of \$1.00 is 26% less than the average value. The dollars spent on energy, per student, using COFTE values, is 30% less than the average value for districts with similar area; and, less energy dollars spent on students means more operating money available for education, making it possible for our students and teachers to teach, learn, perform, and achieve.

# Temperature Settings for HVAC Equipment

*In order to comply with federal, state and District guidelines, the following occupied-room temperature settings will be observed:*

## **COOLING:**

- *76° Fahrenheit, (+/-) 2 degrees, for school areas, including classrooms, media centers, and other non-instructional spaces.*
- *Gymnasiums may also be cooled to 76° Fahrenheit, (+/-) 2 degrees, during official school activities or school-approved events.*
- *During periods of high humidity, acceptable temperature settings and times of use will be determined by both the Energy Coordinator and the Environmental Specialist.*

## **HEATING:**

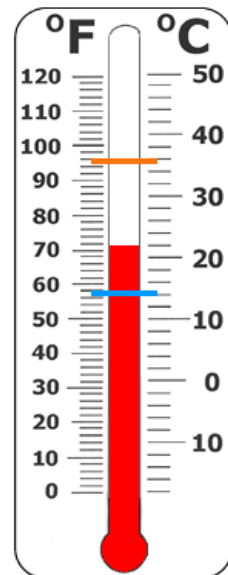
- *68° Fahrenheit, (+/-) 2 degrees, for all conditioned rooms.*

## **EXHAUST:**

- *Set temperature indicator control to 85° Fahrenheit for all exhaust fans located in electrical rooms*

## **HUMIDITY:**

- *Libraries and Media Centers are to be kept below sixty (60) percent relative humidity.*



**NOTE:** *The State Requirements for Educational Facilities 2007 (SREF), approved December 11, 2007, and effective 02/12/2008, shall be observed.*

# Education

**Goal:** To continually maintain a District-wide energy education and awareness program for K-12 students and all District employees.


## Teaching about Energy is Essential

- Educating the public, students, and employees about the economic and environmental costs of energy use is one of the best ways to help control energy waste.
- Learn how energy use affects our pocketbooks, our environment, and our national security. Americans are now importing more oil than during the oil crisis of the late 1970s. And, the use of fossil fuels for energy contributes significantly to air pollution.
- Consider the available energy options along with the consequences of each choice. For example, fossil fuels are convenient and readily available, but their supplies are finite and their use may be environmentally damaging. Meanwhile, renewable energy sources are inexhaustible with many environmental benefits, but they aren't as convenient, readily available, or able to meet all our energy needs.



- Promote interest in the development of renewable energy sources. Driven by numerous factors, including, the 2000 California energy crisis; growing concern over global warming; heightened national security; and, the health effects of poor air quality, renewable energy is gaining the attention of the general public as well as our state and national governments.

- Understanding all aspects of a particular energy source--its availability, benefits, and monetary, environmental, and social costs--will help when making informed decisions about energy.
- Prevent energy loss...it saves money; and can benefit the environment by reducing pollution and conserving our natural resources.
- Encourage energy-smart decisions. Energy-savvy individuals will be more conscientious about conserving energy during their lifetimes. Initiate energy education at the early stages of child development; it will provide long-term benefits such as increased awareness and lower energy consumption over time.

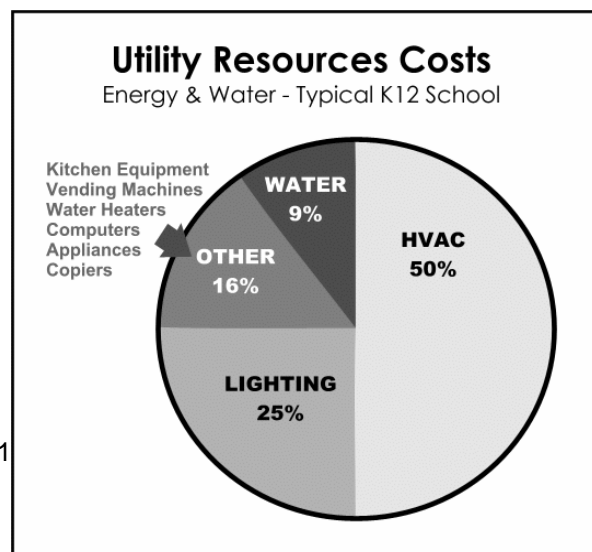
 **...did you know?**

***Nuclear energy generates about 20% of U.S. electricity; in France, 75% of electricity is nuclear.***

- Learn and study energy...it is an excellent way to introduce students to scientific concepts and processes included in the National Science Education Standards.

- Learn about energy efficient innovations that promote conservation. Integrate news about emerging technologies into the curriculum.
- Evaluate contemporary approaches in energy education; they are needed to ensure that students are kept interested and fully engaged in learning more about energy efficiency solutions.

(Excerpts from source document : <http://www.rebuild.org/sectors>)



*The following energy education links are provided for your use and consideration:*

- [American Gas Association](http://www.aga.org) - All kinds of information and news on natural gas. (<http://www.aga.org>)
- [Consumer Energy Information For Your Home](http://www.eere.energy.gov/consumerinfo) - Tips on saving energy in your home and workplace. (<http://www.eere.energy.gov/consumerinfo>)
- [Department of Energy - Fossil Energy Homepage](http://www.fe.doe.gov) - A website directed toward fossil fuel energy information and news. (<http://www.fe.doe.gov>)
- [Energy Education Resources](http://www.eia.doe.gov/bookshelf/eeer/kiddietoc.html) - List of generally available free or low-cost energy-related educational materials. (<http://www.eia.doe.gov/bookshelf/eeer/kiddietoc.html>)
- [Federal Energy Regulatory Commission - Students' Corner](http://www.ferc.gov/students/index.htm) - Information for students about energy and energy regulation. (<http://www.ferc.gov/students/index.htm>)



- [Florida Solar Energy Commission](http://www.fsec.ucf.edu) - A research center at the University of Central Florida. (<http://www.fsec.ucf.edu>)
- [National Energy Education Development](http://www.need.org) - Website dedicated to increasing energy education and awareness in school. (<http://www.need.org>)
- [National Energy Foundation](http://www.nef1.org) - NEF, a nonprofit educational organization and a national leader in teacher training, student programs, instructional materials, development and distribution. (<http://www.nef1.org>)
- [U.S. Department of Energy - Solar](http://www.eere.energy.gov/solar) - Federal website for the US department of Energy. (<http://www.eere.energy.gov/solar>)

## *Retrofit Projects*

**Goal:** To reduce the District's consumption of utility energy (electric, water, natural gas) through the analysis and implementation of energy management practices that are practical and cost-efficient..

### **Retrofit strategies and activities:**



- Continue efforts to replace existing incandescent lamps with new efficient, fluorescent lamps.
- Research low energy indoor and outdoor lighting for potential use.
- Investigate new automatic lighting control systems.
- Install CO2 sensors in schools as deemed necessary.
- Continue to replace and upgrade HVAC direct digital control (DDC) contacts at existing schools.
- Examine opportunities for installing light-emitting diodes (LED) exit sign which have earned the Energy-Star rating label.
- Investigate use of reflective-material coatings.
- Assist in design of new schools by implementing day-lighting design (use of natural light) whenever feasible.
- Investigate survey of HVAC equipment for purposes of asset management and needs assessment.
- Inquire about the cost benefits of outsourcing performance contracting services to an energy services company (ESCO).
- Study the potential of gravity-flow urinals which do not require flushing and do not use water.
- Consider installing energy control devices on vending machines.
- Encourage use of rain sensors in irrigation systems.

- Analyze alternative fuel sources (bio-diesel, ethanol, hydrogen).
- Review landscape design for potential of conservation measures: drip irrigation, xeriscaping, draught-resistant plants, etc.
- Consider installation of infra-red (IR) controls in faucets.
- Consider installation of infra-red (IR) controls in hand-dryers.

## **Life Cycle Costing**

Life Cycle Costing, or LCC, is the process of evaluating the overall cost of ownership, maintenance and operation over the full life of a piece of equipment, rather than simply based on purchase cost alone. In cases of commercial/industrial equipment, the LCC over a 20 year period is primarily made up of maintenance and energy costs.

Experience has proven that high-quality and energy-efficient equipment can save money in overall operation due to lower operating costs, and reduced maintenance costs and less building/facility downtime.

## **Energy Use Analysis for School Year 2008-2009**

*(given values are in kilowatt-hours, kWhs)*

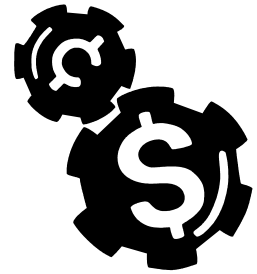
District Use for School Year 2007-2008:	107,858,794
Consumption Reduction, based on 5% Savings:	5,392,940
Target Use for School Year 2008-2009:	102,465,854
Actual Use for School Year 2008-2009:	100,286,303

*(Actual use does not include new facilities added, Crews Lake MS and Veterans ES)*

Total Consumption Reduction (year-to-year):	7,572,491
Actual Percentile Reduction:	<b><u>7.02%</u></b>

## *Assisting, Monitoring and Reporting*

**Goal:** To assist schools and departments with the implementation of the District's Energy Program by monitoring utility consumption patterns and trends, and reporting on effective cost reduction measures.



### **Assisting, Monitoring and Reporting Actions:**

- Establish an electric consumption (kWh/SF) baseline for comparison for future conservation incentive awards.
- Review electric, water/sewer/irrigation, natural gas, and solid waste invoices and enter consumption/cost and other billing data in the utility accounting software system.
- Assist Maintenance departments in identifying metered services which may be duplicate and/or defective. Also, identify meters which no longer may be required; consolidate meters.
- Collect summary of utility data on energy reports and distribute to district cost centers.
- Track changes in school use; track changes in net square footage and correlate to changes in energy usage.
- Prepare and submit annual energy report to the School Board.
- Maintain cost and usage data on electric accounts as well as all water, sewer, irrigation, solid waste and natural gas accounts.
- Monitor Energy Management Systems at school sites to ensure systems are performing as designed and at optimum efficiency.
- Report energy strategies and consumption-reduction successes to other school boards and public organizations.



## *Water Management*

Over the past several years, the Energy Management Committee has had a concern with increased water consumption and the growing utility cost of poor water management habits. As with the energy program, there are many opportunities to reduce waste and curtail our rapidly growing reliance on precious, limited ground water supplies.

Without question, as water demands in Pasco County continue to increase, prices for fresh water will continue to climb; and most likely, the larger the consumption, the higher the per-gallon rate paid by consumers.

*Visit the Southwest Florida Water Management District website at: <http://www.swfwmd.state.fl.us/education> for great resources to assist you with water conservation.*

---

### *Manage Our Water...don't be a Drip!*

...up to 75 percent of water used to sprinkle lawns can be lost through evaporation from soil and plants.

...the use of water-saving toilets, shower heads, and faucet aerators can cut water usage by as much as 25%.

...hot water leaks not only are a waste of water, but a waste of the energy (and money) used to heat that water.



***...did you know?***

***A garden hose discharges up to 6.5 gallons per minute under standard house water pressure.***

...a top-loading clothes washer uses between 40 and 55 gallons of water per load; front-loading models reduce water usage by about 30 percent. Make sure washers/dryers are full to capacity before turning them on.

...a dishwasher uses between 8 and 12 gallons of water per load.

## Water conservation is a smart investment for the future . . .

*District School Board of Pasco County employees and students can save hundreds of gallons of water per week by following these water-saving tips:*

- Take shorter showers & save 3-5 gallons every time. Fill the tub halfway & save 10-15 gallons.
- Install water-saving toilets, shower heads & faucet aerators.
- Place a plastic bottle filled with water in your toilet tank if you can't switch to a low flow toilet.
- Turn-off the water while shaving, washing your hands or brushing your teeth. Faucets use 2-3 gallons per minute.
- Check your water meter or bill to see how much water you are consuming and possibly wasting.
- Compare typical water usage. An average value for household use is 50-60 gallons per day per person. At schools, water consumption ranges from 10-15 gallons per student per day.
- Repair leaky faucets & turn taps off tightly. Slow water drips wastes 15-20 gallons per day.
- Position your downspouts so rain water runs onto the lawn or into the garden, not down the driveway.
- Plant drought-resistant trees and flowers and use a 3" layer of mulch to keep soil moist, prevent erosion, and suppress weeds.



**...did you know?**

***The average American household uses 107,000 gallons of water per year.***

## *School-wide Energy Hints...*

- Make sure room set-point temperatures are consistent with the guidelines adopted by the District School Board of Pasco County.
- Close window blinds or drapes that receive direct sunlight, especially when air conditioning systems are running.
- Evaluate the need to use assembly areas such as an auditorium or gym for small groups that can comfortably meet in smaller areas.
- Schedule classroom/student activities outdoors when appropriate and weather is moderate.
- Schedule the use of classrooms and other spaces wisely to reduce energy consumption.



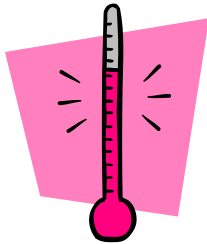
***...did you know?***

***If 100,000 people switched from wooden to refillable pencils, 210 trees a year would be saved.***

- Utilize the fewest number of classrooms necessary for summer and night programs to reduce energy use.
- Arrange teachers into one room for planning periods, and place support staff in fewer rooms, if possible.
- Schedule classes to maximize the utilization of classroom space in the buildings.
- Utilize/specify light-reflective colors when painting schools.
- Establish a resource center for energy education in your school.
- Solicit feedback from students and staff on energy conservation.
- Inform the public, parents and other groups about your school's energy efforts.
- Report maintenance needs using work-order management system.
- Utilize the school-based energy reduction plan (see appendix).

## *Energy Hints for the Teacher...*

- Survey classroom air supply and return grilles to see that they are not blocked with furniture or displays.
- Close classroom doors and windows when heating or air conditioning equipment is operating.
- Close all windows and doors when leaving classroom at the end of the day, and turn off all a/c, machinery, equipment, and lights.
- Demonstrate energy awareness by keeping thermostats clear of obstructions which prevent accurate temperature readings.
- Adhere to the Energy Management Program (EMP) guidelines and assist in maintaining thermostats at their assigned set-points.



- Immediately report to the school Plant Manager and/or custodial staff any faulty thermostats and other malfunctioning equipment.
- Wear warmer clothes in cold weather and encourage students to do the same. Wear cooler clothes in hot weather.
- Consider combining classes when practical; especially, when utilizing air conditioning or heating equipment.
- Involve students in conservation. Start an Earth Patrol. Designate an energy monitor in your classroom.
- Turn off lights and equipment when leaving room.
- Turn personal computers "off" when not in use, especially overnight. Use the power/energy saver mode during the day (set to 15 min.).
- Use the theme of energy conservation in classroom materials.  
*Request Pasco County Activity Book (K-5 students).*

## *Energy Hints for Plant Managers and Custodians...*

- Check for proper thermostat settings and functions; check for overheated and overcooled areas. Secure all attic/roof hatches.
- Replace ceiling tiles when dislodged, broken, stained, or missing.
- Turn-off power ventilators and exhaust systems when not needed.
- Isolate unoccupied spaces from heating and cooling systems. Keep door closers in good working condition.
- Repair damaged windows and doors immediately. Caulk all gaps.
- Adjust time clocks and/or timers to coincide with seasonal changes in Eastern Daylight Time (EDT) and Daylight Savings Time (DST).



- Disconnect all unused electrical equipment.
- Follow established procedures for scheduling and operating equipment (turn-offs) during weekends, summer, holidays, etc.
- Perform periodic water audits to check for leaking pipes. Review electric/water consumption reports for variances.
- Maintain floor drain traps subject to evaporation in a "wet" condition at all times.
- Program holiday hours and special school-event hours into the Energy Management System (when applicable).
- Irrigate landscape using a dedicated irrigation water line or reclaimed water; if possible, do not use potable water main.

## *Energy Hints for Plant Managers and Maintenance...*

- Examine all building insulation, caulking and weather stripping for signs of damage and use. Repair caulking and weather-stripping as necessary.
- Inspect heating, ventilating, and air conditioning equipment.
- Replace worn seals, fittings, traps, etc., and check air conditioning supply and return ducts for leakage; also check ventilating ducts.
- Check hydronic (fluid-based) and pneumatic (air-powered) systems for leaks and damaged valves.
- Insulate air conditioning ducts and hydronic system pipes that pass through building areas which are not insulated.
- Inspect and keep clean all refrigerator/coolers/freezer compressors and condensers.
- Inspect drinking fountains for proper operation and water leaks.
- Inspect plumbing fixtures and pipes for water leaks.
- Reduce hot water supply temperatures to 120° F, except in food preparation areas.
- Ensure that site lighting is maintained in a safe, secure and operable condition.
- Verify that water temperature shall be provided that limits water temperature to a maximum of 110°F (Fahrenheit).
- Inspect openings utilized for natural ventilation to make sure that they are in an operable condition at all time and free of obstruction and debris.
- Program timers at hot-water heaters to turn "off" at night.



## *Motivating School Staff...*

Cooperation of school staff in support of energy management practices starts with an effective communication plan which makes everyone aware of the energy costs of school operation. How these costs are communicated can make a difference between staff being mildly interested in saving energy, or highly motivated to take an active role in the conservation of energy.

The impact of energy waste becomes real when energy costs are expressed in terms of numbers of teaching positions or textbooks instead of just dollars. If a conservation program is to work, the staff at each school site must understand and support it. The incentive program can be a persuasive and motivating tool in the conservation of energy. To find out more about the incentive program, go to the website at <http://energy.pasco.k12.fl.us>

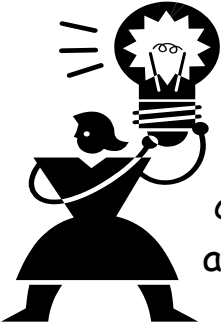
Here are some suggestions for communicating the high price of electricity and water in order to interest schools in changing wasteful habits.

- At school staff meetings, discuss utility costs and practical ways to reduce waste.
- Advertise the use of energy conservation in visible places; i.e., bulletin boards, school newsletters, etc.
- Involve School Advisory Councils and other community groups in an effort to gain support for energy conservation.

When the whole school becomes aware of the impact of energy costs on the school's budget, there are several opportunities that can be used to make staff a part of the solution. Here are some effective strategies:

- Promote energy conservation efforts.
- Cooperate with Energy Management Program guidelines.

## *Motivating School Students...*



Students can become a strong enabling force in helping schools realize energy saving strategies. Many young people today subscribe to programs designed to preserve our natural resources, and the importance of conserving these resources and being part of a "team" to actually save energy in the schools is an important start of a successful energy management program. Schools can also establish *Earth Patrols* to encourage energy management, water conservation, and resource recycling activities.

This level of success can be realized by the following guiding elements which can bring PRIDE to a school:

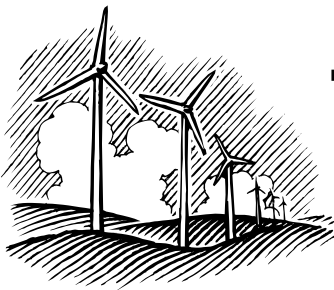
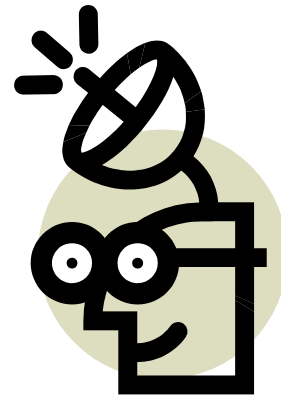
- ***P - Pride*** - Students contribute toward making their school a better learning environment.
- ***R - Recognition*** - Schools are identified when energy conservation efforts are acknowledged.
- ***I - Involvement*** - Since there are more students than faculty and staff, the involvement of students can create more energy-saving opportunities and results.
- ***D - Data Collection*** - Students can chart and organize school energy data which supports the overall efforts of the Energy Management Program.
- ***E - Enthusiasm*** - Students are interested and eager to participate in the creation of an effective conservation program which benefits the school.

Teachers can provide challenges to students to let them know they can make a difference in the energy costs of the school; provide opportunities for recognition; and sponsor awareness through energy conservation programs (*Earth Patrol*).

## *Looking Ahead...*

In the past, Energy Management concentrated on obvious and established energy management practices. However, the waste of energy is more subtle than leaving doors and windows open when air conditioning is operating or leaving lights and equipment running in unoccupied spaces. Oftentimes, energy is wasted by simply not taking advantage of available technology. These technologies include, but are not limited to, the use of such things as:

- AIR FILTRATION (IAQ) METHODS
- FUEL CELL TECHNOLOGY
- GEOTHERMAL APPLICATIONS
- HEAT RECOVERY WHEELS
- PHOTOELECTRIC CELLS
- REFLECTIVE MATERIAL COATING
- REMOTE MONITORING (ENERGY, METERS, ETC)



- SOLAR-POWERED TECHNOLOGY
- WATER TREATMENT TECHNOLOGY
- UTILITY MANAGEMENT SOFTWARE SYSTEMS

During the current school year, the Energy Management Committee for the District School Board of Pasco County will explore, analyze, and implement whenever practical, these types of technologies.

# *The Incorporated Intent of the Energy Management Program (EMP)*

An effective EMP involves more than making slight behavior changes or the installation of a few energy conservation projects. It is a planned, systematic approach to the most efficient use of energy and technology whether in a home, school, office or other environments.

It is the incorporated intent of the Energy Management Committee to maximize the economic and environmental performance of the energy management program which benefits our community.

## **Environmental benefits:**



- Improve air and water quality.
- Reduce solid waste.
- Conserve natural resources.

## **Economic Benefits:**

- Reduce operating costs.
- Provide incentive opportunity.
- Improve employee productivity.



## **Community benefits:**



- Enhance occupant comfort and health.
- Expand individual motivation and satisfaction.
- Contribute to the overall improvement of quality of life.

# *Appendices*

- I - Educational Sub-Committee Report  
*Establishing a School-based Energy Reduction Plan*
- II - Energy Management Survey 2009-2010
- III - Standard Operational Procedures (SOP) for Waste Reduction
- IV - How To Create an *Earth Patrol*
- V - Cleaning For Health - Housekeeping Guidelines  
*Promoting a Healthy Indoor Environment*

## Appendix I - School-based Energy Reduction Plan

The Education Sub-Committee met to develop possible recommendations for a school based energy conservation plan.

The plan needs to include the following (4) four elements:

### *Awareness*

Administration / Staff / Students / Parents  
Plant Manager / Custodial Staff  
FNS Manager / FNS Staff



### *Implementation*

Start in August

### *Monitoring*

Frequently throughout year (monthly / quarterly).

Utilize consumption reports issued by Office of Energy Management.

### *Evaluation*

Yearly plan review

School based committee / team (Monthly Meeting)

Includes representatives from above, including parents.

Utilize Energy Management Survey for on-site assessment.




**Planned activities and objectives can be further defined:**

***Awareness***

School based administrator in charge of facilities would review energy consumption at a faculty / staff meeting in August (electric, water, natural gas, and recycling).

- District consumption history
- School history
- Comparable Schools history



***...did you know?***

***For every kWh of electricity saved, you avoid 1.3 lbs of CO2 being released as greenhouse gases.***

Staff reflects

- Consumption at home
- History of energy costs
- How they have reduced their personal energy consumption

If offered by the District, describe monetary incentives if energy is saved at the school; and, brainstorm a list of applications/uses for this money



***Implementation***

Develop an ad hoc committee / team to develop school plan (join safety team?).

Committee / Team

Reviews the current Energy Management Program Manual

Gather suggestions for energy conservation from various school-related sources:

- Surveys to stakeholders / Input from District Staff Team / Learning Community meetings
- Plant/FNS Mngrs speak with staff about suggestions

## *Implementation (continued)*

Develop school based goals

Provide suggestions for energy conservation to all stakeholders, using:

Newsletters  
E-mail  
Staff meetings  
Guest Speakers

Share suggestions with  
Energy Sub - Committee

Recognize conservers of energy



*...did you know?*

*Electricity travels at the "speed of light"...that is more than 186,000 miles per second!*

## *Monitoring*

Monitor and communicate current energy usage units and cost with comparison to previous year (monthly / quarterly)

## *Evaluation*

Evaluate school plan and results  
Stakeholders  
Education Sub- Committee

Determine how to spend incentive funds  
(if offered by District)

Develop energy conversation draft for future year

# Appendix II

YOU HAVE THE POWER		<b>ENERGY MANAGEMENT</b>			SAVE ENERGY MONEY FOR THE FUTURE	Energy Star ENERGY STAR PARTNER
School _____		Principal _____				
Plant Mgr _____		Asst Plant Mgr _____			Date _____	
GOOD - FAIR - POOR		07-08	08-09	09-10	COMMENTS	
<b>Exterior / Site Requirements</b>						
1	Lights turned off after custodial staff is finished					
2	Utility equipment - accessible/free of debris (transformers, meters, tanks)					
3	School equipment - operable and clean (cooling towers, panels, WHs)					
4	Doors and windows - closed if HVAC operating					
5	Envelope - insulation, caulking, weather-stripping					
<b>Interior / EM Guidelines</b>						
6	Room Temperature Settings 76°C / 68°H (+/-2°) (maintained when room is occupied)					
7	Time clocks coincide with EDT/DST (lights, WHs, pumps)					
8	Energy Management System - programmed (holidays, weekends, summer, special events)					
9	Office equipment - turned off if not used, especially overnight (PCs, copiers, printers)					
10	Room Lights - turned off when area is left unoccupied					
11	Specialty Lights - turned off overnight (vending units, trophy cases, display cases)					
12	Personal appliances not permitted in classrooms (refrig., coffee pots, MWs, heaters)					
13	Air circulation - Supply and return grilles are not blocked with dirt, furniture or displays					
<b>Plant Manager - Administrative Duties</b>						
14	Communication - school questions and concerns to Energy Coordinator					
15	Programming - schedule EMS and adjust for EDT/DST, weekends, summer, holidays					
16	Leadership - promote and support Energy Management guidelines to school staff					
17	Electric (kWh/SF: District / Category / School)					
18	Water consumption					
Please continue your support of the Energy Management Program. Visit our website at: <a href="http://energy.pasco.k12.fl.us">http://energy.pasco.k12.fl.us</a> John Soler CEM - Energy Coordinator						
Ratings Totals:		_____ G	_____ F	_____ P		

# Appendix III - Standard Operating Procedures (SOPs) For Waste Reduction

## District School Board of Pasco County

7227 Land O' Lakes Boulevard • Land O' Lakes, Florida 34638 • 813/794-2000

Heather Fiorentino, Superintendent

[www.pasco.k12.fl.us](http://www.pasco.k12.fl.us)

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**TO:** All Principals and Plant Managers  
**FROM:** Gerry Brown, Director of Maintenance and Facility Services  
John Soler, Energy Coordinator  
**SUBJECT:** Standard Operating Procedures (SOP) –  
**Energy Management / Waste Reduction**

To achieve an efficient and effective energy-performance level in our schools, it is very important to integrate all operational procedures with the building functional needs, and at the same time, optimize occupant thermal comfort, manage energy use, and reduce waste. As per the Energy Management Handbook, one of the goals of the District School Board of Pasco County is to “...*minimize waste and reduce the school district energy consumption, measured in KWH per square foot, by 5% during the 2009-2010 school year.*”

To reduce waste, schools should initiate the following energy management procedures:

- If possible, reduce HVAC system operating hours. The following occupied-room temperature set-points will be observed for all classrooms, including media centers and other non-instructional areas.

Cooling: 76° F (+/- 2° F)

Heating: 68° F (+/- 2° F)

- Libraries and Media Centers are to be kept below sixty (60) percent relative humidity.
- If you are not using a light, turn it off. When you leave a room, turn the lights off. If your classroom has several wall switches, experiment with leaving some of them in the off-position; you may have enough light.
- Turn-OFF office equipment at night and when not in use (typically, after 15 minutes). If the equipment (copiers, PCs, printers, etc) has a power-saver mode, or a stand-by mode, be sure it is enabled.
- Adjust lighting operating hours, with time clocks, circuit breakers, or energy management systems, so that school lights (inside/outside) are turned OFF each day after the buildings are locked for the night.
- If drinking fountains are refrigerated, adjust water temperature thermostats to highest settings.
- Lights for school trophy display cases should be turned OFF at night.
- Rain sensors should be installed on irrigation systems; and inspected regularly for proper operation.
- Inspect the use of personal appliances, such as microwaves, compact refrigerators, unit heaters, etc. which are not permitted in student instructional/counseling areas.
- Product display lights in all vending machines should be removed or turned OFF.
- When the heating, ventilating, air-conditioning (HVAC) system is in operation, all area doors and windows must remain in the closed position.
- Utilize the guidelines and procedures detailed in the Energy Management Program Handbook, and visit the Energy website at: <http://energy.pasco.k12.fl.us>

## Appendix IV - How To Create an Earth Patrol

### EARTH PATROL

The DSBPC encourages recycling and energy management in all schools and cost centers. The Resource Recovery Department oversees the recycling programs that help to implement recycling; the Facility and Maintenance Services department oversees the Energy Management Program throughout the School District.



The success of these programs relies on its participants; and students play a vital role in the recycling and conservation efforts in our schools.



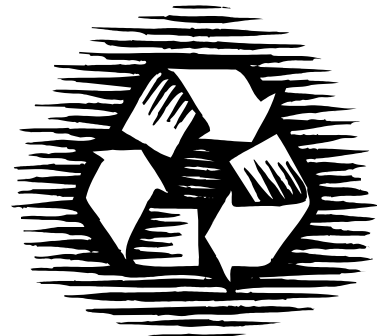
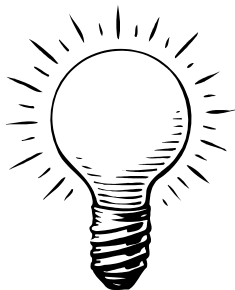
Earth Patrol was developed to assist with conservation efforts at the schools. Students monitor energy use, recycling activities, and water conservation endeavors. The idea for the program is to have students who on a regular basis, visit classrooms for computers, lights, and appliances left on; recyclables in the waste can; trash in the recycling container; water being wasted; etc. Students wear green Earth Patrol vests (in ES) or lanyards (in MS and HS) which show they belong with Earth Patrol.

When Earth Patrol students find recycling, and energy management activities that are being done correctly, a green door hanger is left on the door that says, "Thanks you are making a difference". The green door hanger compliments those areas of the school that are doing a good job with conservation. Those areas that are not helping with the school's recycling and energy programs receive a yellow door hanger that says, "Gotcha, Wasted Resources are gone forever" and on the back of the yellow door hanger students can mark what needs improvement. The yellow door hanger serves as a reminder for areas that can be improved.

Earth Patrol students use a weekly log to schedule for monitoring the school's campus. Students become a strong enabling force in helping schools realize recycling and energy saving strategies. Being part of a team to recycle and save energy is an important factor in a successful recycling, water conservation, and energy management program. Teachers and employees can contribute by providing challenges to students to let them know they can make a difference at the school.

Earth Patrol students can assist in a variety of ways such as: collect paper and newspaper from classrooms and other locations, monitor school for energy waste, recycle foam trays, plastic bottles, aluminum cans, create commercials and announcements to encourage recycling and conservation, monitor water conservation efforts, participate in planting and maintaining butterfly gardens, participate in battery and cellular phone recycling; and promote litter prevention on the campus. All of these are contributing factors that students can be involved in towards making their school a better learning environment.

Earth Patrol students will have a feeling of belonging as they participate in environmental meetings. They become positive role models for their peers.



*NOTE: The following page will provide you with some information on starting an Earth Patrol group at your school.*



## EARTH PATROL

The following are some suggested guidelines for starting an Earth Patrol at your school:

1. Get approval from your school Administrator to participate.
2. Inform employees, parents, teachers, PTA/PTO or other parent groups, volunteers, and students of Earth Patrol and their mission. Communication about the program is the most important things that you can do to make your Earth Patrol successful. Use school announcements, commercials, flyers, and the school marquee to advertise your program.
3. Designate a Recycling Liaison or Earth Patrol Commander. This can be one or more staff members at your school who enjoy conservation and would be willing to sponsor the Earth Patrol. Larger schools have up to three staff members to help share the responsibility.
4. Select Earth Patrol members. Choose students who are interested and eager to participate in the creation of effective recycling, water, and energy conservation program which benefits the school. Remember there is no limit to the number of students who are allowed to participate. Some schools have 100 or more members. Some schools use specific grades such as fifth grade students. Some schools have ESE, ISS, and other types of students groups participating. Choose student groups that work best for your schools environment.
5. Using the Earth Patrol weekly log; assign patrol areas, days of the week, and times.

6. Designate a location for Earth Patrol central. This is where students will report to pick up their vests or lanyards, door hangers, and other supplies. Students can look on the weekly log to see what areas of the school need to be patrolled. The best location for Earth Patrol central is usually in the Recycling Liaisons classroom or office.



**...did you know?**

***Recycled paper requires over 60% less energy to create than making paper from virgin wood pulp.***

I hope that you will find your schools Earth Patrol program to be a helpful part of your recycling and conservation programs. You will see that your students will enjoy helping in activities that promote recycling and energy conservation at their school.

For more information about the Earth Patrol program please contact:  
Karen Bryant, Recycling Coordinator, extension 42752,  
[kbryant@pasco.k12.fl.us](mailto:kbryant@pasco.k12.fl.us),  
John Soler, Energy Coordinator, extension 47955  
[jsoler@pasco.k12.fl.us](mailto:jsoler@pasco.k12.fl.us),

Please visit the recycling and energy websites for other valuable information:

**Resource Recovery -**  
<http://recycle.pasco.k12.fl.us>

**Energy Management -**  
<http://energy.pasco.k12.fl.us>



Earth Patrol weekly log forms, yellow and green door hangers, lanyards, monitor buttons, green vests, and marketing materials can all be ordered from the Resource Recovery website *for free*.

## Appendix V – Cleaning For Health

### *Providing Housekeeping Guidelines that Promote a Healthy Indoor Environment for Educational Facilities*

1. Use the safest, least aggressive chemical necessary for the task. (soap and water may be all that is needed)
2. Vacuum all floor surfaces with high filtration vacuum cleaners daily. This reduces dust particulates in the air and improves IAQ for buildings. Gymnasiums and wide halls shall be cleaned with Micro-fiber dust mops.
3. Use Micro-fiber cleaning cloths and dusters for daily dusting. Use of vacuums may be necessary in some situations of heavy dust. Dusting of all horizontal surfaces is required each day.
4. Use Magic Erasers<sup>®</sup> for daily cleaning of walls and other surfaces. The use of these disposable cleaning pads reduces the need for harsh chemicals.
5. Mop all floors at least weekly, but as needed with Micro-fiber flat mops that reduce chemical and water consumption. Critical areas such as clinics, pre-K areas will need to be mopped daily with the appropriate cleaner.
6. Plumbing fixtures (Sinks and Water fountains) are to be sanitized daily.
7. Vacuum all carpeted areas with the Host<sup>®</sup> carpet machine weekly if possible, but at least each month. Host<sup>®</sup> cleaning will remove more than 85% of mold spores and dust mite allergens with each use. Using this system of cleaning reduces water & energy consumption.

**NOTE:** *All carpet cleaning will be done using the Host<sup>®</sup> system.*

8. Follow the **basix®** High Speed Floor Care System. If done properly, extend the time between stripping floors for up to five years. This will reduce chemical consumption and reduce the waste stream.

9. Disinfect all restroom facilities daily using a restroom cleaning machine ( KaiVac® or equal). These machines reduce water and chemical consumption and remove dirt and germs from cleaned areas.

10. Recycle all materials daily. (paper, plastics and other materials).

11. Make sure to wear all required personal protective equipment (PPE) .

**In addition to promoting a healthy indoor environment, the above guidelines can also provide the following benefits:**



**LEED® - Existing Buildings POINTS  
(Leadership in Energy and Environmental Design)**

- Credit for the following may be available for up to 12 points:  
Energy and Atmosphere      Materials and Resources  
Water Efficiency              Indoor Environmental Quality



***...did you know?***

***Green schools, or high performance schools, use an average of 30% less energy and 20% less water than conventionally designed schools.***

LEED® emphasizes state-of-the-art strategies for sustainable site developments, management of water consumption, increased energy efficiency, and healthier indoor environmental quality.

Visit the following website for additional LEED® information:

<http://www.usgbc.org>