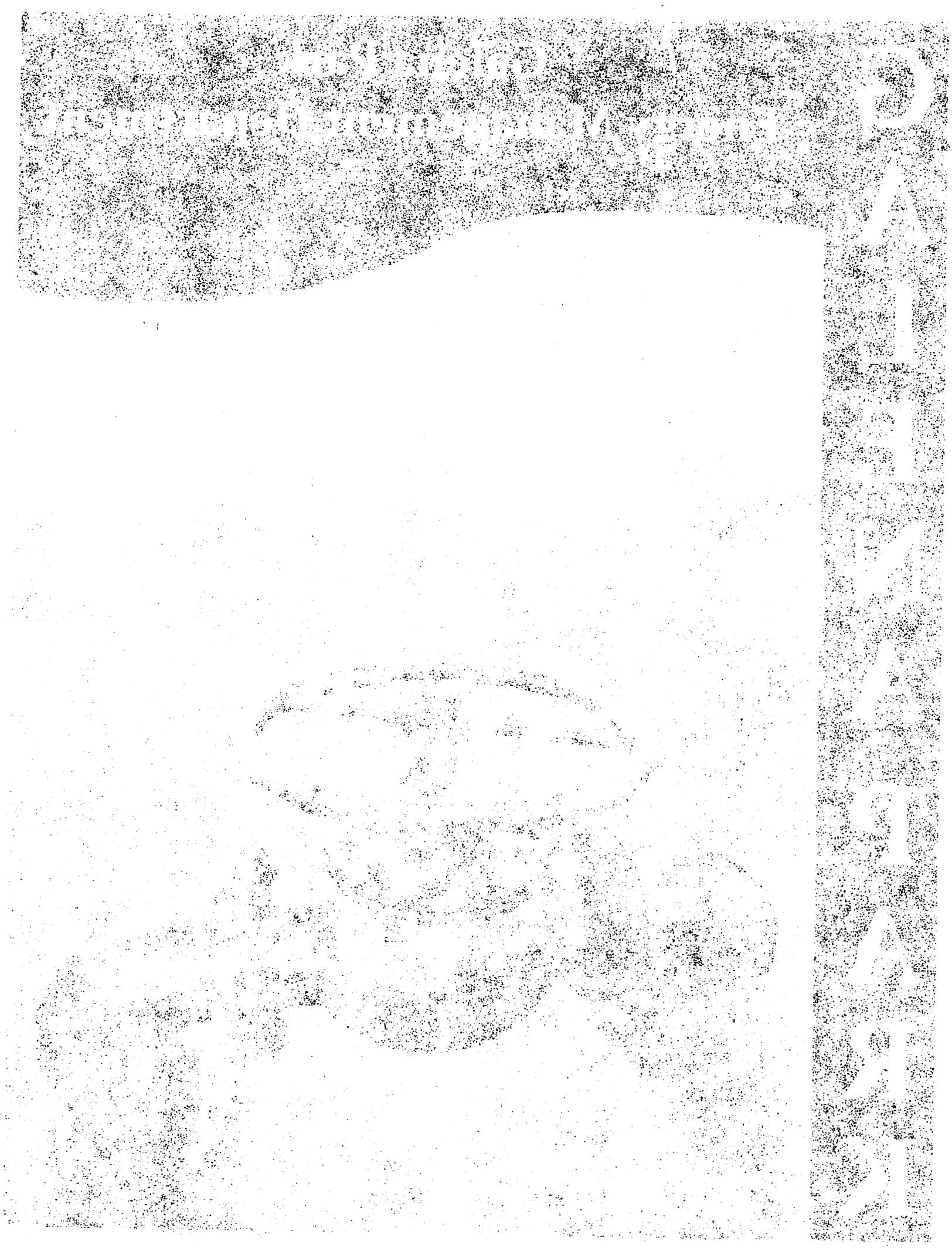


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Galena Park
Energy Management Department





GALENA PARK I.S.D.

ENERGY MANAGEMENT
PROGRAM

GUIDELINES/POLICY

Galena Park Independent School District
Energy Management Department
1101 Holland Ave .
Galena Park, TX 77547
Office: 713-450-9055
Cell: 281-850-0072

Galena Park ISD Energy Guidelines & Recommendations.

Purpose

To improve the learning environment for Galena Park SID's students, faculty and staff while at the same time initiating practical energy conservation methods to save Energy.

Objectives

- To provide a comfortable and healthy environment for students and staff at the lowest cost to the district.
- To track energy use and cost, and adapt energy management practices that reduce waste.
- To raise the level of energy conservation awareness among the entire Galena Park ISD community.
- To instill a spirit of good stewardship.

Strategies

1. Track and report energy use and cost as a basis for continuous improvement process.
2. Establish guidelines for [Principals](#) and [Teachers](#).
3. Establish lighting, HVAC equipment and water use policies for staff.
4. To assist in the education of energy conservation at the campus level.

Strategies 1: Track Energy Use and Cost

- Benchmarking all our facilities quarterly to quantify and track energy use.
- Generating facility-specific reports to share with management and Principals.
- Recommending improvement action, practices and projects.
- Revising this document periodically as new and better energy practices are developed.

When an energy-consuming device is not necessary for the delivery of the educational mission, or the welfare and safety of students and staff of the district, then we will recommend that it be turned off. When energy is required, we will recommend that energy be used following established best management practices, at the lowest cost to the district.

Strategies 2: Facilities Use Guidelines for Principals and Teachers

The energy department supports the educational mission of the district, and will provide energy services to meet those goals. The default temperature, humidity and ventilation rates are established following industry standards. To better manage energy costs, apply the following guidelines.

- Consolidate after hours programs into common air conditioned zones. The Energy Manager will provide information to assist in this practice.
- Provide a monthly schedule of all after hours events for each facility to the energy management department. Send these schedules in prior to the first of the month. Any revisions to these calendars should be sent in no later than **2:00 pm that day**. This should insure that those changes will be made.
- If possible choose **one night** during the week when no HVAC shall be scheduled.
- Teachers in portable classrooms should turn air conditioners **OFF** when they leave for the day. The fan select switch should always be left in the **auto position**. This will keep humidity levels down.
- Computers, monitors, printers, copiers and other electrical equipment shall be turned off at end of the day. Most monitors have a sleep mode which can also be utilized to save energy.
- All personal portable space heaters of any kind are banned from use. They are not only big energy consumers but can be a safety issue when overloading electrical circuits.
- Refrigerators and microwaves shall be restricted to the Teachers lounge. (exceptions might be athletics and science labs.)
- Close exterior doors when not in use. This includes vestibule doors. Vestibules are barriers between the conditioned air in the building and outdoors.
- The air conditioning will be set to run a normal school day schedule one week prior to teachers returning from summer break and will run one week after the last day of school. Programs which start prior to that time will be of course scheduled.
- All summer programs should be consolidated into as few campuses as possible. HVAC systems are much more efficient when run at design capacities. Running an entire campus for just **a few people** is very costly.
- HVAC systems will run throughout the summer on special schedules to manage humidity.

Table 1. Summary Table for Facilities Use Guidelines for Principals and Teachers

Topic	Action	How	Support
After-hours activities	Manage after-hours activities that require temperature control or ventilation.	Consolidate usage to building zones with common air conditioning equipment. Provide a monthly schedule of anticipated activities.	Facilities will review, track and report energy use so each school can learn about its energy use patterns
Weekend activities	Manage weekend activities that require temperature control or ventilation.	Consolidate usage to building zones with common air conditioning equipment. Provide a monthly schedule of anticipated activities.	
Portable classrooms	Use air conditioners during class. Turn off each afternoon after school dismissal.	Locate the control switch and turn system off.	By the end of March we should have all Portable Buildings on Timers and schedule.
Turning off equipment	Turn off computers, monitors, printers, and copiers at the end of the day.	Locate the master switch or the off button and turn system off.	Participate in the “Sleep is Good” PC Monitor power down program.
Personal equipment	Remove personal electrical equipment from district facilities.	Take personal space heaters, refrigerators and microwave ovens home; return district equipment to energy department.	When environmental conditions are too hot or too cold, please call the HVAC department.
Doors	Close exterior doors when entryway is not in use.		
Lights	Turn gym lights on only while gym is in use. Turn off when done. Classroom lights should be turned off anytime room is unoccupied.	Locate the control switch and turn system on or off.	
Other ideas	Send suggestions to EMD	Mail or email.	aawdi@galenaparkisd.com

Strategy 3: Lighting, HVAC equipment and water use policies for staff

Lighting Control

- Lights in gymnasiums shall be turned off when the gym is not in use.
- Lights in classrooms shall be turned off when unoccupied.
- Lights in Auditorium shall be turned off when the auditorium is not in use.
- Custodial staff shall turn on lights in only the areas they are working and turn them off when they have completed their task.
- **Note:** Turning off lights can have a dual effect. It can reduce the energy needed to fuel the lamps, but it can also reduce the heat load in the building and save on air conditioning cost.

HVAC Equipment

- Thermostat set points are 68-71 for heating and 72-74 for cooling.
- HVAC systems are programmed to start in time to reach a set point at occupancy.
- The air conditioning shall be turned off during holidays unless environmental conditions require otherwise or there are other scheduled activities.
- Custodians shall send a schedule to the energy manager’s office if air conditioning is needed during the holidays. This schedule should include the areas in which they will be working.

Water Conservation

- The HVAC department will monitor cooling tower water usage.
- The HVAC department and Plumbing department will install water meter on cooling towers to take advantage of water that is not used in sewage system.
- The Grounds department will monitor and operate irrigation systems to conserve and optimize water consumption.
- The Grounds department will inspect, recommend, and implement the cycles for each irrigation system district wide.
- Replace regular hose-bibs with tamper proof ones. This will eliminate unauthorized people from using the district water on weekends and after hours and avoid vandalism.
- Any water leaks, faucet drips and running toilets should be reported to the maintenance department **IMMEDIATELY**.

Strategy 4: Energy Education

The energy management department will assist faculty and staff in their efforts to apply these energy management guidelines. This can be accomplished by:

- Taking advantage of programs available to the district and by making information and training opportunities available also.
- Keep our partnership with DOE and EPA.
- Keep our partnership with the Watt Watchers of Texas.
- Expand the Watt Watchers program to all Campuses.
- Revisit with technology department to make sure that the Sleep is Good “PC Monitor Power down Program is still running.
- Capitalize on our partnership with Center Point and different vendors.
- Celebrate success stories of campuses that achieve a certain level of energy saving.
- Sharing facility-specific energy use reports with interested parties.
- Providing training to staff, and question and answer sessions to faculty and management.
- Keeping an open mind to new technology and innovative conservation methods.

Finally, I would like to remind the entire district that our utility budget is secondary when it comes to our expenditures. Currently we are paying fixed price of \$0.0495 / KWH. The current electricity contract will expire May 31, 2007. In the next few months, we will receive prices from the following electricity providers:

- **Energy for Schools**
- **LBP Energy Consulting**
- **GLO/HLP**
- **Mpower.**

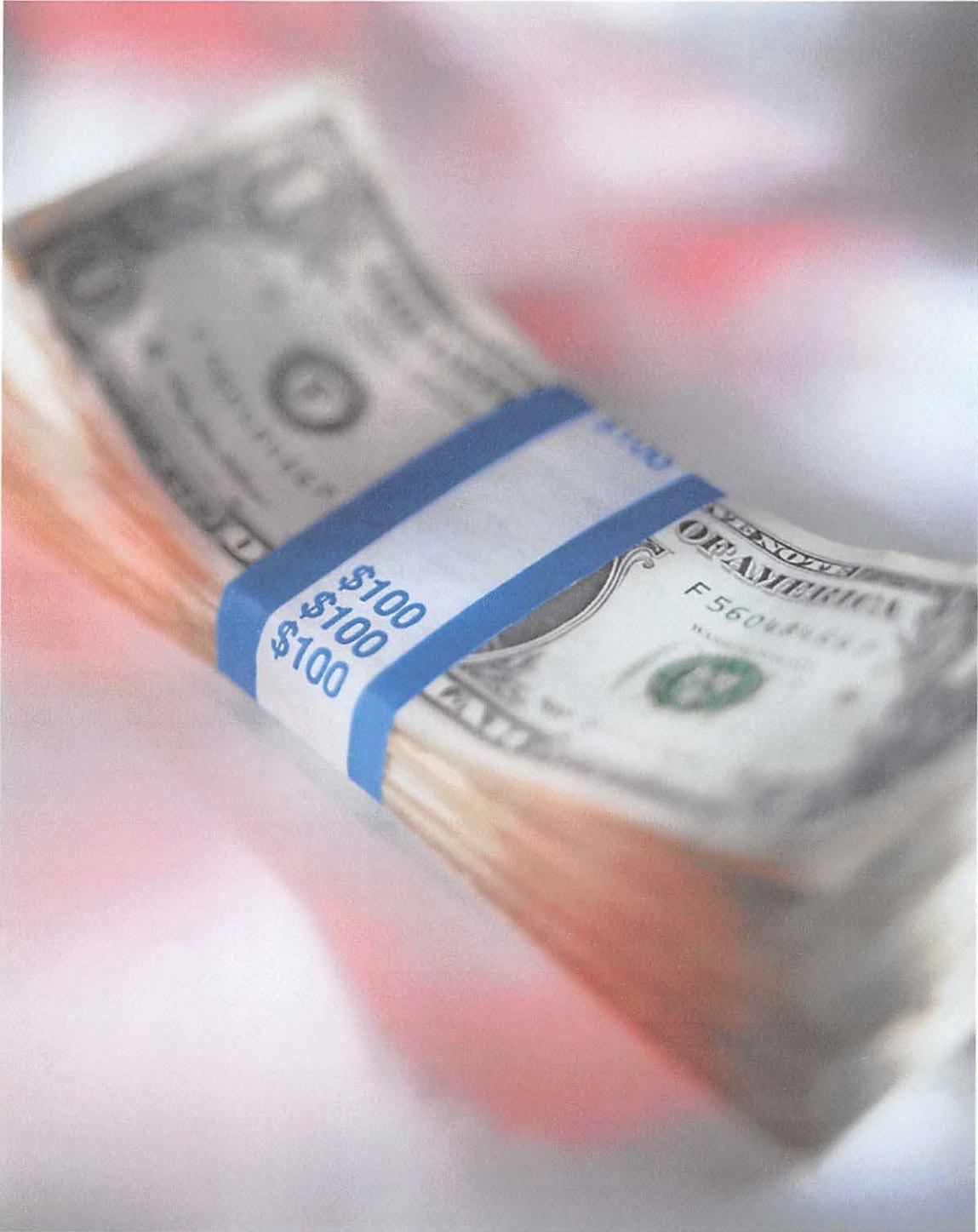
Please, let us keep in mind that the efficient use of various energy systems for each campus will be the combined responsibility of the energy manager, principal and head custodian to ensure that a detailed energy procedure is maintained on a daily basis.

It is the responsibility of the faculty and students to contribute to energy efficiency and become an “energy saver” as well as an “energy consumer”. Then and only then, will we achieve our goal and become an energy star and energy saver district.

Please let me know of any input, ideas or methods that we might need to add to these guidelines and recommendations.

Regards,

**I.A.Awdi CEM, CDSM, CBEP
HVAC/CONTROL Supervisor
ENERGY MANAGER
Galena Park ISD
Phone# 713-450-9055
Fax# 713-450-9054
Cell # 281-850-0072
E-mail: aawdi@galenaparkisd.com**



PURPOSE

Building Checklist to Reduce Utility Consumption

Morning Open

- Lighting raised to minimal safe/secure passage until scheduled arrival.

Morning Transition

- Cafeteria lighting used only for areas where students need to sit.
- Lawn watering is done in the morning and without waste.

Student Occupied Hours

- Classroom lights turned off when unoccupied.
- When unoccupied or not scheduled to be used, auditorium, cafeteria, and gym lighting and air conditions is off.
- Cafeteria lighting is off between breakfast and lunch.
- Portable air conditioning off at end of day.
- Stage area is used only for classes/activities that require a theatrical setting.
- Work Orders are promptly turned in for security lights which remain on during daylight hours and. water leaks.
- Lighting reduced in areas/hallways where plentiful natural lighting is available.

Afternoon Transition

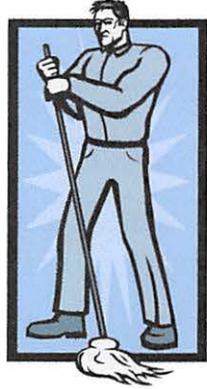
- Cafeteria lighting off after cleaning is completed.
- Hall lighting reduced after students leave school.
- Outside doors and windows closed.
- Rooftop thermostats reset or turned off in classrooms when they are unoccupied.

Last Activity/Special Functions

- Lighting is off after space is unoccupied.
- Any hand operated heating or air conditioning equipment is turned off after activity.

Daily Closing

- Turn on lights only in areas being worked.
- Trophy case lights, restroom lights, and exhaust fans are shutdown daily.
- Air handlers off when building is unoccupied.



CUSTODIAL INFORMATION

ENERGY SAVING SUGGESTIONS FOR CUSTODIANS

1. When arriving in the morning, turn on only enough lights to do your morning duties.
2. Do not turn on classroom or office lights.
3. Cafeteria and gym lights should be left on only when areas are occupied
4. Cafeteria staff should turn on kitchen lights as needed.
5. Teacher workroom lights should be turned off when areas are unoccupied. As you pass these areas, please turn off the light if unoccupied.
6. Turn your storage and mechanical room lights off when you are not using them.
7. If the hall lights are NOT NEEDED in the morning when you arrive, leave them off. Turn them on only when the teachers start to arrive.
8. As you clean a room, turn the lights off as you finish cleaning.
9. All security lights should be turned off as soon as you arrive in the morning. (This is for those schools that have security lights that are not on a timer.)

The custodians are VERY important to the success of Galena Park ISD's energy management program. It is not my intention to create more work for you, but just to make you aware of some of the ways you can help. I promise your help will be greatly appreciated. I have personally seen many of these suggestions already being done which only proves what a good job many of you are already doing.

Thanks.

Custodial Start- Up Plan and Daily Operating Procedure

Energy Management Program

Success Through GREAT Custodians!

Things to do when you arrive and during the school day.....

Lights "ON" in occupied areas. (Leave classrooms, media center, gym, and office lights off) Teachers and staff can turn these areas on as they arrive.

Elementary schools will need to light the area that students go to when they arrive early. Keep hall lights off until students start arriving.

- Turn "ON" restroom lights as students start to arrive.
- Turn room thermostats on if and when a teacher requests you to do so. (This will be different during winter months.) **See Special Note Below.**
- Thermostats" ON" in cafeteria dining room and auditorium before students arrive each day as needed.
- Leave lights in closets, mechanical rooms, and storage rooms, "OFF" until you need something from these areas then turn them back "OFF" when you leave.
- Always keep doors closed leading outside.(Do not prop them open when air conditioning or heat is on)
- Remind teachers to keep classroom and office doors and windows closed when AC is on. Windows can be open in the fall when it is cool outside. (75' or cooler)
- ***Keep cafeteria dining room light off during day when not in use. (Between breakfast and lunch and turn OFF immediately after lunch.)
- Lights in gyms, dressing rooms, and weight room" OFF" when not in use.(Gym lights do not need to be turned out if teacher is going to be out for a few minutes but if they are going to be out for more than 30 minutes turn the off)

Important** Important** Important** Important*

Light only the areas you need when you come in, including hallways. As teachers, administrators and students begin arriving, you can turn hall lights on. It is very important that this begins immediately and be followed daily.

Special Note:

Thermostats will stay "ON" during winter and be set back to 55 degrees. It will be the start up custodians' responsibility to turn the thermostat in the building up to 70 degrees as soon as you leave each morning.

Custodial Shutdown

Things to do when students leave.....

Elementary Schools= 3:00 Middle Schools=3:30 High Schools=2:30

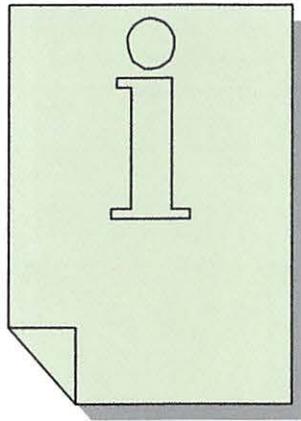
1. Turn "OFF" lights in unoccupied areas. (restrooms, cafeteria, auditorium, media center, etc.) Lights in cafeteria and auditorium can be off in many schools while not be used during the schools day.
***Prop restroom doors open. ***
2. Switch thermostats to "off" in dining area of the cafeteria and in the auditorium immediately after school if the areas are not being used. Make sure doors are shut leading into and out of these areas.
3. Keep all lights in closets, mechanical rooms, and storage rooms "OFF" unless you are working in that room. (ALL DAY LONG)
4. Close and keep closed all doors leading outside. (At all times if AC is on)

Things to do when teachers leave.....

Elementary Schools =4:00 Middle Schools=4:30 High Schools=4:30

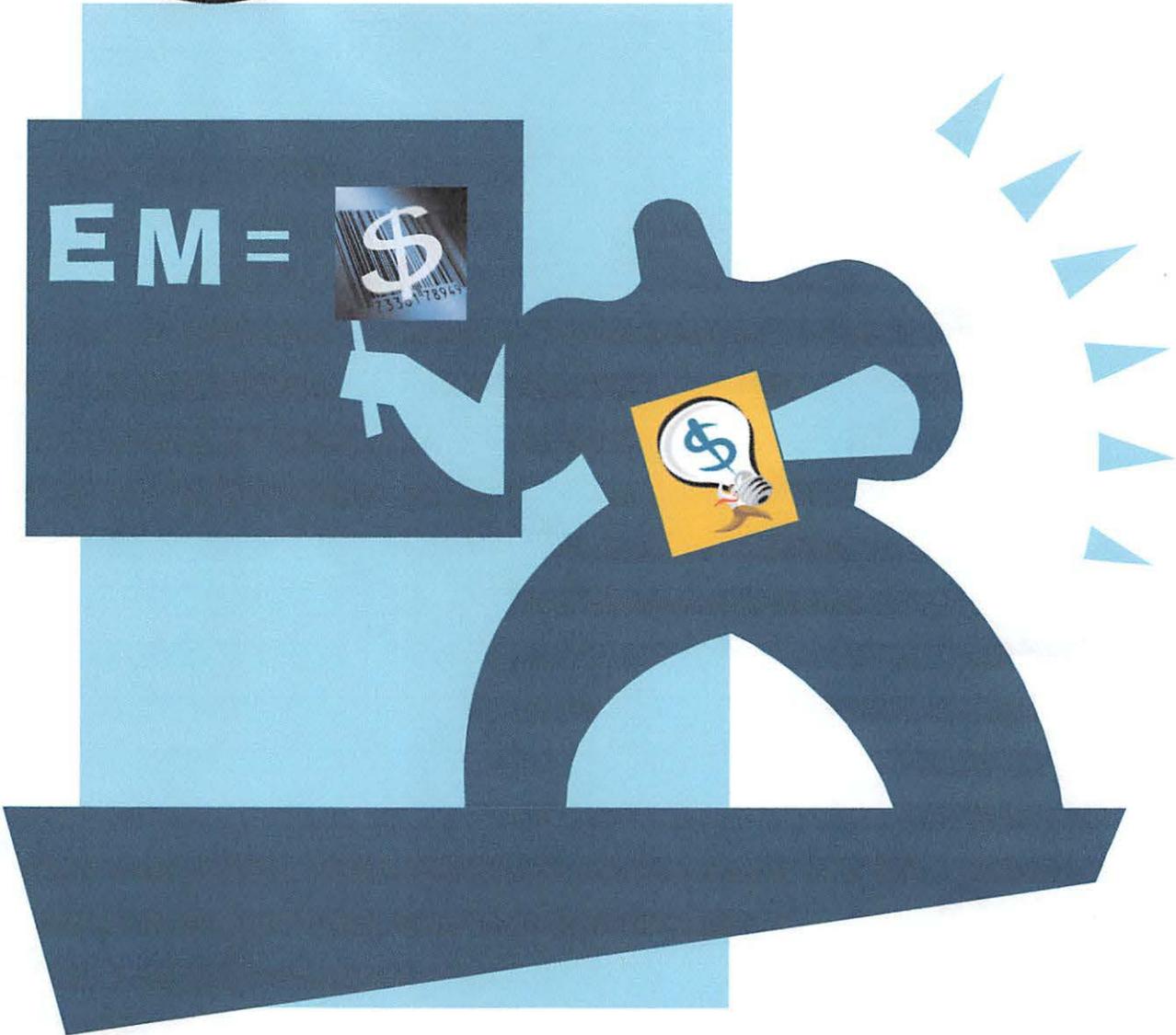
1. Make sure that lights were turned off and thermostats were switched to the "OFF" position in all rooms and offices. (Do a quick room check.)
2. Close classroom and office doors and windows.
3. Make sure all copiers and other office equipment not in use are turned off. (file server computer can stay on)
4. Hallway and lobby lights off and turn them on ONLY when you are cleaning that specific hallway.
5. Close all vestibule doors. (double doors leading into hallways)

Light the areas you are to clean as you get to them and then shut the area down immediately after you clean. (Includes Hallways) It is very important that this begin immediately and the following daily.



FOR YOUR INFORMATION

PRINCIPAL INFORMATION



Facilities Use Guidelines for Principals and Teachers

The energy department supports the educational mission of the district, and will provide energy services to meet those goals. The default temperature, humidity and ventilation rates are established following industry standards. To better manage energy costs, apply the following guidelines.

- Consolidate after hours programs into common air conditioned zones. The Energy Manager will provide information to assist in this practice.
- Provide a monthly schedule of all after hours events for each facility to the energy management department. Send these schedules in prior to the first of the month. Any revisions to these calendars should be sent in no later than **2:00 pm that day**. This should insure that those changes will be made.
- If possible choose **one night** during the week when no HVAC shall be scheduled.
- Teachers in portable classrooms should turn air conditioners **OFF** when they leave for the day. The fan select switch should always be left in the **auto position**. This will keep humidity levels down.
- Computers, monitors, printers, copiers and other electrical equipment shall be turned off at end of the day. Most monitors have a sleep mode which can also be utilized to save energy.
- All personal portable space heaters of any kind are banned from use. They are not only big energy consumers but can be a safety issue when overloading electrical circuits.
- Refrigerators and microwaves shall be restricted to the Teachers lounge. (Exceptions might be athletics and science labs.)
- Close exterior doors when not in use. This includes vestibule doors. Vestibules are barriers between the conditioned air in the building and outdoors.
- The air conditioning will be set to run a normal school day schedule one week prior to teachers returning from summer break and will run one week after the last day of school. Programs which start prior to that time will be of course scheduled.
- All summer programs should be consolidated into as few campuses as possible. HVAC systems are much more efficient when run at design capacities. Running an entire campus for just **a few people** is very costly.
- HVAC systems will run throughout the summer on special schedules to manage humidity.

Building Checklist to Reduce Utility Consumption

Morning Open

- Lighting raised to minimal safe/secure passage until scheduled arrival.

Morning Transition

- Cafeteria lighting used only for areas where students need to sit.
- Lawn watering is done in the morning and without waste.

Student Occupied Hours

- Classroom lights turned off when unoccupied.
- Auditorium, cafeteria, and gym lighting and air conditioning turned off when unoccupied or not scheduled.
- Cafeteria lighting turned off between breakfast and lunch.
- Portable air conditioning off at end of day.
- Stage area is used only for classes/activities that require a theatrical setting.
- Work orders are promptly turned in for water leaks and security lighting which remain on during daylight hours.
- Lighting reduced in areas/hallways where plentiful natural lighting is available.

Afternoon Transition

- Cafeteria lighting off after cleaning is completed.
- Hall lighting reduced after students leave school.
- Outside doors and windows closed.
- Rooftop thermostats reset or turned off in classrooms when they are unoccupied.

Last Activity/Special Functions

- Lighting is off after space is unoccupied.
- Any hand operated heating or air conditioning equipment is turned off after activity.

Daily Closing

- Turn on lights only in areas being worked.
- Trophy case lights, restroom lights, and exhaust fans are shutdown daily.
- Air handlers off when building is unoccupied.

ENERGY MANAGEMENT RULES FOR AIR CONDITIONING

THIS AIR CONDITIONING UNIT IS CONTROLLED BY AN ENERGY MANAGEMENT TIMER SYSTEM. It will be turned off automatically each day before night, on weekends and during holiday period by this timer system. During and **EXTREME WEATHERING** CONDITIONS, leave the thermostat set to “cool” or “heat” when leaving for the day. You room will be comfortable upon your return the following morning.

Non-Adjustable Thermostats

If the thermostat is the “ACCUSTAT” non-adjustable bulb type, then you need only set it to “COOL” or “HEAT” and place the fan switch in “AUTO” position. Using the fan “ON” position **may cause excessive moisture build-up** when the compressor cycles off, but may be used, if needed, for fresh air control during mild weather.

Adjustable Thermostats

Cooling Mode: Adjustable thermostats should not be set below 72 degrees at any time while the unit is in the cooling mode. Doing so may freeze up the coils and cause damage. Try to use a comfortable setting as far **above 72 degrees** as is possible. Remember that seated and inactive children sometimes get chilled if the room is too cool.

Heating Mode: When the unit is in heating mode, please try to keep a comfortable setting as far **below 75 degrees** as is possible. If 70 degrees is comfortable in the summer, it should also be fine in the winter.

Keep **all windows and doors closed** when using the air conditioning or heater. This prevents excessive moistures build-up by conditioning the fresh air **it** comes through the unit.

Please remember that cooling or heating a vacant space is very expensive and wasteful of tax dollars. Please do your part to help conserve our energy dollars by turning off all devices when not needed.

ENERGY MANAGEMENT RULES FOR AIR CONDITIONING

TURN IT “OFF” WHEN NOT NEEDED!

This air conditioning unit is not currently on energy management computer system. It must be **manually controlled** for the present time.

Please turn the fan control switch to ‘**AUTO**’ and the mode selector switch to “**OFF**” before leaving each day. Place a reminder on or near the door.

Do not set the thermostat below 70 degrees at any time while the unit is in the cooling mode. Doing so may freeze up the coils and cause damage. Try to keep it at a comfortable setting as far **above 72 degrees** as is possible.

Do not set the thermostat above 78 degrees at any time when the unit is in the heating mode. Try to keep it at a comfortable setting as far **below 76 degrees** as is possible.

Keep all windows and doors closed when using the air conditioner or heater.

Please remember that cooling or heating an empty space is very expensive and wasteful of tax dollars. **Please do your part to help conserve energy!**

ENERGY MANAGEMENT RULES FOR AIR CONDITIONING

TURN IT “OFF” WHEN NOT NEEDED!

This air conditioning unit is not currently on energy management computer system. It must be **manually controlled** for the present time.

Please turn the fan control switch to ‘**AUTO**’ and the mode selector switch to “**OFF**” before leaving each day. Place a reminder on or near the door.

Do not set the thermostat below 70 degrees at any time while the unit is in the cooling mode. Doing so may freeze up the coils and cause damage. Try to keep it at a comfortable setting as far **above 72 degrees** as is possible.

Do not set the thermostat above 78 degrees at any time when the unit is in the heating mode. Try to keep it at a comfortable setting as far **below 76 degrees** as is possible.

Keep all windows and doors closed when using the air conditioner or heater.

Please remember that cooling or heating an empty space is very expensive and wasteful of tax dollars. **Please do your part to help conserve energy!**



COST AVOIDANCE

COST AVOIDANCE

Cost avoidance may be explained by the following example. Suppose you drove to work and used 1,000 gallons of gasoline last year at a cost of \$1.00 per gallon. Your cost last year was \$1,000. This year you decide to cut down on extra trips and only used 800 gallons of gasoline, but the price went up to \$1.50 per gallon. Your actual price this year was \$1,200. However, if you had continued to use gasoline at the same rate as last year, you would have used 1,000 gallons at \$.150 per gallon for a cost of \$1,500. By economizing, you avoided pay \$300 this year.

We call last year the **base year** and the \$300 saved the **cost avoidance** over the base year. This would be a percent of \$300 divided by \$1,500 (the cost adjusted base), or 20% cost avoidance for this year.

You could also adjust the base year for weather, traffic conditions, car condition, etc.

Our ***FASER*** (Fast Accounting System for Energy Reporting) computer program adjusts for rate changes, area (square footage) changes, weather, equipment changes, and billing period length.

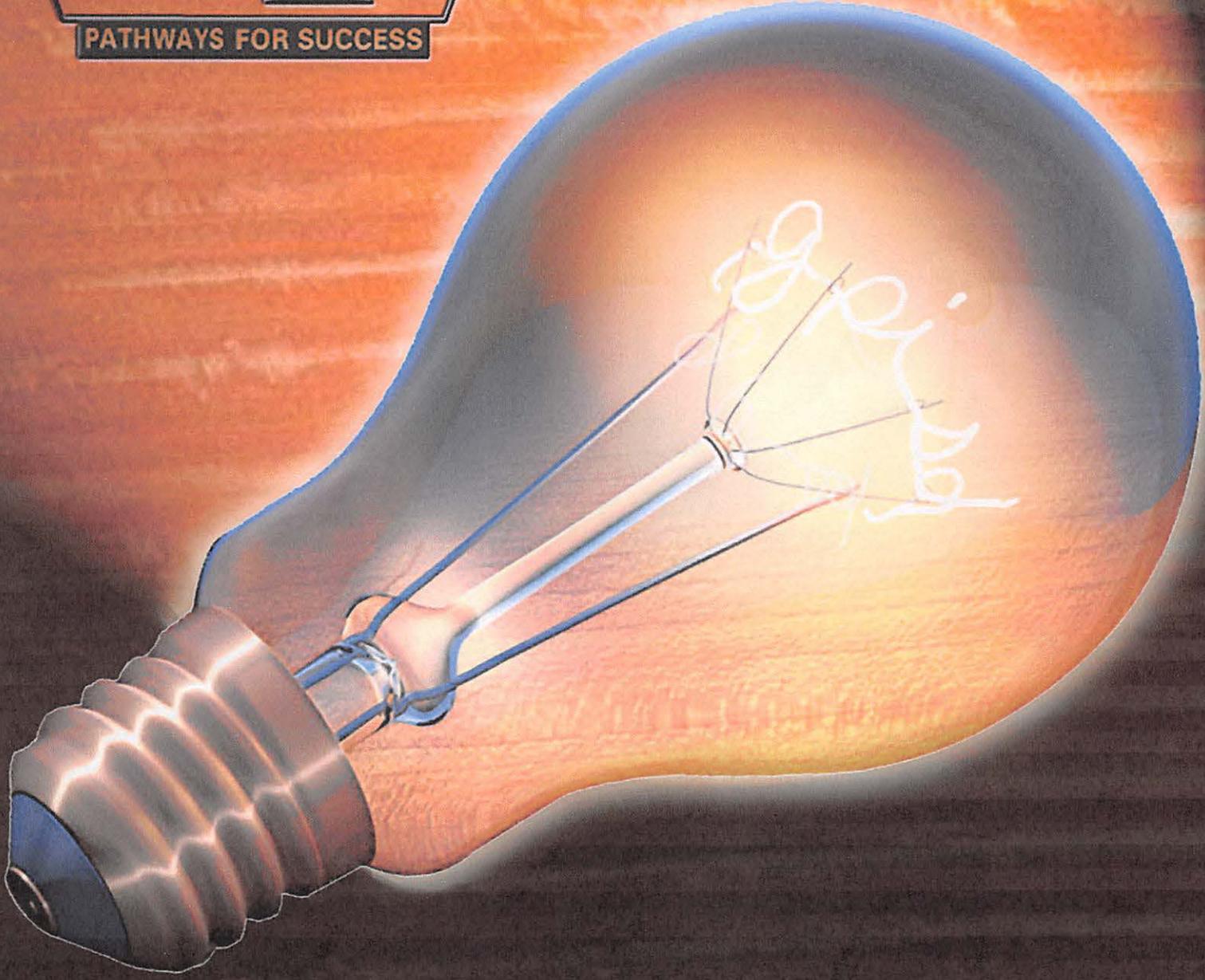
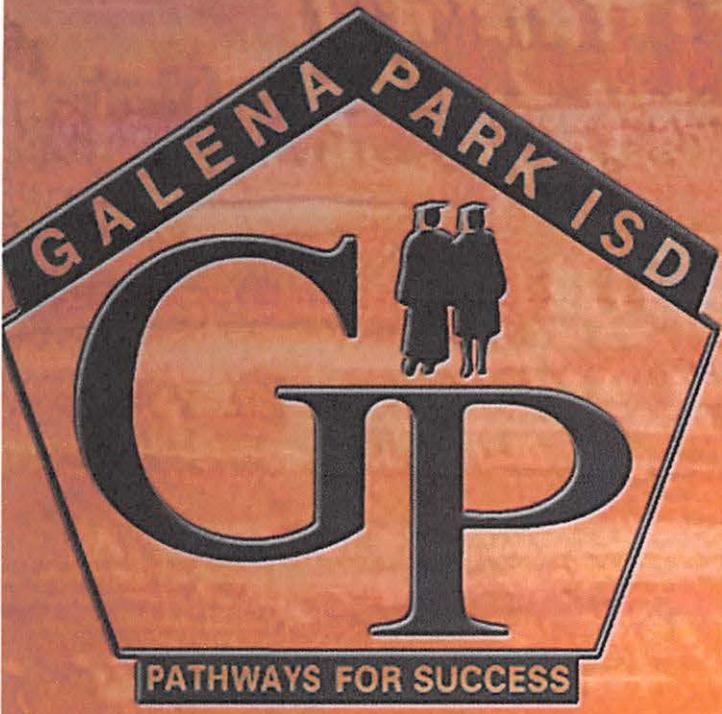


F.A.S.E.R

As you know we track energy usage and water consumption by using a computer program called "FASER". This is an acronym for Fast Accounting System for Energy Reporting" and over 1500 schools, universities, and governmental agencies use the program. Cost avoidance (or realized saving based upon past performance) is based upon and compared to a 12- month base year immediately before the program behind to track energy usage.

This program uses mathematical regression analysis and formulas to factor in weather conditions, buildings are changes, rate change and added or deleted since base year. This program will track and show any percentages of cost avoidance for any schools, and buildings due to severe neglect and waste in utilities.

As you know we are tracking how each campus is doing by using the Year-to-date column on the FASER executive summary report which we generate each month.



The Energy Information Expert

Grouped by Energy ID

GALENA PARK ISD

FASER

Report Summarization

The Energy Information Expert

Cost Summary by Energy Type

Report Number

AN11

Report Description

The cost summary by energy type graph is a pie chart showing the cost of each energy type as a percentage of the total energy cost. Energy type percent cost = energy type total cost divided by grand total cost.

Report Tips

This report shows which energy types consume the bulk of your utility budget.

Filter Selections

Bill End Dates : 01/01/05 to 12/01/05

Acct. Periods : 0501 to 0512

Buildings : ALL

Regions : ALL

FASER v.4
Energy Management Program
GALENA PARK ISD
Tuesday, February 28, 2006
2:56:59PM

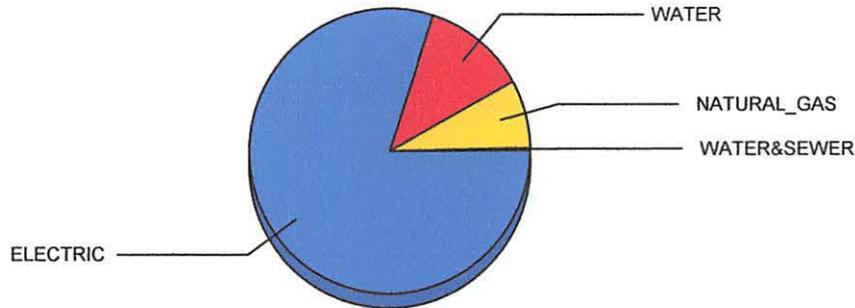
Report Requested by
IAA

The Energy Information Expert

Grouped by Energy ID

GALENA PARK ISD

ELECTRIC	43,905,054 KWH	\$3,124,043.25	80.11%
WATER	63,104 KGAL	\$459,684.35	11.79%
NATURAL_GAS	216,668 THERM	\$303,292.00	7.78%
WATER&SEWER	2 KGAL	\$12,749.27	0.33%



GP	\$3,899,768.87	% of Grand Total:	100.00%
Grand Totals	\$3,899,768.87		

Electrical Usage for the whole district for the year,2005 “4,3905,054KWH “ . If the district reduces the consumptions by 10% We would save 4,390,505 KWH “which translate to \$ 302,944.80 saving for the year”. I know as a district we can achieve this . KWH saving was calculated @\$0.069 KWH. The pricing per KWH will increase after May, 2007.

Energy Management Dep.

FASER

Energy Savings Comparison

The Energy Information Expert

Grouped by Energy ID

GALENA PARK ISD

FASER

Report Summarization

The Energy Information Expert

Energy Savings Comparison

Report Number

CA08B

Report Description

Compares savings by energy types.

Report Tips

Filter Selections

Buildings : ALL

Acct. Periods : 0501 to 0512

Energy Types : ALL

FASER v.4
Energy Management Program
GALENA PARK ISD
Wednesday, March 01, 2006
9:28:45AM

Report Requested by
IAA

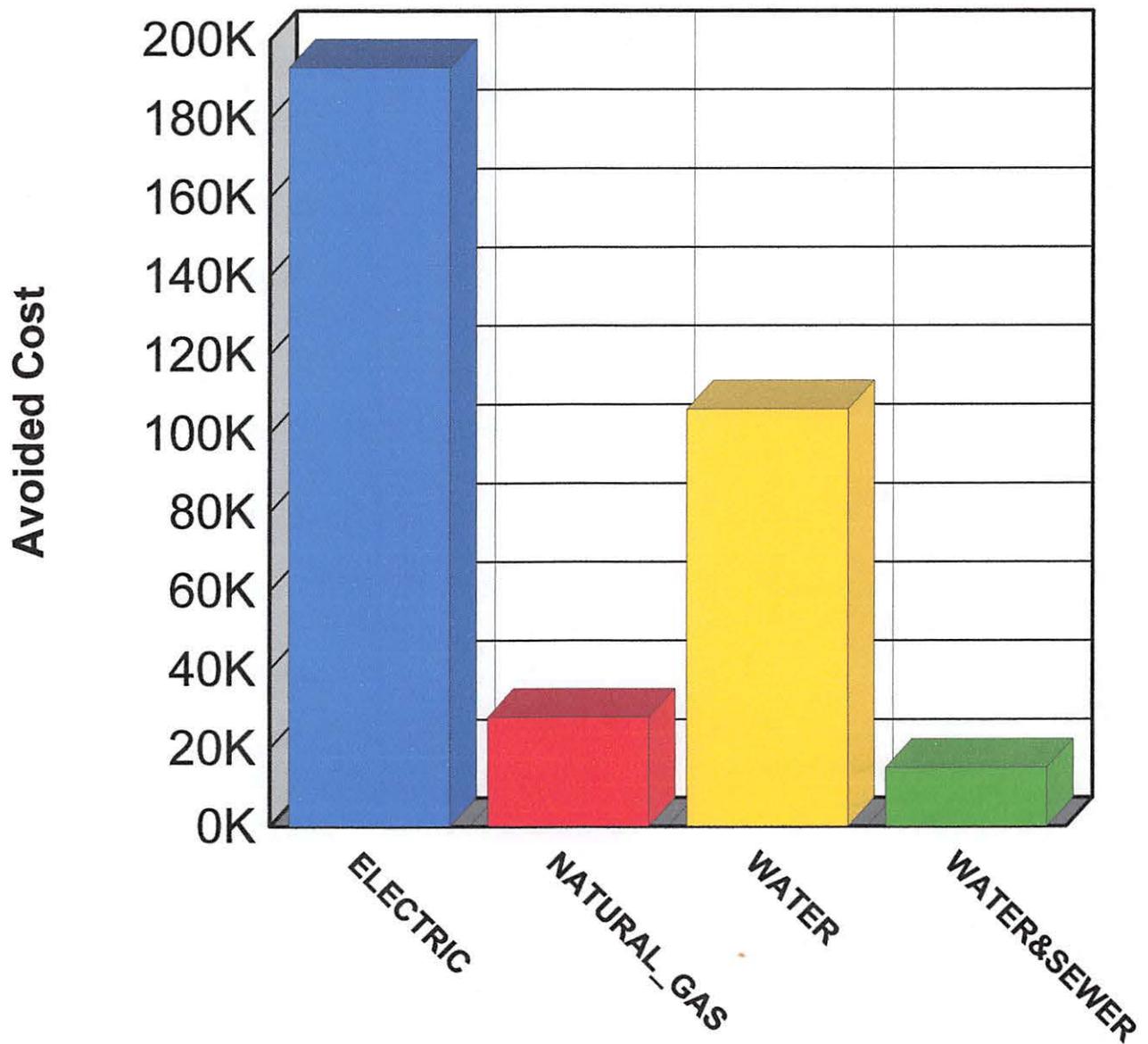
Energy Savings Comparison

The Energy Information Expert

Grouped by Energy ID

GALENA PARK ISD

ELECTRIC	\$3,573,614.19	\$3,380,718.92	\$192,895.27	5.40%
NATURAL_GAS	\$432,589.32	\$404,726.48	\$27,862.84	6.44%
WATER	\$577,296.23	\$471,188.01	\$106,108.22	18.38%
WATER&SEWER	\$26,286.89	\$11,207.48	\$15,079.41	57.36%
Grand Totals:	\$4,609,786.63	\$4,267,840.89	\$341,945.74	7.42%



Recognition and Credit

I wish to recognize and thank the following people and organizations for their input, hard work, and support in compiling this document. Without them this would of have been harder task to accomplish.

**Christopher S. Gause for the cover page,
The Gulf Cost Energy Engineering Association for their input,
The Galena Park Maintenance department staff,
The many different school districts Energy Mangers.**

Special thanks to the printing department at GPHS for the great job in finalizing and binding this document.

I.A.Awdi, CEM,CDSM


**Assistant Director of Maintenance/
Energy Manger, Galena Park ISD**

Phone# 713-450-9055

Fax# 713-450-9054