



HCISD ENERGY MANAGEMENT AND CONSERVATION PLAN

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ENERGY PLAN STATEMENT

As the HCISD Board and Superintendent are committed to the conservation of energy and other resources and to the effective management of their use as a stewardship responsibility to the students, patrons, and taxpayers of the District, the highest efficient use of utilities throughout the system shall be provided for.

I. OBJECTIVE

The District shall make all reasonable physical, procedural, and behavioral efforts to conserve and reduce energy and our natural resources by five (5) percent per year while maintaining the optimum levels of comfort and lighting for an educational environment and keeping the cost of utilities at an absolute minimum. Each energy and water conservation measure shall comply with current local, state, and federal construction and environmental codes and regulations.

II. JOINT RESPONSIBILITY

The fulfillment and success of this plan is the joint responsibility of the Trustees, Superintendent, administrators, teachers, students, and support personnel. Cooperation at all levels shall be expected to ensure its success. Administrators and office personnel shall comply with the Plan's directives for water and electrical conservation. Principals and academic staff shall participate in Plan implementation at each campus and classroom level. Maintenance and custodial support staff shall insure that all building conservation measures are followed and energy and water wasting repairs are reported and performed promptly. The Energy Management office shall work in conjunction with all District departments and personnel to coordinate all efforts to maintain the Plan initiatives and assure sustainability.

III. IN-SERVICE EDUCATION

Appropriate in-service education shall be provided to all staff consistent with their responsibilities for energy conservation and management.

IV. ACCOUNTABILITY

The administrators and directors of each department, and all principals shall be responsible for supervising, and encouraging an organized effort of conservation of natural resources in compliance with this Plan and District policies. District employees shall demonstrate efforts to conserve all utility resources.

V. RECORDS AND REPORTS

The District shall maintain accurate records of energy consumption and cost of energy on a monthly basis utilizing an appropriate software program to allow for easy access and connection to the District's Energy web site. An energy consumption audit shall be conducted annually at each campus and recommendations shall be made for updating the energy management and conservation program. Information shall be provided to the Board annually relative to energy consumption and costs. A quarterly report of all electricity, gas and water utility consumption shall be publicly reported through the District's Energy Conservation web site. Recommendations for building and equipment improvements shall be made to the Board annually during the budget development process.

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VI. ENERGY CONSERVATION MEASURES

The following measures and procedures shall be implemented for the District's energy conservation program and shall be periodically audited by the Energy Manager.

A. HVAC Daily Facilities Operation

1. **Temperatures:** Classroom temperatures during instructional time must be within the following range:
 - Cooling:** 74 to 76 degrees in instructional and office areas
72 to 74 degrees in athletic areas and locker rooms
 - Heating:** 68 to 70 degrees in instructional and office areas
68 to 70 degrees in athletic areas and locker rooms
2. If temperatures outside these guidelines are desired, the principal or administrator must submit a request to the energy office via e-mail, outlining the reason for such a change, and the length of time such a change is desired. Upon approval, the campus/office will submit a work order for execution of request.
3. **Scheduling: HVAC schedules for regular air conditioning operations at the campuses will be as follows:**

School and Office facilities:	6:00 a.m. to 5:00 p.m.
Kitchen and Cafeteria facilities:	5:30 a.m. to 5:00 p.m.

After 5:00 p.m., all building thermostats must be set-back to 82 degrees for cooling and down to 55 degrees for heating. The District's a/c technicians will assure that setback settings have been programmed. Fresh air ventilation shall be scheduled from 8:00 a.m. to end of school or business day at each facility. Summer scheduling is indicated in section VII Summer And Holiday Shut Down below.
4. **After Hour Use:** For approved after-school student activity such (as games, practices and/or campus non-athletic functions), or approved community uses of District property, extra air request work orders must be submitted. Work orders must have specific justification for after hour use of air conditioning or heating. Conservative use of District facilities is expected, and every effort will be made to consolidate after-school programs. Requests to schedule a/c on Saturday and/or Sunday must have a participation of no less than 25% of teachers. Employees are reminded that District resources must be used for District business. **ALL WORK ORDERS MUST BE SUBMITTED ONE WEEK IN ADVANCE AND ALL WORK ORDER REQUEST PROCEDURES MUST BE FOLLOWED TO ASSURE REQUESTED SCHEDULING.**

A/C Zones: Zoned areas such as libraries, conference rooms etc. will be used as much as possible for scheduling after hour meetings and events. Scheduling after hour meetings and events in classrooms requires that entire wings of classrooms be air conditioned or heated. Scheduling events in zoned areas reduces the amount of a/c and energy required.
5. **Portables:** Portable classroom air conditioning units will be operated by programmable thermostats with the same classroom settings indicated above for temperature and scheduling.
6. **Doors & Windows:** Exterior doors and windows MUST be kept closed while the air conditioning is running. Doors will not be allowed to remain open for student traffic or loading and unloading activities. All door sweeps and weather stripping around jambs and headers must be maintained in weather tight condition so as to avoid energy loss. All double door openings must be adjusted to provide for a close fitting seal between doors.

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7. **Building Envelope:** All exterior walls and roofs will be inspected on an on-going basis to repair any cracks in masonry walls or roofs that may be creating thermal deficiencies.

B. Lighting and Electricity Daily Operations

1. All interior lighting levels shall comply with the Illuminating Engineering Society of North America (IESNA) illumination standards. Illumination levels recommended by IESNA represent a consensus of expert opinion on the quantity of luminance required to perform specific tasks with comfort and accuracy.
2. Lights in all areas, except hallways, should not be turned on unless definitely needed. Lights should be turned off when leaving the classroom, office and all other areas, **even for a short period of time.**
3. Gymnasium, multi-purpose rooms and cafeteria lights should not be left on unless they are being utilized, or going to be used within 15 minutes. Use of high intensity discharge (HID) lighting will be considered on a per school basis with the intention of reducing use to a minimum.
4. Over head lighting in elementary school multi-purpose buildings shall be minimized by taking advantage of day-lighting by opening overhead doors as much as possible unless bad weather conditions prevail.
5. All exterior building lights will be turned off during daylight hours. Photovoltaic cells will be used to on all exterior building lights to control on/off operation.
6. Parking lot and overhead area lights will be operated by photovoltaic cells controlled by time clocks or by the building's energy management system, between 6:30 a.m. and 12:00 midnight. Kitchen exterior lighting will be controlled by photovoltaic cell. Parking lot and area lights should not operate between midnight and 6:30 a.m.
7. Walkway canopy lighting shall not be turned on during daylight hours. Canopy lighting scheduling shall comply with paragraph VI.C.5 above. Request for canopy lighting needed for security camera purposes shall be submitted to the Energy Manager for assessment and approval.
8. Hallway and "commons" lighting will be turned off at the end of the instruction day.
9. All unnecessary lighting in unoccupied areas must be turned off. Teachers and office employees are asked to turn on lights only in the areas in which they are working. All lights will be turned off when office staff, teachers, and students leave their school or support building.
10. **Custodians will turn on lights only in the immediate area in which they are working. Safety lighting will be held to the minimum level necessary for safe passage between work areas.**
11. All computers must be turned off at the end of the day. Campus computer labs may use the last student class of the day to turn off computers and conversely, the first student class to turn on computers.

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12. **Personal appliances such as desk lamps, coffee makers, microwave ovens, toasters will be allowed on the basis of an Appliance Usage fee to be determined by annual campus energy costs.**
13. Measures will be taken by the Maintenance department to provide suitable environmental conditions during summer to protect District infrastructures.
14. **All new energy using equipment will meet or exceed the minimum DOE Energy Star efficiency ratings allowed by local government standards.**
15. Lighting wall switches needing replacement will be replaced with an appropriate occupancy sensors that allows for metered time adjustments.

VII. SUMMER AND HOLIDAY SHUT DOWN

- A. Classroom temperatures for cooling will be set back to 82 degrees two days after the teachers' last contracted working day during the summer. During the Christmas break, heating will be set back to 50 degrees.
- B. Libraries, Kitchens, Band and Choir equipment and uniform rooms as well as athletic areas will remain at the standard cooling and heating temperatures year round.
- C. Custodial servicing: cooling for custodial servicing during the summer months will run from 8:00 a.m. to 2:00 pm or as needed for floor drying purposes.
- D. Equipment:
 1. All office equipment, appliances, computers and other electrical devices not required for use for Summer School will be **unplugged from the wall outlet or if on a surge protector, the surge protector will be unplugged.**
 2. All vending machines throughout the campus, except for one located in the Teacher's Lounge, will be unplugged and left unplugged until the first day of teacher's return at the beginning of the school year.
 3. All electrical Kitchen equipment, including ice makers, will be turned off and unplugged during the summer period.

VIII. ENERGY AUDITS AND MONITORING

All HVAC, lighting, gas, water, and building envelope systems will undergo annual preventative maintenance to evaluate and determine operational deficiencies which reduce energy efficiency and to perform corrective repairs. Equipment and systems that have become inefficient due to age or wear will be recommended for replacement as part of the annual budget process.

IX. UTILITY REDUCTION RETROFIT MEASURES

The District will audit each facility within a three year cycle or during bond issue programs to evaluate possible implementation of utility conservation retrofit measures. Implementation and installation will be considered on the basis of cost effectiveness.

1. Insulation of a building structure and systems within the building;

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2. Storm windows or doors, caulking or weather-stripping, multi-glazed windows or doors, heat absorbing or heat reflective glazed and coated window or door systems, or other window or door system modifications that reduce energy consumption;
3. Automatic energy control systems, including computer software and technical data licenses;
4. Heating, ventilating, or air-conditioning system modifications or replacements that reduce energy or water consumption;
5. Lighting fixtures that increase energy efficiency;
6. Replace lighting wall switches with occupancy sensors.
7. Energy recovery systems;
8. Use of alternate renewable energy sources such as solar panels to provide power to remote electricity needs such as parking lot lighting.

X. ENERGY EFFICIENCY REBATES AND INCENTIVES

The District will utilize all resources available through the State Energy Conservation Office and all other state, federal and electricity suppliers to develop and utilize any free consulting services as may be available to obtain financial rebates and incentives for energy reduction or retrofit measures.

XI. WATER CONSERVATION PROCEDURES

1. All District facilities will comply with the Water Conservation policies currently in place for school and support building facilities.
2. Faucets that require replacement will be replaced with “metered” timed automatic shut-off faucets.
3. Lawn irrigation mechanisms and practices will be monitored to limit waste through leaks, bad spray patterns and over-watering
3. Water-conserving fixtures, appliances, and equipment or the substitution of non water-using fixtures, appliances, and equipment;
4. Water-conserving landscape irrigation equipment;
5. Development and implementation of an appropriate watering schedule to provide maximum water conservation at each campus.
6. Landscaping measures that reduce watering demands and capture and hold applied water and rainfall, including:
 - a. Landscape contouring, including the use of berms, swales, and terraces; and
 - b. The use of soil amendments that increase the water-holding capacity of the soil, including compost;

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7. Rainwater harvesting equipment and equipment to make use of water collected as part of a storm-water system installed for water quality control;
8. Equipment for recycling or reuse of water originating on the premises or from other sources, including treated municipal effluent;
9. Equipment needed to capture water from non-conventional, alternate sources, including air conditioning condensate or gray-water, for non-potable uses;
10. Metering equipment needed to segregate water use in order to identify water conservation opportunities or verify water savings; or
11. Other energy or water conservation-related improvements or equipment, including improvements or equipment relating to renewable energy or non-conventional water sources or water reuse.

XII. RECYCLING PROGRAM

- A. The District shall maintain a program for the separation and collection of all recyclable materials generated by the District's operations, including at a minimum, tin containers, office paper, and corrugated cardboard. "Recyclable materials" includes materials in the District's possession that have been abandoned or disposed of.
- B. The District shall also:
 1. Provide procedures for collecting and storing recyclable materials, and coordinate with the City of Harlingen to provide containers for recyclable materials.
 2. Evaluate the amount of recyclable material recycled and modify the recycling program as necessary to ensure that all recyclable materials are effectively and practicably recycled.
- C. Establish educational and incentive programs to encourage maximum school and office participation.

XIII. INCENTIVE AND RECOGNITION PROGRAM

The District will develop and implement a school recognition and incentive program to promote energy conservation awareness at schools and support buildings and to provide for sharing of the savings resulting from energy cost reductions as may be possible.

IVX. NEW CONSTRUCTION AND MAJOR RENOVATION PROJECTS

A. New Facility Design

1. **LEED Design:** LEED certified design standards will be followed as much as may be allowed within construction budget constraints.
2. **HVAC Equipment:** Equipment shall comply with the latest update of the ASHRAE 90.1, ASHRAE 189 and Texas Energy Code for energy conservation.

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A design intent with load projections will be submitted to the District prior to final approval of design and construction documents.

3. **Electrical Systems:** System designs shall comply with all Illuminating Engineering Society of North America (IESNA) standards and the Texas Energy Code for optimum energy conservation operation. Load projections and design intent shall be submitted to the District for final approval prior to final completion of design and construction documents.
4. **Day lighting:** Day lighting sensors shall be provided as part of the lighting design to allow for reduction of indoor lighting as much as possible.
5. **Alternative Renewable Energy:** Alternative renewable energy such as solar panels and wind turbines will be considered for sustainable energy supply where feasible.
6. **Energy Management System:** All new EMS systems will provide direct digital control of HVAC and lighting systems and have a transparent interface with the District's existing EMS systems.

VX. BUS FUEL CONSERVATION

All transportation and bus operations will comply with the Campus Field Trips / Reward Trips Guidelines as adopted by the Board. Fuel consumption conservation measures will be implemented according to the Transportation Department's fuel conservation procedures and policies.

ENERGY MANAGEMENT PLAN UPDATES

This plan will be reviewed on an annual basis or as may be necessary for updated revisions that will lead to higher efficiency in the use of facilities and building operations, towards achieving optimum energy and water conservation.