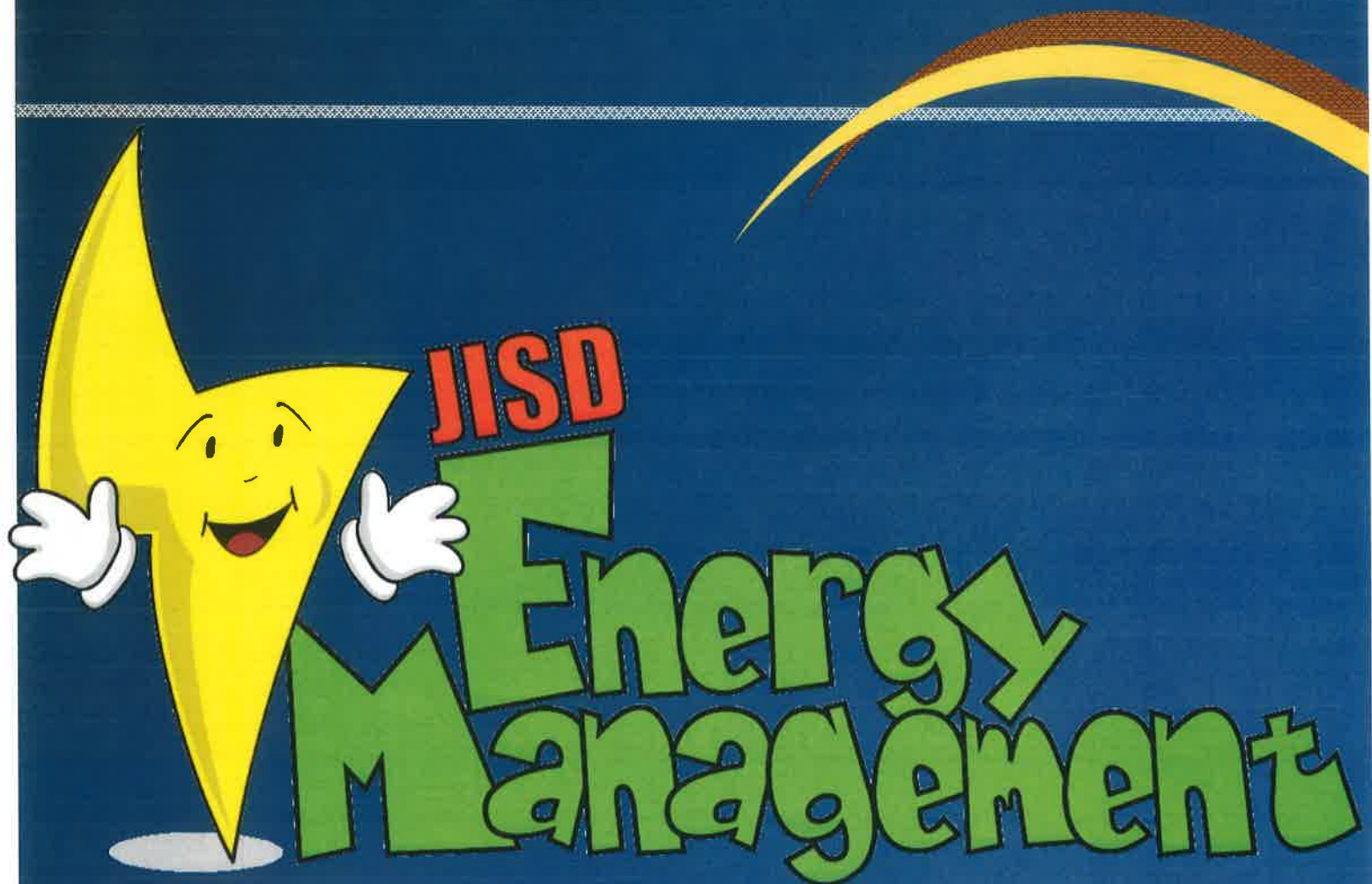


# Energy Management Guidelines



## 2018-2019 RESOURCE FOR CAMPUS ADMINISTRATORS

This resource manual was developed for campus and facility administrators of the Judson Independent School District. It is intended that the contents be used in the implementation, monitoring and verification of policies and procedures specific to the responsible, efficient operation of campus and facility energy resources.

JISD Energy Management Department 662.2408



**David Oehler**

Energy Manager

## Energy Management Guidelines Introduction

In accordance with Texas Education Code Section 44.902, the Judson Independent School District Board of Trustees has adopted a long-range energy plan which includes strategies for achieving energy efficiency. This Campus Guideline will serve as a reference to a number of recommendations and best practices for the responsible, efficient operation of your campus. After payroll, utilities are the largest expenditure for the district. Prudent use of our natural resources will aid tremendously in maintaining the highest level of fiscal responsibility. In turn, more of every taxpayer dollar is used for creating the appropriate environment for exceptional student achievement.

Our district leadership recognizes effective energy management is never a static proposition, rather a constantly moving target. Requiring a dedicated commitment to implementing new policies and procedures will assist in setting the district on a clear path towards significant energy reduction and enhanced Indoor Environmental Quality (IEQ).

This Energy Management Guideline will serve campus administrators as the primary tool for the implementation, ongoing monitoring, reporting and recognition of Energy Conservation Measures (ECM) adopted by the district to positively impact the use of natural resources both in the district and the local community.

Thank you for your cooperation,

**David Oehler, ATEM**  
District Energy Manager  
Judson Independent School District  
210.662-2408  
[doehler@judsonisd.org](mailto:doehler@judsonisd.org)



**David Oehler**  
Energy Manager

## District Contact Numbers

For issues concerning energy management, resource conservation or district guidelines and procedures, please contact:

David Oehler, District Energy Manager  
(210) 662-2408 office  
doehler@judsonisd.org

For issues concerning facility usage or FS Direct, please contact:

Anna Whitby, Secretary to the Assistant Superintendent of Operations

(210) 945-5207 office  
awhitby004@judsonisd.org

For issues concerning heating and cooling or other maintenance related items, please contact:

Lisa Cooper, District Maintenance Secretary  
(210) 945-1200 office  
lcooper@judsonisd.org

David Oehler, **ATEM**  
District Energy Manager  
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## Judson ISD Guidelines for Facility Usage

As part of the district's comprehensive Energy Management Plan, specific guidelines for the use of campus space during non-educational times should be practiced. These guidelines involve the use of Cloud-based facility usage solution called FS Direct, (<http://www.school dude.com/Solutions/Products/FSDirect.aspx>)

***Any scheduling of campus space for auxiliary use requires that two important criteria be met:***

1. That care is taken when selecting areas to be utilized based on the close proximity to one another within the campus. This will ensure that consideration is given to the use of HVAC and lighting for the event. *(An example would be to consolidate the event to a particular area or wing of the campus to reduce the need for unnecessary energy resources).*
2. That the event is successfully entered by ***trained campus personnel*** and it has been approved by campus Administration and District Operations.

The following of this procedure will ensure a successful event in your campus or facility, as well as the ability for the district to maintain accurate records of facility usage. For more information or questions concerning FS Direct, please contact District Operations at (210) 945-5207.

Thank you for your cooperation,

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Energy Manager

## **Hot and Cold Reporting Procedure**

District set points for classrooms and offices are 69° (heating) and 75° (cooling) with a 2° up or down differential during the instructional day. If a teacher feels their room is outside of these set points, the following steps should be taken:

1. Administrative staff will go to the room to conduct a spot check of room conditions and take a temperature reading within 12" of the wall mounted sensor. If no sensor is located in the room, take a reading at desk level in the center of the room.
2. Ensure nothing is blocking or covering the wall mounted sensor (if applicable) and nothing is interfering with its operation i.e., lamps, fans, computer monitors, etc.
3. Make sure that there has been a temperature problem for at least 15 minutes, as it takes the system that long to adjust to room conditions.
4. Administrative staff will contact the dispatch office at (210) 945-1200 and provide them with the campus, room number and temperature of the room.
5. The dispatch office will check the room and surrounding area remotely and pass the information on to Energy Management or the appropriate Maintenance Controls Technician.

Following the above steps will provide the fastest fix to any HVAC (Heating, Ventilation, and Air Conditioning) problem. Please make sure your campus is complying with these steps. Email, calling other departments and/or cell phones will lead to a time delay in notifying the correct person of the problem; thus causing delays and longer periods of uncomfortable conditions. Thank you for your cooperation,

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## Judson ISD Guidelines for Set Points

One of the most cost effective Energy Conservation Measures that can be implemented is the establishment of consistent set-points for heating and cooling for each district campus and facility.

Currently, set-points vary by school and by space. It is not uncommon to have an ambient room temperature differential of 3°-4° on the same floor or in the same wing. In the past, the district made temperature corrections typically based on what a given staff member thought the room temperature was at any given moment. Occasionally, the perception was correct, but more often than not, their internal thermostat was off.

We are now moving towards establishing a consistent guideline for set-points. They will be the following:

- Cooling set-points will be 75°, (previously anywhere from 71° to 74°)
- Heating set-points will be 69°, (this set-point will remain basically unchanged)

Obviously, room temperatures will vary according to space, type of equipment, control system, supply air CFM, static pressure, humidity, radiant heat infiltration and occupants. Because of this, Andy Jimenez has been given authority to adjust temperatures no more than +/- 2° based on the afore mentioned criteria. Also, whenever possible, an actual temperature reading will be taken from the space and compared with the reading from the remote sensor.



**David Oehler**  
Energy Manager

### ENERGY SAVINGS

Considering a number of important factors, such as relative humidity, fresh air intake and the number of CDD or Cooling Degree Days, we can expect to save anywhere from 1-2% for every degree we adjust the set-point. For example:

- Typical set-point of 72° uses approximately 31,100 Btu/hr or 9.11 KWh per classroom X an average CPS rate of \$.08 = \$.73 per day X 2257 CDD = **\$1,647.61 per school year**. This is for cooling only and represents a 10% increase in classroom temperatures for summer occupancy levels.
- Conversely, changing the set-point to 75° uses approximately 28,520 BTU/hr or 8.35 KWh per classroom X \$.08 = \$.67 X 2257 = **\$1,512.19 per school year**. This represents a 9% decrease in energy bills.
- During the SFY 2012, the district spent \$3.5M on electricity. Of that, space heating and cooling accounts for approximately 54% or \$1.9M. Of that, cooling represents 75% or \$1.425M. Lowering that number by 5% means we would save approximately **\$72,000.00 per school year**.

Thank you for your cooperation,

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## Judson ISD Guidelines for Appliance Usage

**Purpose:** To establish district-wide guidelines regarding the usage of appliances in both educational spaces and administration offices. The goal is to reduce annual electricity consumption.

**Intent:** To reduce the number and type of non-district approved appliances.

**Definitions:** *Small appliance* – any appliance designed for cooking or kitchen use, to include but not limited to: microwave and toaster ovens, coffee makers, hot plates, refrigerators, etc.

The use of personal and non-district approved appliances has a significant impact on electricity consumption. It is estimated these appliances account for approximately **438,797.60 KWh** or **\$35,103.80** per instructional year

The following criteria will be followed for the use of appliances:

### Approved

1. Appliances approved for instructional use
2. Appliances approved for common area use e.g., (Teacher Workroom, break room and designated dining areas)

### Not Approved

1. Any appliance deemed unsafe or in a state of disrepair
2. Toasters, toaster ovens, hot plates, roasters, crock-pots, rotisseries, etc.
3. Appliances in classrooms or offices for personal use





The following is the formula used to determine the cost impact for electric appliances:

**For appliances:**

- Volts X amps = watts. Daily hours in use = watt hours
- Watt hours ÷ 1,000 = KWh
- KWh X electricity rate (\$.085) = daily cost
- Daily cost X instructional year = annual cost

**Example:**

- 1,200 watt microwave oven in use 20 times a day for 3 minutes each time = 60 minutes or 1 watt hour
- 1 watt hour X 1,200 watts = 1,200 watt hours
- 1,200 watt hours ÷ 1,000 = 1.20 KWh
- 1.20 KWh X \$.085 (average electricity rate) = \$.10 per day
- \$.10 X 200 days = \$20.00 per microwave annual cost
- Average number of microwaves in use per campus = 13.9
- 13.9 X \$20.00 = \$278.00 per campus X 26 campuses = **\$7,228.00 per year**

**For other devices:**

- Using the above formula, first determine wattage. Amps X volts = watts
- Follow example

**Example:**

- Single burner hot plate used 13 amps X 115 volts (household current) = 1,495w
- 1,495w X 3 minutes in use = 299 watt hours
- 299 watt hours ÷ 1,000 = .29 KWh
- .29 KWh X \$.085 = \$.02 per 3 minute use

**Example:**

- Dormitory style refrigerator uses 1.2 amps per hour X 115 volts = 138w
- 138w X 24 hours (constant run time) = 3,312 watt hours
- 3,312 watt hours ÷ 1,000 = 3.31 KWh
- 3.31 KWh X \$.28 a day X 200 days = \$56.00 per year
- Average number of refrigerators in use per campus is 11.5
- 11.5 X \$56.00 = \$644.00 per campus per year
- \$644.00 X 26 campuses = **\$16,744.00 per year**



**David Oehler**  
Energy Manager

**Frequently Asked Questions:**

• **Question** – I’ve just purchased a new microwave for my house; can I bring my old one to work?

**Answer** – No, only district approved appliances are allowed. See school administration for more information.

• **Question** – Why can’t I use a toaster?

**Answer** – Any appliance with open or exposed cooking elements are a safety hazard.

• **Question** – What is meant by “approved” appliance?

**Answer** – Some appliances may be authorized for use. If authorized, the following criteria must be met:

1. Energy Star® compliant refrigerators
2. Energy Star® Microwaves 1,000 watts or less
3. Coffee makers with an “Auto Power Down” function; preference to single-serve machines with no warming plate and carafe.

• **Question** – How do I receive authorization?

**Answer** – All requests need to be submitted to campus administration for approval. District Energy Management Guidelines will be followed.

Thank you for your cooperation,

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## Judson ISD Guidelines for Classroom Lamp Usage

**Purpose:** To establish district-wide guidelines regarding the usage of personal lamps and lights in both educational spaces and administration offices. The goal is to reduce annual electricity consumption.

**Intent:** To reduce the number and type of personal lamps and light being used, while maintaining a fair and equitable approach to individual teaching styles and outcomes. The use of personal lights and lamps in classrooms has a significant impact on electricity consumption across the district. In classrooms alone, the cost to the district is estimated to be over \$7,600.00 per instructional year. By limiting the number and type of lamps and bulbs being used, this cost can be reduced by 70%.

The following criteria will be followed for the use of lamps and lights:

### Approved

- 1.No more than three (3) lamp fixtures per space (a lamp fixture = a single socket)
- 2.Compact Fluorescent Lights (CFL) or any fixture using Light Emitting Diode (LED)technology
- 3.Total wattage must not exceed 100w aggregate per space. Example, 3 each 32w CFL bulbs totaling 96 watts.
- 4.Any fixture using Light Emitting Diode (LED) technology

### Not Approved

- 1.Multi-lamp lights with more than three (3) fixtures (sockets)
- 2.Incandescent bulbs
- 3.String or "Christmas" lights. With prior Principal approval, this guideline could be waivedfor Christmas or Holiday tree decoration – ONLY LED lights are approved for thispurpose
- 4.Strobe or lava lamps
- 5.Any surge protection device not authorized by JISD Technology
- 6.Any light or lamp not in good working order

Energy and resource management is the responsibility of everyone in the district. This policy is not meant to punish individuals or to stifle creative teaching styles, but rather to exemplify good stewardship of energy resources and to lessen the financial burden on the district.



**David Oehler**  
Energy Manager

The following is the formula used to determine the cost impact for lights and electric devices:

**For bulbs:**

- Wattage X daily hours in use = watt hours
- Watt hours ÷ 1,000 = KWh
- KWh X electricity rate (\$.10) = daily cost
- Daily cost X instructional year = annual cost

**Example:**

- 60w (incandescent) bulb X 9 hours = 540 watt hours
- 540 watt hours ÷ 1,000 = .54 KWh
- .54 KWh X \$.10 = \$.05 daily cost
- \$.05 X 200 days = \$10.00 per bulb annual cost

**For other devices:**

- Using the above formula, first determine wattage. Amps X volts = watts
- Follow example

**Example:**

- Single burner hot plate used 13 amps X 115 volts (household current) = 1,495w
- 1,495w X 3 minutes in use = 299 watt hours
- 299 watt hours ÷ 1,000 = .29 KWh
- .29 KWh X \$.10 = \$.02 per 3 minute use



**David Oehler**  
Energy Manager

**Frequently Asked Questions:**

•**Question** - Can I use lamps lighting instead of the overhead lights?

**Answer** - Your classroom was designed to provide optimum lighting for student tasking, that being 40-50 foot-candles of illumination at the working surface as per Illuminating Engineering Society of North America (IESNA) and Collaborative for High Performance Schools(CHPS) guidelines. It would take more than the three approved lamp fixtures to create the same lighting provided by the overhead system.

•**Question** – I currently don't use lamps in my classroom. Does this mean I should go and buy some?

**Answer** - The overhead lights in your classroom are designed to provide the proper amount of horizontal and vertical illumination for students to work and learn. The goal of Energy Management is to lessen the plug loads in district facilities.

•**Question** - Can I use aftermarket light diffusers to soften the light in my room?

**Answer** – Any modification to existing lights must have prior authorization.

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**Question** – How do I get authorization?

**Answer** – All requests need to be submitted to campus administration for approval.

Thank you for your cooperation,

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## **Energy Management Guidelines for Normal HVAC Schedules**

Effective 7/1/2016

New

Normal Summer Hours

Elementary Schools 6 am -6pm

Middle Schools 6am- 6pm

High Schools 7am-7pm

Normal Winter Schedules

Elementary Schools 6 am – 6pm

Middle Schools 6 am – 7pm

High Schools 7 am -7pm

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