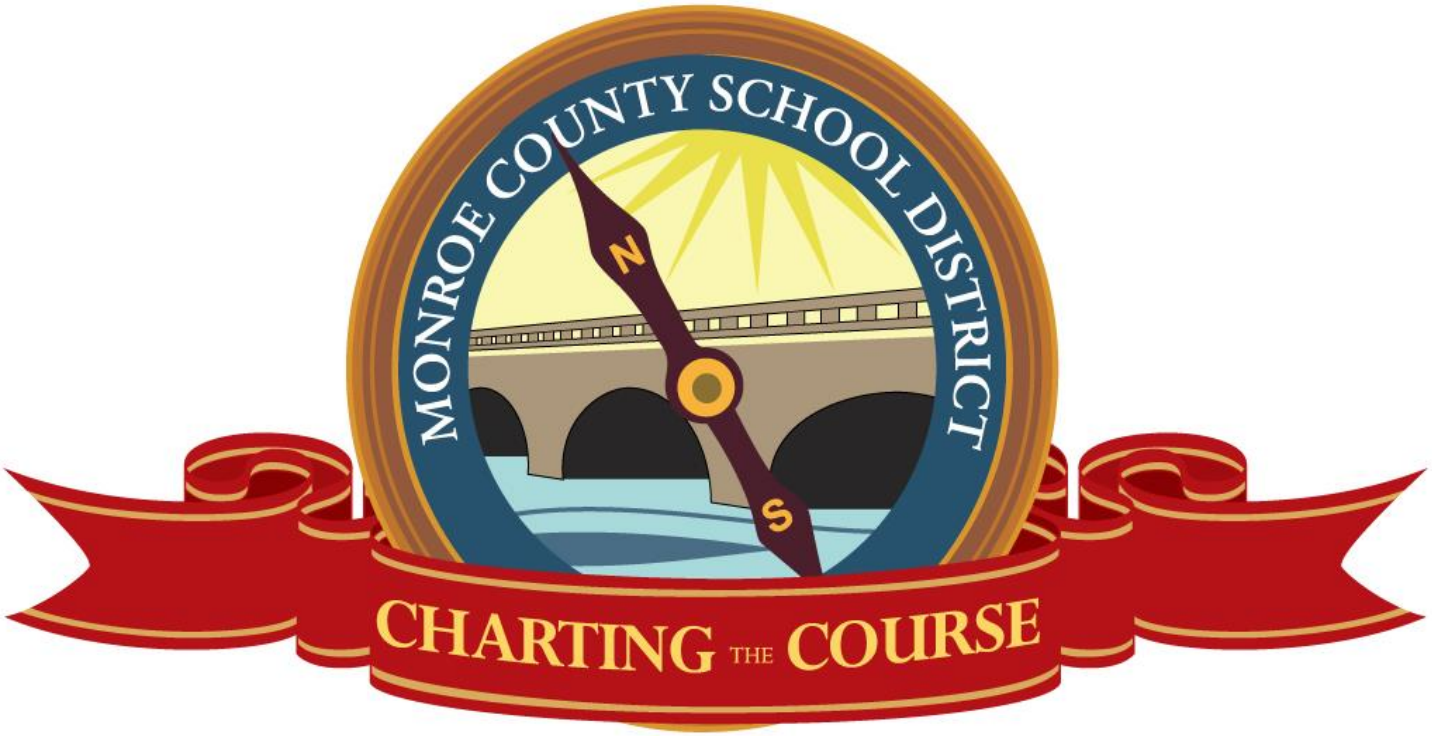

To Excellence in the Monroe County Schools

Monroe County School District

Energy Management Plan

2023

Monroe County School District
Energy Management Action Plan

I. Executive Summary

Monroe County School District is committed to improving district-wide energy performance. The following Energy Management Action Plan details key strategies to reduce energy consumption and save money. This plan outlines district procedures and guiding principles that relate to the energy performance of the Monroe County School buildings, including education and awareness, temperature, lighting, plug-load, new construction, water conservation, renewable energy, and green purchasing.

The current version of the plan was developed in collaboration with the District Energy Committee. This plan will be reviewed on an bi-annual basis by the District Energy Committee with the next review scheduled for June 2024.

Monroe County School District is working in partnership with ENERGY STAR, the Florida Energy Efficiency Program for Schools (FEEPS), National Energy Education Development Project (NEED), Keys Energy Services (KES), Florida Keys Electric Cooperative (FKEC) and the School Energy Management Program (SEMP) to broaden our energy initiatives and maximize our opportunities for improving our energy performance.

Monroe County School District has 10 main school buildings and 10 related facilities that combined total 1,529,100 square feet. The combined energy usage for the district in 2022 was 16,729,349 kBtu. It is the goal of the District Energy Committee to maintain or reduce energy consumption per square foot. The 2022 average consumption/sqft was 10.94kwh.

II. Energy Policy

On November 3, 2020, the Monroe County Energy Management Committee started to prepare Plan for an Energy Management Policy, further demonstrating our district's commitment to improving energy performance and reducing operating costs. Plan will be planned for release to the Monroe County School Board in the Winter of 2023.

III. District Energy Committee

Monroe County established a district-level Energy Committee to develop an energy management plan and create and implement an strategies and action items. This team includes members from the Facilities Department and other departments and schools if volunteers can be found. The district level team is comprised of the following individuals:

Table 3: Fiscal Year 2021 Energy Committee Members

Jeff Barrow	Director of Maintenance
Justin Yablon	Lead Low Voltage Controls Technician
Michael Skrodinsky	Maintenance Supervisor
TBA	Volunteer School Administrator or IT rep lower keys
TBA	Volunteer School Administrator or IT rep middle and upper keys
Richard Steepy	Electrician
Rolando Rivera	HVAC Lead Foreman

The District Energy Committee meet virtually on an annual basis in March to review current year's progress and to consider options for future initiatives. Minutes for each meeting will be maintained and distributed to each member.

IV. Performance Goal and Supporting Objectives

The following energy-related goal and objectives were defined by the District Energy Committee:

Performance Goal:

- Maintain or Reduce district wide energy consumption.

Objectives:

- Track, monitor and report district progress, and identify trends and opportunities for savings;
- Create a sense of responsibility among students, teachers, staff, administrators, parents and community members;
- Operate at optimal efficiency and avoid unnecessary costs associated with reactive maintenance practices and procedures;
- Reduce future energy costs in new facility construction and renovation whenever feasible;
- Conserve water resources where possible;
- Reduce our district's overall environmental impact and provide a healthier and safer educational environment.

V. Energy Consumption and Cost

Tracking utility consumption and cost is critical to our district's energy management program. By tracking utility consumption we can establish an energy performance baseline, monitor and track progress in real-time, identify trends and opportunities for improvement, target facilities for follow up and monitor excessive variations. All of which, will assist our district in meeting our goals.

Objective: To track, monitor and report district progress, and identify trends and opportunities for savings, the district Energy Committee will establish a program for collecting and analyzing monthly energy consumption.

The following section details strategies/actions for achieving this objective:

a. Develop System for Tracking Monthly Utility Bills

Monroe County Schools will utilize Energy Star to monitor energy usage. It can be used for providing report progress and trends to the Director of Maintenance and committee as needed.

b. Determine Baseline

A baseline year is the starting point for evaluating the school district's energy management efforts. The evaluation is a comparison of energy consumption in future years to the consumption in the baseline year. The Energy Committee defined Monroe County's baseline year as Fiscal Year 2019 (July 2019 – June 2020). Billed consumption and cost data were recorded in the Energy Star Utility Tracking Software.

Reports will be generated to track, monitor, and report to district administrators, the consumption and cost of utilities for each school and administrative building compared year over year.

c. Obtain and Analyze Consumption

The district Lead Controls Technician will analyze the consumption of the highest energy-consuming schools in our district and look for conservation opportunities. The highest energy-consuming schools will be identified using the utility tracking software.

d. Benchmark Facilities using Energy Star's Portfolio Manager

Many tools are available to help benchmark individual schools and facilities within school districts, including Energy Star Portfolio Manager (PM). Benchmarking will allow our district to identify and prioritize energy efficiency measures based upon energy consumption patterns in each of our schools.

e. Engage Industry Resources and Partners in the District Plan

Engage FKEC and KEYS Energy, industry resources, and District engineering consultants as appropriate. These should be considered for providing overall plan ideas as well as specific strategies for consideration.

VI. Education, Awareness, and Behaviors

Education and awareness are an important part of the long-term success of Monroe County's energy program. The district Energy Committee recognizes that energy is a controllable operating expense.

Objective: To work with School Administrators and Volunteers help create a sense of responsibility among students, teachers, staff, administrators, parents and community members, the school energy teams will establish an Energy Awareness Program.

The following section details strategies/actions for achieving this objective:

a. Develop contacts via school administration to reach out to the schools for participation.

VII. Facility Procedures/Operations and Maintenance (O&M)

Effective O&M is an effective method for ensuring reliability, safety, and energy efficiency of the district's mechanical systems. The U.S. Department of Energy defines operations and maintenance as "all scheduled and unscheduled actions for preventing equipment failure or decline with the goal of increasing efficiency, reliability, and safety."

Objective: To operate at optimal efficiency and avoid unnecessary costs associated with reactive maintenance practices, the Monroe County District Energy Committee will establish district facility procedures and O&M strategies related to building temperature, off-schedule events, cooling, preventative maintenance, lighting, building envelope, plug-load, food services, water heating, common areas, vacation shut-downs, and transportation.

The following section details these procedures:

a. Establish building temperature set points

Instituting clear guidelines for cooling set points during both warmer and cooler months allows faculty, staff, students and other building users, including parents, to dress appropriately. Education and awareness are an important part of the long-term success of Monroe County's energy program.

Set points selected to maintain a maximum of 76 degrees actual space temperature during occupied times. During unoccupied periods space temperatures will be maintained between 82 and 95 while controlling space humidity below 60%.

To better realize the benefits of temperature setbacks, the district will utilize programmable thermostats or the building automation system, and modify thermostat settings at all of their facilities:

b. Determine procedures for off-schedule events

Classes, meetings, and other school activities should be scheduled to minimize energy use. Evening activities should be concentrated in the fewest areas possible, and where appropriate, the areas used should be those that already have late night temperature setback.

To ensure comfort and accountability during after school, or off-schedule, events, the following procedures have been instituted by the District Energy Committee:

Off-schedule requests will be submitted in writing at least 2 days in advance to the School Facility Coordinator for approval and then filed with the Lead Controls

Technician to ensure facility needs are met. Information requested includes, building name, room number, date of event, and time/duration of event. Participants in off-schedule events are asked to follow energy conservation procedures upon event completion

c. Maintain a district-wide preventative maintenance program

The Maintenance Department will maintain a preventative maintenance program for mechanical equipment and associated controls to maintain equipment efficiency, and therefore control energy consumption and cost.

d. Establish guidelines for indoor and outdoor lighting

Interior lighting will be LED, whenever possible. New energy saving fixtures, lamps and ballasts will be used to replace existing less efficient lighting whenever economically feasible and appropriate.

Exterior lighting will be turned off except when necessary for security or extracurricular activities. To facilitate this process, programmable timers will be installed for any outside lights not already on a Building Automation System (BAS) or timer.

Occupancy/motion sensors will be installed, where it makes economic sense, to reduce and/or turn off lights in unoccupied, vacated areas. Manually turning off lights however, is an effective energy conservation measure, with no additional cost.

Gymnasium Lighting will be upgraded to LED fixtures (high bays or compact fluorescent fixtures).

Exit Signs will be lit with LED lights.

f. Develop and implement procedures for building envelope

Windows and doors will be kept closed in conditioned spaces. Ventilation systems will run as designed to maintain building pressurization.

g. Establish procedures for plug-load management

1. Computers/Monitors/Printers/Copiers/Fax-machines

- Work with IT team contacts to develop and implement school guidance for turning off computers and screens. Automate this operation if and when possible.
- Computers should be turned off when school will be out for extended periods such as Fall Break, Christmas Break, Spring Break and Summer Break.

2. Space Heaters – Not permitted

Maintenance should also be contacted if a space heater is to be used to offset excessive air conditioning. Excessive cooling of a space below the summertime temperature guidelines should be reported to Maintenance so that air-conditioning levels can be adjusted.

i. Develop and implement vacation shutdown program

Long summer breaks, along with shorter fall/winter/spring breaks and long weekends, present opportunities to shut down equipment such as computers, vending machines, refrigerators, water heaters, water fountains, exterior lighting, kitchen equipment and computer labs. Other plug loads, like small appliances and electronics, should also be unplugged when not in use. Many appliances and electronics continue to use energy even when they are "off".

VIII. Facility Planning, New Construction & Renovation

Objective: To reduce future energy costs in new facility construction and renovation whenever feasible.

The following strategies/actions will be adopted to assist Monroe County with meeting this objective:

a. Develop design standards

The District Energy Committee will develop district guidelines for energy efficient design. These guidelines will apply to all new construction and renovation projects within budget constraints.